Corresponding Excel files have been provided for reference if any field is unreadable in PDF

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
273	0	0	0	0	It needs to be clear at the start of the chapter that it will be impossible to identify the full value of the flows of finance from the private sector due to lack of transparency, ccuracy and classification of reporting	Noted. Such issues exist with any area of research with immense scope and scale	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
281	0	0	0	0	A Cross Working Group Box on Finance is a must.	Noted. Thank you for your suggestion	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
289	0	0	0	0	There doesn't appear to be a metion of the role of mortgage providers (apologies if I missed this) in helping enable home owners to take up net zero energy systems.	Noted. Thank you for suggestion but mortgage providers' role in helping enable home owners to take up net zero energy systems was not discussed due to lack of space.	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
46369	0	0			We strongly encourage the authors to carefully communicate the uncertainties and limitations of quantitative estimates provided in this chapter. Since the public debate often tends to focus on simplified messages it might be problematic to provide numbers in a high accuracy (i.e. not rounded or as ranges) and without uncertainty information, in particular in the SPM and in the FAQs. Please revise.	Taken into account. Quantative estimates have been reviewed and ranges are included in certain cases.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
46371	0	0	0	0	Please note that "loss and damage events" is a political notion within UNFCCC. The suggestion is to use language more commonly used in climate science, e.g. economic losses caused by climate change, or "losses and damages" like in WG II.	taken into account. There is no specific location for this comment. Text has been edited to conventions used in WGII generallly and the Cross-Chapter Box on Loss and Damage: "Loss and Damage" for policy relevant mention and "losses and damages" for actual and potential residual effects from (observed) impacts and (projected) risks.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
46373	0	0	0	0	Carbon pricing seems to be comparably underrepresented in this chapter. The fossil fuels section should be prioritized and better underlined from the beginning. In the key areas section, there should be a better framing of the work of different financial stakeholders and the level of mainstreaming climate finance into investment decisions (e.g. not only a case of "green banks", but of having climate credit lines in all banks).	Noted. Carbon pricing is mentioned later in the section, and in greater detail in other sections of the report. Please refer to section 9.9.3 for detailed discussion of carbon pricing.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
46375	0	0	0	0	Overall, we would like to congratulate the authors on the approach taken and encourage the team to further discuss the IPCCs added value to the issues of climate finance. Germany and the EU have been supportive of the SCF's Biennial Assessment (BA) of climate finance flows as the major product on climate finance and finance sector reform. Therefore, we advocate for synergies between the IPCC and the BA without duplicating each others work. It might help to discuss a division of labour: While in some cases - as the BA e.g. is a biannual product the IPCC team might benefit from insights gained, in other cases IPCC might be leading. Accounting of climate positive flows typically is a task undertaken within UNFCCC, so the IPCC should focus less on this task. There will be a number of questions and areas where indeed the IPCC could be helpful. Those include: modelling of financial climate risks (lack of standard models), inclusion of climate factors into debt sustainability, impact discussion of finance (related to "transformative" purpose of finance), comparing methods to assess overall progress toward aligning financial flows.	Noted. Thank for your support. Some of the latter mentioned matters are outside the scope of this report.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
52925	0	0	0	0	There has been no financial analysis (needs, gaps, etc.) regarding CCS technologies throughout the chapter which should be included. Additionally, in Figure 15.8, The transforming energy scenarios investments needs to be broken down, since it reflects a very low investment for CCS & other technologies. This does not reflect the contribution and the role CDR will play according to future scenarios.	Noted. CCS is mentioned in 15.5.2: Gaps identified with regard to sectors and regions: "CCS as well as nuclear will not drive investment needs until 2030, given considerably longer lead-times for these technologies, and the lack of a significant project pipeline currently."	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
85881	0	0	0	0	Note that issues such as the definition of climate finance, the flow of climate finance and assessment of finance flows (15.3.2), needs determination, article 2.1c and the assessment of progress toward the 100bn climate finance goal are issues currently under active discussion in the UNFCCC and its constituted bodies and other fora. Many of the views expressed here reflect the subjective opinions or negotiating positions of some parties rather than a factual reflection of currently agreed decisions or reported statistics on these issues. More broadly, we express concern around the amount of subjective commentary throughout the chapter, including judgements on issues currently under negotiation under the UNFCCC such as loss and damage (which is not an element included in the agreed chapter outline). In relation to the assessment of finance flows, the information referred to in this report appears to be a selective use of reporting provided in the SCF BA and does not provide a balanced picture.	taken into account. There is no specific location for this comment. Text has been edited to conventions used in WGII generallly and the Cross-Chapter Box on Loss and Damage: "Loss and Damage" for policy relevant mention and "losses and damages" for actual and potential residual effects from (observed) impacts and (projected) risks.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
82173	0	1	132	21	All figures in this chapter are not readable. The small font doesn't help either.	Taken into account. Readibility has been improved as much as it possible given the space limitations of the report.	Smile Dube	California State University, Sacramento	United States of America
82175	0	1	132	21	Why is the focus of Chapter 15 so focused on developed economies with strong institutions and highly developed financial instruments, less risky financial products, and many bankable projects to reduce carbon emissions and the promotion of relevant investments.	Noted. Financing for developing countries and methods of addressing barriers to climate financing are discussed at length in the chapter.	Smile Dube	California State University, Sacramento	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82225	0	1	44	29	I find that these pages are provide a very good review of the existing literature as it applies to developed countries. There isvery limited attempt to address adaptation finance, climate finance, and mitigation to developing countries in Asia, Latin America, Sub Saharan Africa and SIDS. Such failure is understandable since the political structure in most oof these countries would a sensitive issue for the IPCC. That said, the literature review or overview makes the analysis very limited in use for these regions. Beyond this issue, the other impediment is simply that most civil servants in some developing countries would find the analysis challenging at best. Thus, for wider coverage and readership would require a much simpler version of the document.	Noted. Financing for developing countries and methods of addressing barriers to climate financing are discussed at length in the chapter.	Smile Dube	California State University, Sacramento	United States of America
9233	0				The UNEP Adaptation Gap Report 2020 has been released, and the data cited in this report is from the 2018 edition. It is recommended to update the relevant data.	Accepted. Information from the UNEP Adaptation Gap Report 2020 is included in the report.	Yongxiang Zhang	National Climate Center	China
23635	0				It would be appreciated if this chapter could go deeper into the blue bonds' potential. These bonds are linked with the ocean-based economy. Its value is estimated between USD 3-6 trillion/year and more than 3 billion people rely on the oceans for their livelihoods. (UNCTAD, https://unctad.org/meeting/oceans-economy-and-ecosystem-services-sustainable-fisheries-and-coastal-tourism-side-event). Furthermore, the ocean is vital to the world's economy, with more than 90% of trade using sea routes and as a source of jobs for millions of people. (OECD, https://www.oecd.org/ocean/topics/developing-countries-and-the-ocean-economy/)	Noted. (blue bonds are mentioned in chapter, but not a focus as they may not be as directly related to mitigation of cliamte change, which is the focus of this WG)	Government of France	Ministère de la Transition écologique et solidaire	France
31061	0				Military contributions to greenhouse gas emissions are missing from Chapter 15. The military industrial complex is a very large financial sector, and seeing this sector incentivized to transition to a new emissions standard is a major bottleneck that can be solved with financial measures.	Noted. This chapter focuses on climate financing for mitigation and adaption activities, rather than specific sectors such as the military.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
31075	0				A cogent treatment of deep well geothermal is missing from Chapter 15. This is significant, since the oil/gas sector could be hired to develop deep well geothermal wells and reservoirs on a very large scale, and that would provide a profit motive to encourage them to leave their current oil/gas assets in the ground, and transition to green energy. Moreover, the idea that the developed nations would fund the transition ought to have some profit built in to the negotiations for them to be successful. Deep well geothermal does not need native hydrological resources, but instead uses a closed loop system for heat transfer, and can be done in every country. The MIT study on the subject shows enough deep well energy resources to power civilization for several millennia. Including a cogent treatment would improve the chapter.	Noted. This chapter focuses on climate financing for mitigation and adaption activities, rather than specific renewable energy sources such as geothermal.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
31093	0				Chapter 15 is weak in presenting a coherent solution or family of solutions to the climate crisis in the nearterm. There ought to be a special section that presents a viable two year transition plan to zero anthropogenic carbon release, with several alternatives. It is unreasonable for the authors to assume that governments will be able to put this together themselves without a roadmap.	Noted. It would be extremely difficult, likely impossible, to create a viable two year transition plan to zero anthropogenic carbon release.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
43763	0				We thank the author team for the hard work that has gone into this chapter. The executive summary presents an adequate sense of urgency in scaling up climate finance, which should also be reflected in the SPM. Parts of this chapter remain weak on developing countries perspectives. While literature may be more readily available for industrialised countries, we would welcome improvements on this aspect in particular, as well as a clear identification of knowledge gaps if no literature can be found.	Taken into account. Thank you for your support. The authors have strived to include relevant literature focusing on developing countries as possible.	Government of Jamaica	Meteorological Service Division	Jamaica
47463	0				It would be greatly appreciated if more specific finance information relevant to SIDS and their unique circumstances (e.g. regarding access to finance) could be elevated more and included in the ES explicitly.	Noted. Thank you for your suggestion but due to limited space it was not possible to include more details of the issue raised in the executive summary.	Government of Saint Lucia	Department of Sustainable Development - Ministry of Education, Innovation, Gender Relations and Sustainable Developement	Saint Lucia
50189	0				The chapter already provides a vast amount of useful information. In addition to information provided at the global level or with a focus on wealthier countries, we propose to highlight challenges specific to LDCs and SIDS. Regional differences are currently not well covered and should be added for several sections, e.g. access to technologies and cost assumptions, risk assessments, disaster response needs, adaptation financing etc.	Taken into account. The authors have strived to include as much information relevant for LCDs and SIDS as possible	Anna Main	Ministry of Foreign Affairs and Trade	Samoa
81885	0				The chapter already provides a vast amount of useful information. In addition to information provided at the global level or with a focus on wealthier countries, we propose to highlight challenges specific to LDCs and SIDS. Regional differences are currently not well covered and should be added for several sections, e.g. access to technologies and cost assumptions, risk assessments, disaster response needs, adaptation financing etc.	Taken into account. The authors have strived to include as much information relevant for LCDs and SIDS as possible	Francella Strickland	Ministry of Foreign Affairs and Trade	Samoa

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
3123	0				In the recent years, "climate finance" does not only mean "money needed for climate purpose and money transferred across countries or regions". The scope of "climate finance" research has extended a lot. So this chapter can be extended, at least from three aspects: (1) From the perspective of financial regulators. They have carried out a lot of policy to "green the financial system" so that to help with the environment and climate (search "NGFS" for more). A representative case is China and its financial regulators. A growing bunch of research focuses on China's so called "green financial policy" which worth a review. (2) Also from the perspective of financial regulators. They are considering the potential risk that can be brought by climate change and related mitigation actions (physical and transition risk). Studies on climate-related financial risk also worth reviewing. (3) From the perspective of private finance. Many researches related to the financial industry are trying to find relationship between financial market variables (e.g. interest spread, return) and climate factors (e.g. climate risk, stranded asset). These studies worth a review.	Taken into account. Greening the financial system and the NGFS are discussed in the chapter, as well as financial regulators growing recognition of the physical and transition risks of climate change.	Dongyang Pan	University College London	United Kingdom (of Great Britain and Northern Ireland)
82973	1	0	1	0	A general comment. There is quite a lot of material which appears to be beyond the scope of this chapter. There is a need to address links between adaptation and mitigation, but some material appears to have no mitigation content at all, Shouldn't it be in WG II. Then there is material on effective policy design that belongs in Chapter 15, and sharing economy/business models that could go in Chapter 5. Plus various detailed sectoral material, especially for energy (Ch 6). These are flagged when they come up.	Taken into account. The content of the chapter has been revised and shortened.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
5579	1	1	132	39	I am surprised that you do not develop the question of financig nuclear programs. Nuclear development requires massive upfront investment and this is a barrier for some states who have publicly expressed their will to reduce their GHG emissions thanks to nuclear energy, but don't have the financial capacity. Example : Poland. Bengla desh is in a similar situation. Turkey, also, and many others (Viet nam). Nuclear is call to have a strong development in spite of strong opposition of the green activists, but there i is no alternative if we want to limit the GHG emssions at the proper level.	Noted. Detailed discussion of nuclear energy is outside the scope of this chapter.	Michel SIMON	Retraité/ Pdt d'association	France
41667	1	1	132	39	A really well written and enjoyable chapter. Somewhat focussed on mitigation (e.g. stranded assets focussed on energy, not agriculture and fiscal policy for fossil fuels, not water or AFOLU in much detail. But great job. Thanks for the good read.	Noted. Thank you for your support.	Watson Charlene	ODI	Switzerland
55107	1	1	92	1	The categorization of some developing countries as "BRICS group" does not help to assess the real situation of climate finance. BRICS is neither a regional group nor a negotiating block of the UNFCCC process. BRICS countries, in fact, share different responsibilities in the climate regime agreements and should not be treaty as a group when assessing the flow of climate finance for developing countries.	Taken into account. The terms BRICS is no longer included in the chapter.	Government of Brazil	Ministry of Foreign Affairs of Brazil	Brazil
79971	1	1	8	47	29-47: The idea that risk is treated as exogenous in finance should be a contested view. In fact, modern finance accepts the endogeneity of risk.	Taken into account. Paragraph has been revised to: Academics and practitioners in finance are aware that financial risk can in certain contexts be endogenous, i.e., the materialization of losses is The financial industry is traditionally confronted with an idea of risk that is exogenous, that is, not affected by the action of financial players themselves. However, the standard treatment of risk both in financial valuation models and in asset pricing assumes that risk is exogenous. In contrast, endogeneity is a key feature of climate risk because today's perception of climate risk affects climate investment, which in turn path affects directly the future risk. itself, leading to the necessity to assess several plausible future scenarios.	Smile Dube	California State University, Sacramento	United States of America
82171	1	1	8	47	45-47: Good point but this signifies the issue of multiple equilibria - when do investors move decision making tfrom a Bad equilibrium (unstable) to a Good equilibrium (stable). One could extend the line of reasoning here to the concept of Big Push drawing from the work by Krugman, Romer (1986, 1990), and Kremmer (1993) and so forth.	Noted. Thank you for the suggestion and literature but due to limited space it was not possible to include a longer discussion of multiple equilabra here.	Smile Dube	California State University, Sacramento	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
85427	1	1	132	1	I think this is one of the most important chapters in the AR6 and it contains almost a thousand valuable references. However, I'm sorry to say most of it is very hard to decypher. Even more so than most scientific prose and other AR6 chapters in my humble opinion. It sometimes seems to me as if the aim was to create grammatically correct sentences that contain all the references, without attention for overall narrative, message per sentence, and clarity in formulation. I would really advice finding some budget for an editor that is an English speaker because I think it would make a world of difference and this chapter is too good - and too much work has gone into it - to waste this opportunity. Specific tips I would have: 1) Realise that you want to inform asset-managers and policy makers that quickly want to find the set of references most relevant to them as they are preparing tomorrows PowerPoint. At the moment they would push away the chapter in desperation and look for other sources. But it doesn't need to be that way because the references and wisdom they need is already in here. Which ties into.. 2) For every paragrap and sub-paragraph, think about what the main message is that you want to convey to the reader and start with a sentence stating that in clear language. Maybe even add a sentence laying out the structure in a one-sentence reading guide for the paragraph. And rewrite the text as needed once you discover what your message is. A good example of where this process is already begun is 15.6 up to 15.6.2. Apart from an introduction and explanations of what's to follow this piece of the chapter also starts many paragraphs in bold with what a paragraph will be about. I think it would be even better if the bold text was more like a newspaper headline: not only stating what the text is about but also the key message. E.g. rephrase page 90 line 3 as "Climate finance could make a difference for gender issues and sectoral climate change." 3) Split up long (most?) sentences. Each sentence should have ONE clear message. 4) Find a few proof readers (e.g. PhD students) that are not experts but are clear thinkers with the guts to give you clear feedback on lack of legibility. Bonus points if he or she is a fluent English writer that can help the editor with text proposals. 5) See this as constructive criticism of someone who wants this chapter to turn from a rough to a polished diamond because it's so valuable.	Taken into account. Thank you very much for your very helpful comment and suggestions. The chapter has been revised and edited, attempted to address the issues raised	Auke Hoekstra	Eindhoven University of Technology	Netherlands
11229	1	6	1	8	The positions of major financial institutions like BlackRock (duly referenced with BlackRock 2020) impact this statement. It may be more appropriate to change the phrase "are still massively underestimated by financial institutions and markets" to "have until recently been massively underestimated by financial institutions and markets". In support of this you may want to add the recent 2021 annual letters by BlackRock's CEO Larry Fink as references demonstrating the shifting tone. https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter	Taken into account. The sentence has been removed in revision of the text.	Ebenezer Arthur	Wangara Green Ventures	Ghana
31169	1		91		The authors of this chapter should go further to report critically assess scientific progress beyond IPCC AR5 e.g. concerning empirical analyses of the effectiveness of climate finance instruments, of the GCF or on the deployment of large scale de-rsiking. There are entire sections of this chapter (e.g. 15.2.4, executive summary p. 3, l. 2-19 & p. 4 l. 5-11, 22-43) which remind of activist positions representing partisan views of individual stakeholders in the UNFCCC process. This seems inappropriate for a scientific assessment process. In my view the chapter should make a greater effort to represent and assess dissenting views questioning popular myths in this field rather than re-iterate the well known, politically correct and desirable.	Noted. The text of the chapter has been revised and shortened.	Jochen Harnisch	KfW	Germany
31213	1		91		The chapter still largely lacks suitable "iconic figures" (for TS, SPM, media) which are easy to understand and which have a clear message. Such figures are crucial to convey selected key findings to the wider climate community which is likely to be overwhelmed by the wealth of IPCC WG III results. So it's well invested time to work on this.	Noted. The authors have created figures to convey information as effectively as possible.	Jochen Harnisch	KfW	Germany
31215	1		91		Please try to add much more empirically based analysis to this chapter e.g. on the effectiveness of instruments or investor bahaviour. In important parts of the chapter the authors still rely too heavily on opinion (e.g. 15.2.4) and model results. Some sections of 15.6 go into the right direction, but should be strenthened and expanded. More than ten years after the COP-15 in Copenhagen when climate finance got started readers will be very keen to understand what has worked and what hasn't.	Noted. The text of the chapter has been revised and shortened.	Jochen Harnisch	KfW	Germany
84755	2	1	90	20	Whole chapter: just want to really commend authors - massive amount of work done since FOD - and during the turbulence of an unprecedented year of Covid.	Noted. Thank you for your support.	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
17803	3	1	5	22	(15 ES) does the Paris commitment by developed countries to provide $100 billion a year to developing countries by 2020 need to be mentioned here too in the Executive Summary? It is in the Introduction on p 7.	Accepted. Sentence has been removed from Executive Summary	Jonathan Lynn	IPCC	Switzerland

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
72563	3	1	5	22	The Executive Summary of this chapter, starting with the specified lines, frame the issue of finance predominantly as an issue of risk, rather than one of opportunity. It would be appropriat eto balance this upfront discussion on the basis of both risk and opportunity, as the remainder of the chapter does appropriately. The first mention of the word "opportunity" is on 15-8 Line 11.	Noted. The Executive Summary starts with a focus on risks as the growing awareness of climate-related financial risks is vital.	Karan Capoor	World Bank	United States of America
81569	3	1	5	22	The Executive Summary reads well with impressive scope of relevant policy areas identified at the end. An example is the inclusion of dimensions like the gender gap in the climate finance debate. There are other gaps which relate to the integration of different cultural, ethnic and racial dimensions into the climate finance debate.	Noted. It is difficult to include mention of all dimensions in Executive Summary due to limited space.	Peter Phelps	University of Leeds	United Kingdom (of Great Britain and Northern Ireland)
84823	3	1	5	23	Suggest the findings and associated sections of this chapter also discuss the Task Force on Climate related Financial Disclosures (and nature based disclosures equivalent) as an incentive for financiers (public and private). Also suggest that mention be made of public finance considerations and issues (eg: the need for vulnerability assessments of investment in new infrastructure (roads, rail etc). and co-investment with the private sector to ensure new or upgraded infrastructure is climate-resiliant (scenario modelling and vulnerability testing likely scenarios). See https://sustainable.unimelb.edu.au/publications/issues-papers/australias-clean-economy and https://sustainable.unimelb.edu.au/news/what-are-the-full-economic-costs-to-australia-from-climate-change	Taken into account. Accepted TCFD suggestion: Support and guidance for enhancing transparency can promote capital markets' climate financing by providing quality information to price climate risks and opportunities. Examples include SDG and environmental, social and governance (ESG) disclosure, scenario analysis and climate risk assessments, including the Task Force on Climate-Related Financial Disclosures (TCFD).	Emily Gerrard	Comhar Group Pty Limited (law firm)	Australia
19083	3	2	3	10	'Massively underestimated…': Review. For what anecdotes are worth, the big players in the City of London are asking deep questions about carbon. They are reviewing their strategies. In the lower income world, development finance has been aligned to the green cause. But we are in a translation. It will be messy and often frustrating. That is a reality of strongly nonlinear systems. Further, should we ask the market to motivate climate action? No. The market positions on a platform laid by society and controlled by the state, and the market is not altruistic. So, society and the state must define the platform of investment appropriately. The position takers (the market) will attempt to peer into the future. And the market has not underestimated the motivation of society and the state. The market is responding to a complicated platform unfolding.	Noted. Thank you for your comment. There is evidence (literature, practices, etc.) that climate risk is massively underestimated.	Fred Amonya	Lyciar	United Kingdom (of Great Britain and Northern Ireland)
31179	3	2	3	3	I don't think that is statement is correct. While there is a lively research and NGO community and comprehensive UNFCCC debate on the role of the financial sector in shaping the low carbon transformation, I personally find the impacts marginal. After the financial crisis the financial sector has superficially embraced this subject to renew its licence to operate. Large scale repackaging of financing of green investments into so-called green products that appeal to groups of retail and institutional investors has taken place. Effective policies on the emitting sectors including emission trading, carbon taxes, renewable energy incentives and fuel efficiency and emission standards continue to drive the action. Let's not fool ourselves!	Noted. The importance of climate change has been increasingly emphasized globally in a wide range of sectors, including financial institutions, despite of the debatable progress.	Jochen Harnisch	KfW	Germany
46377	3	2	3	10	Consider adding element of the impact discussion in the exec summary e.g. a statement from page 76: While investors are increasingly paying attention to climate change, there is not yet evidence that this leads to climate-aligned portfolios (see discussion on voluntary initiatives in Section 15.6.1).	Accepted. Added: Despite the increasing attention of investors to climate change, there is limited evidence that this attention has directly impacted emission reductions.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
55109	3	3	3	4	Although the Paris agreement represents an important milestone in climate finance, it is crucial to recognize that finance obligations were presented on the UNFCCC text as well, otherwise, we will give the readers the wrong impression that the commitments for developed countries started only in 2015, not in 1992.	Noted. Commitments were strengthened by the Paris Agreement.	Government of Brazil	Ministry of Foreign Affairs of Brazil	Brazil
58521	3	3	3	3	Delete "for the first time"	Rejected. This statement emphasized the contribution of Paris Agreement on Climate Finance	Government of United States of America	U.S. Department of State	United States of America
67273	3	4	3	4	to "the" climate targets	Noted. The sentence was removed in revision of executive summary.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
49857	3	5			In addition to risks, add "opportunities"	Noted. This statement paid attention to "risk" aspect of climate change	Jason Patrick	New Zealand Green Investment Finance	New Zealand
50083	3	5	3	5	TCFD uses terminology of physical and transition risks but the mapping between the TCFD terminology and IPCC ones should be clarified. At least, the "physical impact" is too narrow in the IPCC context, I believe.	Noted. It is difficult to devote text to clarifying such terminology in the Executive Summary due to limited space.	Masahiro Sugiyama	University of Tokyo	Japan
58523	3	5	3	5	Replace "disorderly" with "slow"	Noted. The authors believe "disorderly" is more accurate.	Government of United States of America	U.S. Department of State	United States of America
67275	3	5	3	5	both arising from "physical impacts of climate change"	Accepted. Edited as per suggestion	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria

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679	3	6	3	8	* The authors claim that investors' underestimation of climate financial risks is the cause for limited capital reallocation needed for the low-carbon transition. I'm afraid this finding is not supported by empirical evidence and shouldn't be stated in these terms. There is no reason and evidence showing that transparency on its own will be sufficient to encourage capital into low-carbon technologies, as brown and low-carbon investment are diverse asset classes and there is not an "energy investment system" where capital moves easily from one technology towards the other. Even if investors start to incorporate climate risks in their decision-making process and do not find fossil fuel assets attractive anymore as a consequence of the disclosure movement, they have several investment options. Capital could simply exit the fossil fuel sector to other sectors like IT and pharmaceuticals, rather than flowing to low-carbon assets. I'd suggest to rephrase this message over the whole chapter, as there is not evidence supporting it.	Noted. The authors are not claiming underestimation of climate financial risks is the only cause for limited capital reallocation needed for the low-carbon transition. They are merely emphasizing it here as it is an important cause.	Nadia Ameli	University College London	United Kingdom (of Great Britain and Northern Ireland)
31181	3	6	3	8	I don't think the statement on the lack of understanding of climate related risks as key driver of unsustainable capital allocation is true. Rather short- to mid-term orientation of many investors, ample opportunities to roll-over liquid assets as new information becomes available and missing market confidence into a comprehensive and rapid global decarbonsation until 2050 seem to be critical factors.	Noted. The authors are not claiming underestimation of climate financial risks is the only cause for limited capital reallocation needed for the low-carbon transition. They are merely emphasizing it here as it is an important cause.	Jochen Harnisch	KfW	Germany
58525	3	6	3	8	This is an undocumented assertion that financial institutions and markets are massively underestimating financial risks and that that is limiting capital for the low-carbon transition. Financial institutions will provide loans for mitigation investments that can profitably repay their loans. The business model for generating returns for repayment of loans for adaptation investments is uncertain and depends on when and whether future climate impacts occur and their costs. Banks do not bear the climate risks. The public and private sectors and insurance companies bear the risks.	Noted. The authors are not claiming underestimation of climate financial risks is the only cause for limited capital reallocation needed for the low-carbon transition. They are merely emphasizing it here as it is an important cause.	Government of United States of America	U.S. Department of State	United States of America
67277	3	9	3	9	replace "financial flows" with "investments"	Noted. "Financial flows" is used as it a broader term.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
82357	3	9	3	9	sounds strange to include "2020" in the "longer-term" time window. "2030-2050" would sound more logic	Taken into account. Edited to: "This leaves high uncertainty, both near-term (2021-30) and longer-term (2021-50)"	Hugues CHENET	University College London	France
82921	3	9	3	9	These are not aligned with the WG III definition of long v medium term.	Taken into account. Edited to: "This leaves high uncertainty, both near-term (2021-30) and longer-term (2021-50)"	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
9235	3	11	3	11	"Climate finance" should be "Climate finance flow", consistent with the main text and bottom report.	Accepted. Edited as per suggestion	Yongxiang Zhang	National Climate Center	China
17801	3	11	3	12	(15 ES) does "climate finance" need to be defined here and elsewhere? It can cover many things, but the quantification in line 12 suggests something specific is intended.	Accepted. Added the definition of climate finance: Estimates of climate finance flows – which refers to local, national, or transnational financing from public, private, and alternative sources, to support mitigation and adaptation actions addressing climate change – exhibit highly divergent patterns across regions and sectors. This represents a major challenge for developing countries, especially LDCs, for specific sectors like AFOLU, and for specific groups with limited access to-, and high costs of-, climate finance.	Jonathan Lynn	IPCC	Switzerland
19085	3	11	3	12	Society and the state must determine how much money the market pumps into the climate cause. When the two act, the market responds.	Noted. Markets also have some independent agency.	Fred Amonya	Lyciar	United Kingdom (of Great Britain and Northern Ireland)
52917	3	11	3	16	The report has a bit too much emphasis on the need for climate finance in developing and low-income countries as if the matter is even close to a solution in the developed economies. In the executive summary, out of the 11 notes/highlights, four of them specifically mention the climate finance-related vulnerabilities in developing countries. Similarly, even a simple word count gives the word count for "developing" 178 times in the report, while the word "developed" counts only 54 times. However, mainstreaming climate finance still remains a big dilemma in many developed economies that is yet to be achieved despite their high level of financial development. Besides supporting climate funding for the transition in developing countries, the developed economies also have the leadership responsibilities in putting the necessary policy incentives into practice. If this report was written on just financial development in the world, the resulting picture would be most likely the same. Therefore, it is perhaps not the climate finance or its access being the core challenge in developing (especially low income) countries but their level of financial development. Therefore, there should be a clear distinction between countries' capabilities/potentials/responsibilities and their achievements/performances while comparing the development of climate finance, its flows and instruments across different countries.	Taken into account. The report tries to balance between the perspectives from developed and developing countries. However, it is necessary to highlight the challenges and opportunities of climate finance in developing countries with limited capabilities.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58527	3	11	3	12	Define "climate finance". Suggest following UNFCCC's lead: "Climate finance, or financing that supports mitigation and adaptation actions that will address climate change, has increased only modestly …"	Accepted. Added the definition of climate finance: Estimates of climate finance flows – which refers to local, national, or transnational financing from public, private, and alternative sources, to support mitigation and adaptation actions addressing climate change – exhibit highly divergent patterns across regions and sectors. This represents a major challenge for developing countries, especially LDCs, for specific sectors like AFOLU, and for specific groups with limited access to-, and high costs of-, climate finance.	Government of United States of America	U.S. Department of State	United States of America
58529	3	11	3	12	Mitigation finance accounted for 93% of total flows in 2017/2018, or USD 537 billion annually on average. Adaptation finance made up another 5% of flows. Adaptation finance rose significantly from its previous level in 2015/2016, with annual adaptation finance reaching USD 30 billion on average in 2017/2018 (https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2019/). Renewable energy financing alone was USD 322 billion in 2018 (https://www.climatepolicyinitiative.org/wp-content/uploads/2020/11/Global-Landscape-of-Renewable-Energy-Finance-2020.pdf). Initial estimate of 2019 climate finance flows is USD 608 -- 622 billion (https://www.climatepolicyinitiative.org/publication/updated-view-on-the-global-landscape-of-climate-finance-2019/).	Noted. The report decides to use the most up-to-date information from CPI to ensure consistency	Government of United States of America	U.S. Department of State	United States of America
64379	3	11	3	11	Perhaops change 'Climate finance' to 'Climate-related financial flows'. Because: 'Climate finance' is a highly politically loaded term, as it often refers to financial support from developed to developing countries e.g.in relation to the 100bn-a-year goal or the financial obligations under UNFCCC Articles 4.3 and 4.4 and Paris Article 9. In this instance, you are referring to public and private flows, including private investments; hence using a more neutral term might be preferential. (The same comment i might offer on other instances where the text refers to all sorts of financial flows and not specifically on financial assistance from developed to developing countries. Whjatever the solution i recommend consistently using different terms for financial assistance versus all sorts of private and public flows, also across chapters (e.g. 14 and 15).)	Taken into account. Edited to: Climate finance flows	Jan Kowalzig	Oxfam	Germany
70799	3	11	3	23	Regarding the alleged scarcity of funds, this can be contested, as we see funds poring into these vehicles. See for example: https://www.bloomberg.com/news/articles/2020-10-25/record-flows-pour-into-esg-funds-as-their-wokeness-is-debated#:~:text=Inflows%20to%20ESG%20ETFs%20have,to%20data%20compiled%20by%20Bloomberg. The problem is more the availability and if they are presented the long term nature of green investments, paired with marginal economic models.	Noted. As noted in the article provided many of such funds are not 'real' climate finance flows, due to the lack of stict and universal ESG labeling.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
85883	3	11	3	12	Recommend deleting 'has only modestly' - this is a subjective comment. Suggest change to 'climate finance has increased to USD546 billion in 2018, yet remains below investment needs'.	Taken into account. The sentence is removed from Executive Summary.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
9237	3	12	3	12	"USD 546 billion" is inconsistent with the number in the table on page 23, line 13 in the bottom report. The number in the table is 540 billion, and the note under the table is also 546 bn.	Taken into account. Table edited to 546 billion. Reference to this number was removed in editing of the executive summary.	Yongxiang Zhang	National Climate Center	China
9239	3	12	3	12	It is marked as "medium confidence" in parentheses, but the note under the table on line 13 on page 23 is "low confidence".Please check.	Taken into account. Sentence edited in revision of executive summary.	Yongxiang Zhang	National Climate Center	China
70801	3	12	90	28	Please notice that there are different numbers cirulating in the IPCC reports. Chapter 14 states: "In 2017/2018, public and private climate financing was on the order of $ 574 billion, of which $ 274 billion originated from the private sector. ". Next, in the summary there is a number of $546 billion given in 2018, which can be found as a footnote under a table in the report. On p23/line 6 it is stated that this is $681 billion as upper bound. Please consider harmonizing numbers across IPCC reports and to take account of the uncertainty in one area in the report mentioning differences between various estimates	Noted. Will double check. Reference to this number was removed in editing of the executive summary.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
31185	3	13			use "exhibit" instead of "illustrate"	Accepted. Edited as per suggestion	Jochen Harnisch	KfW	Germany
67279	3	13	3	13	replace "divergent" with "heterogeneous"	Noted. The authors think "divergent" is a correct description.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
9241	3	16	3	16	The section stated that "energy efficiency funding continues to be at a low level", but on page 24, lines 22 and 23 stated that "the mitigation funds account for the major share of global climate funds, especially renewable energy and energy efficiency funds", line 42 The statement is "investment focuses on renewable energy, energy efficiency and transportation", which is inconsistent. It is recommended that the amendment be consistent.	Accepted. Removed the sentence from the Executive Summary	Yongxiang Zhang	National Climate Center	China
19985	3	16	3	23	It would be better to clearly indicate the regional/continetal spread of energy efficiency investment. This is particularly important to compare the trend between advanced and emerging/less developed countries/regions.	Noted. Thank you for the comment, but due to limited space, it wasn't possible to add further explanation of energy efficiency in the Executive Summary.	Rafiu Adewale Aregbeshola	University of South Africa	South Africa
70803	3	16	3	17	Rephrase "only partially due to reporting and data collection changes". What does "only partially" mean? Either delete the "only", or find some more precise wording.	Taken into account. The sentence is removed from Executive Summary.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58531	3	17	3	20	Average annual public climate finance totaled USD 253 billion in 2017/2018, representing 44% of total commitments. Tracked climate finance provided by governments and their agencies doubled to USD 37 billion in 2017/2018. Private finance, which reached USD 326 billion on average annually in 2017/2018, continues to account for the majority of climate finance, at around 56%. Of this quantity, 85% flowed to renewable energy, 14% to low-carbon transport, and under 1% to all other subsectors.	Noted. The report decided to use the most up-to-date information from CPI to ensure consistency.	Government of United States of America	U.S. Department of State	United States of America
31183	3	19			"outpace" does not seem to be the right word.	Taken into account. The sentence is removed from Executive Summary.	Jochen Harnisch	KfW	Germany
58533	3	19	3	20	"transport, attracting significant recent volume" is unclear. Significant volume of public finance? Private finance? Both?	Taken into account. The sentence is removed from Executive Summary.	Government of United States of America	U.S. Department of State	United States of America
67281	3	19	3	20	Meaning of the last part of the sentence "with only one other sector, transport, attracting significant recent volume" is unclear. Consider rephrasing its message (in a separate sentence).	Taken into account. The sentence is removed from Executive Summary.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
27969	3	20	3	23	There are a number of reasons that finance is skewed towards the energy sector and it is not only due to lack of standardised and established financially viable business model. Therefore delete or substantially revise 'This concentration in the energy sector flags the challenge of private sector mobilisation for sectors with less or not yet standardised and established financially viable business models under current enabling policy environments. Persistently high levels of fossil-fuel financing are also of major concern".	Taken into account. The following sentence is removed from Executive Summary: This concentration in the energy sector flags the challenge of private sector mobilisation for sectors with less or not yet standardised and established financially viable business models under current enabling policy environments.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
67283	3	22	3	23	Persistently high levels of fossil-fuel financing are also of major concern. Consider rephrasing in: Persistently high levels of "both public and private" fossil-fuel financing financing are also of major concern.	Accepted. "both public and private" added.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
58535	3	23	3	23	Note the role of massive fossil fuel subsidies in supporting fossil fuel investment (see https://www.imf.org/en/Topics/climate-change/energy-subsidies).	Taken into account. Sentence edited to "Persistently high levels of both public and private fossil-fuel related financing continue to be of major concern despite promising recent commitments."	Government of United States of America	U.S. Department of State	United States of America
58537	3	23	3	34	Add a sentence defining mitigation vs. adaptation: "Mitigation focuses on reducing GHG emissions while adaptation focuses on adapting to the effects of climate change."	Noted. Due to limited space in the Executive Summary, it isn't possible to add further clarification .	Government of United States of America	U.S. Department of State	United States of America
82361	3	23	3	23	It sounds strange to address high levels of fossil fuel financing as only a mere "are also a major concern" as they are the roots of the problem. It is in a way more logic to focus on the cause (hi-GHG industries) and to foster the solutions (lo/zero GHG industries) after rather than only quoting in half a line the problem of fossil fuels. ==> we can finance as many renewable sources as possible without stabilizing the climate if we keep on financing/burning fossil fuels, as the demand in energy cannot really be capped. It is easy to draw a world at >>2°C full of solar panels and wind farms. Proposed reference: Chenet, H., Zamarioli, L., Winning, M., 2020. "Finance after the Paris Agreement: The necessary transformation of the financial system". COP21-RIPPLES Horizon2020 Project, Policy Brief. https://www.cop21ripples.eu/wp-content/uploads/2020/01/COP21-RIPPLES-PB6_UCL.pdf	Noted. Sentence edited to "Persistently high levels of both public and private fossil-fuel related financing due to various reasons, such as policy misalignment, risk-return profile of fossil fuel-related investment, and political economy constraints, are also continues to be of major concern."	Hugues CHENET	University College London	France
19087	3	24	3	25	We must guard against green dumping. Lower income regions like Africa must not be reduced to mere grounds for green transactions. These regions must be equipped to shape the new green world unfolding. So, green transactions should have knowledge components that seek to nurture the rigour of science across the children of those lower income regions.	Noted. Thank you for the comment, but due to limited space in the Executive Summary., it wasn't possible to add elaboration of green dumping.	Fred Amonya	Lyciar	United Kingdom (of Great Britain and Northern Ireland)
82923	3	24	3	24	When referring to financing gaps, with respect to what level of ambition? Try to reference a warming level to make it scientific and non-prescriptive.	Noted. Financing gaps are meant in terms of the level of ambition of the Paris Agreement.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
85425	3	24	3	24	If you want to activate more investment it is important to also mention that the literature clearly establishes ESG is now profitable (see my comment for page 29 line 8 to 10). I would add a few words to that effect on line 24. For example: "Although the literature clearly shows that green financing has a positive business case, significant financing gaps exist across all sectors.." This would also enable mentioning a link to paragraph 15.3.3 in the summary.	Noted. Much green financing does have a positive case but that is not universally the case.	Auke Hoekstra	Eindhoven University of Technology	Netherlands
52935	3	26	3	26	Around five times ...How is it calculated? Clarify	Taken into account. The sentence is removed from Executive Summary.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52919	3	27	3	27	Acknowledgement of Adaptation being under funded when compared to mitigation. This is also reflected in P. 7 L.1-5 (Most financial flows went to mitigation and adaptation was under financed). Additionally, in p. 24 L.22, shows the imbalance of financing adaptation where 93% of global climate finance is towards mitigation. This imbalance is not reflected in SPM and should be included.	Taken into account. Executive summary now states: ". Global climate finance is heavily focused on mitigation (more than 90% on average between 2017-2020). This is despite the significant economic effects of climate change’s expected physical impacts, and the increasing awareness of these effects on financial stability. "	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
70805	3	32	3	42	Rephrase this paragraph. The phenomena described are not only due to unsufficient flows of finance aligned to the Paris goals, but also due to continued investments emission-intensive investment - hence lock-in & stranded assets. Ramping up climate finance is a necessary but not sufficient condition to fix this. Literature cited in other parts of the report has demonstrated that climate finance and increased emissions can go hand-in-hand, in the absence of economy-wide climate governance. Consider replacing " additional costs" for "associated costs" to make clear that stranded assets and carbon lock in have their own costs as well.	Taken into account. Changed to "other additional costs" to make clear that stranded assets and carbon lock in have their own costs as well.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
52921	3	35	3	44	Speed of deployment of climate finance should come at a pace that does not put a burden on Developing Countries, as there are difficulties and challenges in moving to a low carbon economy. This must be elaborated on.	Noted. Giving the damage that climate change will cause to developing countries speed is important.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
82925	3	36	3	36	"urgency" potentially problematic	Noted. Authors decided to keep word choice.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
23547	3	37	3	39	Suggestion to rephrase the sentence " public commitments, including those in the context of international climate cooperation and developed countries' commitments under the UNFCCC, remain uncertain.", International climate finance flows have grown from $52bn in 2013 to $79bn in 2018 but there is no evidence yet on whether the $100bn goal has been met (OECD 2020).	Noted. The sentence is removed from Executive Summary.	Government of France	Ministère de la Transition écologique et solidaire	France
58539	3	37	3	37	Since mitigation investment is dominated by private sector renewable energy investment, note that the decline in mitigation investment largely reflects lower RE costs even as the volume of RE capacity expansion increased. Incorrectly implies that public sector commitments under UNFCCC are responsible for the decrease.	Noted. Thank you for the comment, but due to limited space in the Executive Summary., it wasn't possible to add further elaboration of RE and the lowering of RE costs here.	Government of United States of America	U.S. Department of State	United States of America
85887	3	37	3	38	Suggest deleting particular mention of public finance. Of course public finance plays a crucial role but public finance alone will not meet the finance required to transition the global economy. This misplaced spotlight on public finance is misleading.	Noted. Thank you for your comment but the text does not state that public finance alone will meet the financing required to transition the global economy.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
85885	3	38	3	39	This sentence is subjective commentary, suggest delete or re-write: 'Climate finance flows have only grown modestly over the past years, with declining volume in 2017, and public commitments, including those in the context of international climate cooperation and developed countries' commitments under the UNFCCC, remain uncertain.'	Noted. The sentence is removed from Executive Summary.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
58541	3	43	3	44	Incorrect that negative implications of deferred climate investments on future GDP have not yet been developed. See https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2018EF000922	Noted. Thank you the provided literature. The statement is emphasizing the lack of a "A common understanding" of negative implications on GDP etc.	Government of United States of America	U.S. Department of State	United States of America
78021	3	44	3	44	Sugested edit: At the end of the sentence add: "Evidence suggests that voluntary INDC or NDC commitments have been inadequate to rapidly fund the large scale investment necessary, particularly in developing countries, to avoid catastrophic climate change." Rationale: Evidence presented in sections indicated in the report.	Noted. Thank you for the comment, but due to limited space in the Executive Summary., it wasn't possible to add elaboration of NDCs here.	Ron Baiman	Benedictine University	United States of America
15017	3	45	3	47	The sentence in bold sounds like stepping up public climate finance will help solve public debt overhang. This seems contradictory - how can more spending help with debt overhang?	Taken into account. Thank you for your comment. This purpose of this statement is to point out stepped-up (public) climate financing over the next decade (2020–2030) is possible to address the overall deteriorating macroeconomic environment. The sentence is revised: The mutual benefits of coordinated support for climate mitigation and adaptation in the next decade (2022-2032) for both developed and developing regions could potentially be very high in the post-Covid era. Climate compatible stimulus packages could significantly reduce the macro-financial uncertainty generated by the pandemic and increase the sustainability of the world economic recovery.	Galina Hale	UC Santa Cruz	United States of America
18521	3	45	3	47	I feel the important part of this paragraph is around fossil fuel subsidies, so could the authors please consider moving that into the bold lines if possible?	Noted. Thank you for your comment and suggestion but fossil fuel subidies is not primary part of paragraph.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
19089	3	45	3	47	Let us look at risk. Public-private partnership (PPP) is an imperative of our time. But the policy concept (PPP) has been abused. It has been reduced to transactions. It is seen as a procurement tool. The climate cause needs PPP back to the original motivations. It was a policy innovation that allowed the UK to change the interaction of the state, market, and society and so deliver public service under tight fiscal constraints.	Noted. Thank you for the comment, but due to limited space in the Executive Summary., it wasn't possible to add elaboration of PPP here.	Fred Amonya	Lyciar	United Kingdom (of Great Britain and Northern Ireland)
67285	3	45	3	48	Consider revising this sentence (and cutting it in two sentences) because a verb is missing "Ambitious global policy coordination and stepped-up (public) climate financing over the next crucial decade (2020–2030) is possible to address a deteriorating environment post-pandemic with rising macroeconomic uncertainty and public debt overhang (high confidence)."	Taken into account. Revised: Ambitious global climate policy coordination and stepped-up (public) climate financing over the next decade (2021–2030) can help address macroeconomic uncertainty and alleviate developing countries' debt burden post-COVID-19. It can also help redirect capital markets and overcome challenges relating to the need for parallel investments in mitigation.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
85889	3	45	3	45	Suggest delete '(public)' - public finance plays a crucial role but public finance alone will not meet the finance required to transition the global economy. This misplaced spotlight on public finance is misleading.	Noted. Thank you for your comment but the text does not state that public finance alone will meet the financing required to transition the global economy.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
15019	3	46	3	46	Since the year is already 2021, "Next crucial decade (2020-2030)" makes the document look outdated or pasted from previous publication. Replace EVERYWHERE with "This crucial decade (2021-2030)". This is not a minor issue for the credibility of the whole document	Accepted. Edited to: next decade (2022-2032)	Galina Hale	UC Santa Cruz	United States of America
84951	3	46	3	46	would be better to say post-Covid-19 pandemic for clarity	Noted. "Post-Covid era" written to include the broader social/economic consequences of Covid-19.	Singfoong Cheah	Independent consultant, formerly more than 10 years with the National Renewable Energy Laboratory, USA	United States of America
19487	4	1	4	2	It is unclear what "credible public commitments" refers to. The estimates of climate financing differ quite lot, including due to different defintions (which also comes across in the assessment), and there are different views on the balance of public and other sources of climate finansing. Does the "credible" refer to (i) navigating different definitions and estimates, (ii) pledges not have hold sway (taking into account the issue of definitions) or (iii) actors not believing pledges made? Please clarify, as appropriate.	Accepted. Edited according to suggestion: Political leadership and intervention remains central to addressing uncertainty as a fundamental barrier for a redirection of financial flows. Existing policy misalignments – for example in fossil fuel subsidies – undermine the credibility of public commitments, reduce perceived transition risks and limit financial sector action.	Markku Rummukainen	Lund University	Sweden
85891	4	1	4	2	Suggest delete 'and the lack of credible public commitments' - this is subjective commentary	Accepted. Edited according to suggestion: Political leadership and intervention remains central to addressing uncertainty as a fundamental barrier for a redirection of financial flows. Existing policy misalignments – for example in fossil fuel subsidies – undermine the credibility of public commitments, reduce perceived transition risks and limit financial sector action.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
9731	4	2	4	3	Note that policy misalignment on fossil fuel subsidization is the result of differences in regional priorities and national circumstances.	Noted. There are various reasons for policy misalignment on fossil fuel subsidization but due to limited space in the Executive Summary, it wasn't possible to add elaboration.	Mustafa Babiker	Saudi Aramco	Saudi Arabia
81785	4	3	5	8	Public action is needed but should ensure it does not result in socialisation of risks and privatisation of profits. Thus, financial sector has to be held accountable. Moreover, public spending power itself should be strengthened, e.g. Through exploring 'unconventional' monetary-fiscal policy coordination.	Noted. Thank you for the comment, but due to limited space in the Executive Summary, it wasn't possible to add elaboration of the issues raised.	Elena Hofferberth	University of Leeds	Switzerland
78023	4	4	4	4	Suggested edit: At the end of sentence add: "This could be done through revised reauthorizaiton of conditional mandatory global cap and trade and and CDM regimes, based on profitable DAC in developed countries and CDM funding for the same in developing countries. {15.2, 15.4, 15.6}" Rationale: See proposed Baiman edits for 15.4 and 15.6.	Noted. Thank you for the suggestion, but due to limited space in the Executive Summary., it wasn't possible to add the suggested sentence.	Ron Baiman	Benedictine University	United States of America
18523	4	5	4	6	Could the authors please consider an example or two to use here? e.g. '… next decade (2020-2030), such as green financial stimuli, are critically…'	Noted. Thank you for the comment, but due to limited space in the Executive Summary., it wasn't possible to add elaboration with examples. Also, COVId-19 green stimulus is mentioned in the paragraph.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
31189	4	5	4	11	This paragraph needs serious rewritting: "Shift" the financial sector where? It is a serious misconception to see the financial sector as a bareer to the transformation. It is and will remain the critical but neutral infrastructure for a huge range of economic activities. Ethics and direction for investments come in through the wider policy framework for the whole economic sphere.	Noted. Word "shift" removed in revision of executive summary.	Jochen Harnisch	KfW	Germany
72565	4	5	4	5	The urgency of action should be emphasized. While the text currently mentions a timeframe until 2030, this may be missing the boat in terms of getting the financial system aligned toward achieving 1.5. Would suggest instead	Noted. Thank you for your comment. The chapter, including the Executive Summary, already emphasized the urgency of actions.	Karan Capoor	World Bank	United States of America
72611	4	5	4	5	The urgency of action should be emphasized. While the text currently mentions a timeframe until 2030, this may be missing the boat in terms of getting the financial system aligned toward achieving 1.5. Would suggest instead short-term time-frame of 2025	Noted. Thank you for your comment. The chapter, including the Executive Summary, already emphasized the urgency of actions.	Karan Capoor	World Bank	United States of America
58543	4	6	4	8	Delete unsupported assertions about "inertia of the financial system" and "excess but risk-averse private savings". It's an incorrect implication that public finance is the solution. The majority of climate finance is private sector, RE investment.	Accepted. Phrases removed in revision of executive summary.	Government of United States of America	U.S. Department of State	United States of America
67357	4	6	4	7	Passage: "Given the inertia of the financial system, the magnitude of 7 the challenge and excess but risk-averse private savings ...": unclear, syntax seems broken, maybe a verb is missing	Taken into account. Phrases removed in revision of executive summary.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
85893	4	6	4	6	Suggest delete 'inertia of the financial system', this is subjective commentary.	Taken into account. Phrase removed in revision of executive summary.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
31187	4	7			"excess" seems to be a value judgement - replace/delete? Just imagine emissions associated with the use of these savings in consumption…	Taken into account. "excess" removed in revision of executive summary.	Jochen Harnisch	KfW	Germany
27971	4	8	4	10	Countries prepare their stimulus packages based on their national circumstances and sustainable development priorities.Therefore, delete "there is strong consensus" and delete "green financial stimuli", and replace the latter with "sustainable recovery plans".	Taken into account. Phrases removed in revision of executive summary.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58545	4	8	4	9	Remove the word 'green'	Taken into account. Sentence edited in revision of executive summary.	Government of United States of America	U.S. Department of State	United States of America
58547	4	8	4	10	Misguided statement that there is strong consensus that government stimulus to reduce pandemic economic damage represents a unique opportunity for faster growth and more jobs. It is only partial compensation for the massive losses in growth and jobs.	Taken into account. Statement removed in revision of executive summary.	Government of United States of America	U.S. Department of State	United States of America
67287	4	8	4	10	The following sentence is unclear: "There is strong consensus that global COVID-19 green financial stimuli, with key central banks support, offer a unique opportunity to support faster and more sustainable growth and jobs in a global low-carbon infrastructure effort" because the first part of the message is misleading. Consider revising it in: "There is strong consensus that aligning the global COVID-19 fiscal stimulus to the climate targets, and corrdinating it with central banks' action, offers a unique opportunty..."	Taken into account. Statement removed in revision of executive summary.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
82927	4	8	4	8	"stronfg consensus" needs line of sight and confidence statement	Taken into account. Statement removed in revision of executive summary.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
81783	4	10			The primary focus on growth is misleading, especially on a global scale. The negative effects of growth and its likely unsustainablity due to lack of sufficient decoupling is not appreciated enough. A change in narrative and main indicators would better servce the purpose. cf. Jason Hickel (2018): Is it possible to achieve a good life for all within planetary boundaries?, Third World Quarterly; Hickel, Jason & Giorgos Kallis (2019). 'Is Green Growth Possible?', New Political Economy)	Noted. Thank you for the provided literature but due to limited space in the Executive Summary., it wasn't possible to add further discussion here.	Elena Hofferberth	University of Leeds	Switzerland
31177	4	12	4	21	This well worded though unsurprising section constitutes one of the key policy messages of this chapter. Maybe it should be lifted up to the first place on page 3 line 2?	Noted. Thank you for your comment. Suggestion has been considered.	Jochen Harnisch	KfW	Germany
52937	4	12	4	12	what would be the negative impact of the accelerated transformation on the financial sector? Clarify	Noted. Negative impacts are not mentioned.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
67289	4	12	4	13	It is unclear to what sort of regulation in the real economy you refer to. Consider rephrasing in: Synergies resulting from coherent "financial sector and economic policies" add momentum for an accelerated transformation.	Taken into account. Statement removed in revision of executive summary.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
84757	4	12	4	21	This is the main paragraph in the Executive Summary highlighting the importance of real-economy policies (line 16) 'and 'credible signalling' by governments (line 18). I suggest add a short sentence stating the importance of policy design for attracting capital and consistency of those policies across the economy (to avoid undermining investment in solutions in one area by investments in another - as per 15-62 lines 7-10). This could be done as simply as adding 'well designed, robust' in front of 'real-economy policies' in line 16. This also helps characterise what is a 'credible signal' ref line 18. Note this is reinforced in different places within the chapter, for example: "the insufficient level of ambition and coherence of public policies at national and international level remains the root cause of the still significant misalignment of investment and financing compared to pathways compatible with the Paris Agreement' (15-27 lines 34-36); "robust policy design and transparency" are linked to 'policy derisking' (15-54 lines 27-28). Although sectoral policy may be covered in detail in the relevant chapters, it would help policymakers reading this chapter to make the link more explicitly, notably between the design of policies/enabling frameworks (togeher with public finance) and the risk profile/ efficacy from a financing perspective. [The ExecSummary also highlights the 'soft costs and institutional capacity on enabling environments' being a pre-requisite for closing finance gaps (15-3 lines 31-32)].	Noted. Thank you for the comment, but due to limited space in the Executive Summary., it wasn't possible to add further elaboration on the issues raised.	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
82363	4	16	4	16	"as well as" real economy policies … it would be good to emphasize by a stronger word than "as well as", as financial related policies won't ignite transformational changes as much as economic ones can do. The financial sector/system must be seen as a tool, not as a direct goal per se.	Noted. Unclear what better word choice would be.	Hugues CHENET	University College London	France
82365	4	17	4	18	What is precisely this estimation about ? financial value ? or other types of impacts/losses (eg lives, biodiversity, fertile lands)? About the underestimation of climate related financial risks, there are many confusion ongoing; recognising the extent of climate related risks is somewhat different from exactly pricing their financial consequences "climate-related financial risks" (CRFR); probably it is important here to be sure whether we're talking about the broad vision of climate-related risks estimation or its financial estimate, which for many reason may be not achievable (source: Chenet, Ryan-Collins, van Lerven (2021) . https://doi.org/10.1016/j.ecolecon.2021.106957)	Noted. Thank you for the provided literature, but due to limited space in the Executive Summary., it wasn't possible to add elaboration issues raised.	Hugues CHENET	University College London	France
23549	4	18	4	19	We recommand to make sure to indicate in the executive summary what should be such a credible signalling: carbon pricing, phasing out fossil fuel subsidies, R&D support for low-carbon innovation, sectoral regulation, etc.	Noted. Many of these matters are mentioned in the "A menu of specific policy options on eight key areas may have important long-term catalytic benefits. (high confidence)" paragraph.	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58549	4	18	4	19	Change to: ""… credible signalling by governments, rating agencies, and the international community …""	Noted. Revised to: Credible signalling by governments and the international community can reduce uncertainty for financial decision-makers and help reduce transition risk. In addition to indirect and direct subsidizationsubsidies, the public sector's role in addressing market failures, barriers, provision of information, and risk sharing would can encourage the efficient mobilisation of private sector finance's mobilization efficiently.	Government of United States of America	U.S. Department of State	United States of America
31191	4	22	4	43	These two paragraphs need serious rewritting. Currently this language seems ideological and is certainly not "policy neutral".	Taken into account. Understanding the discussions of Just Transition contain grey areas in terms of policy neutral, authors keep in mind to be policy neutral. Paragraph has been edited in revision of executive summary	Jochen Harnisch	KfW	Germany
53537	4	24	4	24	Replace "remain excessively high" by "often represent a significant challenge".	Accepted. Edited according to suggestion.	Government of Switzerland	Swiss Federal Office for the Environment Federal Department of the Environment, Transport, Energy and Communications DETEC Federal Office for the Environment FOEN International Affairs Division	Switzerland
58551	4	24	5	25	Financing costs reflect the cost of capital, repayment risks, inflation, currency risks, financial nontransparency, and political stability. Wrong to state that these costs are excessively high.	Taken into account. Edited "remain excessively high" to "often represent a significant challenge".	Government of United States of America	U.S. Department of State	United States of America
70807	4	24	4	24	Replace "remain excessively high" by "often represent a significant challenge".	Accepted. Edited according to suggestion.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
18525	4	25	4	29	The last sentence (i.e. limited fiscal space shrinking ability of countries to drive transformation) could be revised as we can also make the argument that limited fiscal space allows for a shift in the political economy if they force countries to reduce tax expenditures (e.g. fossil fuel reform in Nigeria) or introduce carbon pricing as a way to generate revenue.	Taken into account. Sentence has been removed in revision of executive summary.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58553	4	25	4	27	Undocumented and exaggerated assertion that rising public fiscal costs of mitigation and adaptation to climate shocks were negatively impacting public indebtedness and country credit ratings in many countries.	Noted. Assertion is not undocumented, please see 15.2.2 Macroeconomic context: "The second headwind was rising public fiscal costs of mitigation and adapting to rising climate shocks affecting many countries, which were negatively impacting public indebtedness and country credit ratings (Cevik and Jalles 2020; Klusak et al. 2021) at a time of growing stresses on public finances and debt (Benali et al. 2018; Kling et al. 2018; Kose et al. 2020) (high confidence)."	Government of United States of America	U.S. Department of State	United States of America
58555	4	28	4	29	Standard public financial management term is "fiscal space" not "fiscal headroom".	Taken into account. Sentence has been removed in revision of executive summary.	Government of United States of America	U.S. Department of State	United States of America
70809	4	28	4	31	Is it possible to make a link between the "limited fiscal headroom" mentioned here and the policy misalignments such as FFSR mentioned above.	Noted. Thank you for the comment, but due to limited space in the Executive Summary., it wasn't possible to add further linkages.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
70811	4	32	4	33	Replace "a new global and national social compact to address inequalities" by "enhanced global and national action to address inequalities "	Noted. Sentence has been removed in revision of executive summary.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
58557	4	33	4	33	"expedited" does not necessarily mean "expanded". Both are important.	Noted. Sentence has been removed in revision of executive summary.	Government of United States of America	U.S. Department of State	United States of America
9243	4	35	4	36	Refer to the statement on page 43, the "current GDP" in this sentence should be "constant GDP", and the end of the sentence should be "developing countries as well as BRICS".	Taken into account. Sentence has been removed in revision of executive summary.	Yongxiang Zhang	National Climate Center	China
58559	4	35	4	35	The estimate is uncited. "Needs" is not a term that economists favor due to its ambiguity and subjectivity.	Noted. Thank you for the comment, but the authors think 'needs' is an appropiate word to use.	Government of United States of America	U.S. Department of State	United States of America
82367	4	37	4	38	not clear whether the mistmatch is between investment needs and available capital , allocated capital or capital needs; clarification needed, mentioning "allocation"?	Noted. Due to limited space in the Executive Summary, it wasn't possible to add further clarification .	Hugues CHENET	University College London	France
58561	4	40	4	40	Future emissions in developing countries are largely dominated by China and India, and China should not be included in the same category.	Noted. Unclear which category comment is refering to.	Government of United States of America	U.S. Department of State	United States of America
9733	4	41	4	43	Need to substantiate this statement -- What form of push can be provided to make international climate finance affordable, reliable, and inclusive for developing countries.	Noted. Due to limited space in the Executive Summary, it wasn't possible to add further clarification.	Mustafa Babiker	Saudi Aramco	Saudi Arabia
58563	4	41	4	41	Replace "explicit and positive social value of such" with "potentially greater cost effectiveness of"	Noted. Sentence has been removed in revision of executive summary.	Government of United States of America	U.S. Department of State	United States of America
27973	4	42	4	42	Add "developing countries, including" vulnerable and	Noted. Unclear why addition is needed.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
58565	4	42	4	42	"push for international climate finance access" overlooks the importance of private sector financing.	Noted. International climate finance access can include private sector financing.	Government of United States of America	U.S. Department of State	United States of America
58567	4	44	4	45	"robust 'green' labelling and disclosure schemes, and regulatory focus on transparency" are not examples of "innovative financing instruments"	Noted. They are innovations in the financial sector.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
81787	4	44			De-risking strategies may involve burden shifting on to governments, undermining their long-term ability and autonomy to design low-carbon transition, and policy space in general. This applies to countries in the global South in particular, being a factor adverse to creating a global level playing field (cf. Yannis Dafermos , Daniela Gabor & Jo Michell (2021): The Wall Street C onsensus in pandemic times: what does it mean for climate-aligned development?, Canadian Journal of Development Studies / Revue canadienne d'études du développement)	Noted. Thank you for the comment, but due to limited space in the Executive Summary., it wasn't possible to add elaboration of issues raised.	Elena Hofferberth	University of Leeds	Switzerland
52939	4	45	4	45	Does these schemes includes all sources of emissiones? Clarify	Noted. Due to limited space in the Executive Summary, it wasn't possible to add further clarification here.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58569	4	45	4	45	Change "shift inertia" to "spur increased climate finance"	Taken into account. Thank you for your comment. Sentence has been revised in executive summary.	Government of United States of America	U.S. Department of State	United States of America
58571	4	46	4	46	Change to: "Green bonds, or fixed-income instruments that are specifically earmarked to raise money for climate and environmental projects, and other sustainable finance products ..."	Noted. Thank you for the comment. Due to limited spaces, it wasn't possible to add further clarification here.	Government of United States of America	U.S. Department of State	United States of America
67291	4	46	5	1	Consider breaking this sentence in two, it is too long and convoluted "Green bond markets and markets for sustainable finance products have increased significantly since AR5 underpinning investor preference for scalable and highly standardised investment opportunities, standardised financial products and new, convening asset classes will help in".	Noted. Thank you for your comment	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
58573	4	48	4	48	"new, convening asset classes" is unclear.	Noted. Due to limited space in the Executive Summary, it wasn't possible to add further clarification .	Government of United States of America	U.S. Department of State	United States of America
58575	5	1	5	1	Incorrect use of term "existing asset allocation models"	Noted. Thank you for your comment	Government of United States of America	U.S. Department of State	United States of America
67293	5	1	5	3	"Challenges remain in the green bond market, including the potential for 'greenwashing', and creditworthiness constraints in developing countries." i) greenwashing doesn't affect only the green bonds market, ii) to address greenwashing, the implementation of standardized taxonomies of green investment is crucial (see e.g. the example of EU Taxonomy), iii) in this regard, main challenges for the EU Taxonomy implementation stems from pressures from political and industry actors. Overall, research and civil society have highlighted the need for coordination among national/supernational statistical and financial institutions to provide accesss to standardized climate-energy-finance relevant data at the level of eco. activity, to foster disclosure and risk assessment. See e.g.Battiston, S. and Monasterolo, I. (2019). How could the ECB's monetary policy support the sustainable finance transition? Input to Positive Money and Veblen's policy report "Aligning Monetary Policy with the EU's Climate Targets". https://www.finexus.uzh.ch/en/news/cspp_sustainable_finance.html	Noted. Thank you for the comment, but due to limited space in the Executive Summary., it wasn't possible to add elaboration of the issues raised.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
82369	5	1	5	22	There is no mention of current "sustainable finance" frameworks' blind side: in particular it is surprising that sustainable finance policy frameworks being currently emphasized by policy makers and governments (in paricular the European sustainable finance action plan) give no attention to investment/financing towards/in developing countries, which are the most needed ones. The Chinese plan for greening the financial system is actually mentioning this, esp. through the Belt and Road initiative, but broadly speaking the efforts and initiatives to make the financial system more sustainable, while focusing a lot on climate change, largely ignore finance flows from rich capital markets to poor countries in their priorities (whether via direct regulation or indirect incentives to financial institutions). (source Ameli et al. 2021 "Climate investment traps in developing countries" DOI: 10.21203/rs.3.rs-119752/v1) ==> wouldn't such important outcome have its place in the summary ?	Noted. In the Executive Summary, it already emphasized the challenges and opportunities of climate finance in the developing countries. Due to limited space in the Executive Summary, it wasn't possible to add further detailed discussion.	Hugues CHENET	University College London	France
58577	5	2	5	2	Did not mention a major challenge of green bonds market that $80-100 million is the minimum viable size due to high transaction costs and importance of liquidity.	Noted. Due to limited space in the Executive Summary, it wasn't possible to add further detailed discussion of green bond markets.	Government of United States of America	U.S. Department of State	United States of America
72567	5	2	5	5	A majoe challenge of using green bonds for climate financing is that like other bonds, the payback period of green bonds begins from the day they are issued, which puts it at odds with investments that have a long lead time before they become operational and even longer before they become cash flow positive. To be more useful, a green bonds should be used as a means to refinance existing projects that have been provided upfront financing by more traditional sources of climate finance. The same comment is relevant for other discussions of green bonds in this chapter. More broadly, this complementatrity of public climate finance and private sources of financing can be extended to structured financing, securtization, carbon markets and other sources of bringing in the private sector. De-risking is a big component of this, but more broadly as well.	Noted. Due to limited space in the Executive Summary, it wasn't possible to add further detailed discussion of green bond markets.	Karan Capoor	World Bank	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
50085	5	3	5	3	PayG should be spelled out.	Accepted. Edited according to suggestion. New business models (e.g. pay-as-you-go)	Masahiro Sugiyama	University of Tokyo	Japan
51235	5	3	5	4	PayGo market is small in comparison to total energy needs and is concentrated in a small number of markets (East Africa dominates). The business model has yet to show profotability and a number of players have already failed. Future profitability will depend on PayGo businesses being able to upsell other products to the same customer base.	Noted. Pay-as-you-go is mentioned as an example of new business models.	Gregor Paterson-Jones	www.gregorpatersonjones.com	United Kingdom (of Great Britain and Northern Ireland)
58579	5	3	5	3	Define PayG or remove.	Taken into account. Changed to "pay-as-you-go".	Government of United States of America	U.S. Department of State	United States of America
58581	5	3	5	3	PayG should be "PayGo (Pay-to-Go)"	Taken into account. Changed to "pay-as-you-go".	Government of United States of America	U.S. Department of State	United States of America
46379	5	5	8	22	If this compilation of key areas with long-term catalytic benefits is based on robust scientific evidence and is not a normative policy recommendation, it would be extremely valuable for decision-makers. However, given the richness of the chapter, these eight key areas seem an odd choice and patronising to policy. What were the parameters for selecting these areas? We also doubt the high confidence the authors place in the effects of these eight key areas, and do the authors have the same confidence in all eight? In addition, please use policy neutral language and use less policy-laden, more appropriate wording (see e.g. our comment on "loss and damage"). We urge the authors to remain within the mandate of the IPCC, avoid policy prescriptive statements, and revise the text to provide politically relevant but science-based information.	taken into account. Revise point v) in the text to read: "(vi) improved financing instruments for loss and damage events, including risk-pooling-transfer-sharing for climate risk insurance {15.4.3, 15.6.5} ". This is parallel language to what appears in the cross-chapter box on Loss and Damage in WGII.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
58583	5	5	5	5	Replace "create a track record in new segments/regions" with "increase and broaden investments"	Accepted. Edited according to suggestion.	Government of United States of America	U.S. Department of State	United States of America
15021	5	8	5	9	The sentence in bold does not make it clear "benefits" for what? Does it refer to only previous paragraph or the whole section?	noted. It refers the paragraph that contains the statement in bold. Policy attentions on those areas can provide a range of benefits, including climate mitigation and adaptation, climate resilience enhancement, and so on.	Galina Hale	UC Santa Cruz	United States of America
31171	5	8	5	22	This is very useful! Item ii) needs rewording e.g. "ii) continued strong role of multilateral and national development banks {15.3.1, 15.6};"	Accepted. "continued strong role of international and national financial institutions, including multilateral, especially location-based regional, and national development banks "	Jochen Harnisch	KfW	Germany
51237	5	8	5	22	Additional areas for focus: 1. Energy efficiency regulation (minimum standards with real teeth, penalties for non compliance) and financing support, 2. creating obstacles for high emission technology financing (Coal power), 3. Financing mechanisms to accelerate the electrification of transport	Noted. Thank you for your comment. Due to space limit, it wasn't possible to add more areas for focus.	Gregor Paterson-Jones	www.gregorpatersonjones.com	United Kingdom (of Great Britain and Northern Ireland)
67295	5	8	5	9	You talk of "Policy attention on eight key areas may have important long-term catalytic benefits" but you do not mention the main enabling policy action for these 8 areas, i.e. the promotion of standardized climate-financial risk disclosure and risk assessment. This is a transversal, key action to support the deploymento of the 8 areas that you identify. Indeed, as you also mention in paragraph 1 of the executive summary: "underestimation of risk leads to underallocation of capital." In line with this, the importance of standardized and implemented disclosure has been recognized by financial supervisors (NGFS 2019: https://www.ngfs.net/sites/default/files/medias/documents/synthese_ngfs-2019_-_17042019_0.pdf), the European Commission (Alessi ea 2019: https://ec.europa.eu/jrc/en/publication/eu-sustainability-taxonomy-financial-impact-assessment) and academia (Monasterolo, I. (2020). Embedding Finance in the Macroeconomics of Climate Change: Research Challenges and Opportunities Ahead. CESIfo Forum, 4/2020, p.25-33.; Monasterolo I., Battiston S. (2020). Assessing forward-looking climate risks in financial portfolios: a science-based approach for investors and supervisors. NGFS Occasional Papers Case Studies of Environmental Risk Analysis Methodologies. Published on 09/10/2020; 616 pages).	Noted. Thank you for the comment, but it was not able to include the contents in detail in Executive Summary due to page limit. Transparency and climate risk assessment are mentioned in Executive Summary as follows: Support and guidance for enhancing transparency can promote capital markets' climate financing by providing quality information to price climate risks and opportunities. Examples include SDG and environmental, social and governance (ESG) disclosure, scenario analysis and climate risk assessments, including the Task Force on Climate-Related Financial Disclosures (TCFD).	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
86899	5	9	5	10	.."stepped-up technical support and partnership in low-income vulnerable countries and low-carbon energy access in Sub-Saharan Africa which currently receives less than 5% of global climate financing flows" The word "and" is used too many times? For the final draft ahead of publication, we should consider rephrasing to "stepped-up technical support and partnership for low-income, vulnerable countries alongside low-carbon energy access in Sub-Saharan Africa, which currently receives less than 5% of global climate financing flows"?	Taken into account. Sentence has been edited.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
58585	5	10	5	11	Singles out and overstates mitigation potential from renewable energy in Sub-Saharan Africa vs. other developing regions.	Taken into account. Revised the sentence as follows: (i) Stepped-up both the quantum and composition of financial, technical support and partnership in low-income and vulnerable countries alongside low-carbon energy access in low-income countries, such as Sub-Saharan Africa, which currently receives less than 5% of global climate financing flows {15.2.4, 15.3.2.2, 15.5.2, 15.6}	Government of United States of America	U.S. Department of State	United States of America
81789	5	11	5	20	see previous comment.	Noted.	Elena Hofferberth	University of Leeds	Switzerland

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86901	5	11	5	14	..."(ii) continued strong role of MDBs, especially regional, but also national development banks {15.3.1, 15.6}" ...."(iii) de-risking cross-border investments in low-carbon infrastructure, development of local bond markets, and transparency in fossil-fuel investments {15.4.1, 15.6};" 1. We should consider phrasing that refers to "increased technical assistance and partnership by MDBs" to local institutions which would align with the literature analysis across our sections and the SPM summary in recognising local contexts.. [Our Macro section refers to "(c) facilitating and incentivizing much larger flows of cross-border climate financing which is especially crucial for such investments to happen in developing regions, where as much as two-thirds of collective investment may need to happen, and where the role of multilateral, regional and global institutions such as the IMF (including the expansion in availability of climate SDRs) could be important".] 2. Most of the climate investments are needed within the "developing country universe" irregardless of how the countries that make up the "developing countries universe" are referred to as a collective (low income/lower middle income/upper middle income; emerging markets and frontier markets; emerging/BRICs/developing etc). [To note that Paris Agreement makes reference to "Also recognizing the specific needs and special circumstances of "developing country parties", especially those that are particularly vulnerable to the adverse effects of climate change, as provided for in the Convention"] 3. Most of our subsections make reference to the important role played by local institutions who can all be active in development of local capital markets (not exhaustive) : 15.2.2 Macroeconomic context makes reference to place-based actors; 15.6.2 Enabling Conditions makes reference to state banks, 15.6.5 refers to role of communities, cities and sub-national	Noted.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
16659	5	12	5	14	"development of the local bond market" > "development of the local climate-related bond market". This expression is a broad expression beyond the scope of the text. In the text (24p), it is specifically expressed as a climate-related bond. It is true that the development of the general corporate bond market is a prerequisite. However, the development of the general corporate bond market does not lead to solving the climate crisis. Please consider changing "local bond market" to "local climate related bond market"	Accepted. Edited according to suggestion. development of local climate and SDG-related bond markets	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
16661	5	13	5	14	"enhancing transparency in fossil fuel investment" > "enhancing transparency in fossil fuel investment and rapid scaling down of new fossil fuel-related investments" The expression of "enhancing transparency in fossil fuel investment" is unclear. It should be clearly written as "rapid scaling down of new fossil fuel-related investments" on page 26 of the main text. Please review the replacement in terms of prohibiting coal-fired investment or phasing out.	Taken into account. Revised: (iii) de-risking cross-border investments in low-carbon infrastructure, development of local climate and SDG-related bond markets, and the alignment of climate and non-climate policies, including direct and in-direct supports on fossil fuels, consistent with the climate goals, {15.3.3, 15.4.1, 15.5.2, 15.6}	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
58587	5	13	5	13	Although there is potential in local (domestic) bond markets in some countries, particularly from pension funds and insurance companies, should not neglect international bond markets as potential sources of additional capital.	Noted. It is not the intention of the text to 'neglect international bond markets as potential sources of capital', it is merely stated there is potential in local bond markets.	Government of United States of America	U.S. Department of State	United States of America
16663	5	14	5	14	"Green bank" is in the summary, but not in the main text. Cases such as UK Green Bank and New York Green Bank should be presented. It is also necessary to describe in the text what role and importance it has.	Taken into account. Due to limited space in the Executive Summary, it wasn't possible to add further discussion of green banks. Removed green bank in accordance to the main text	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
58589	5	15	5	16	Replace "smallholder" with "small-scale" to avoid implying land ownership rights.	Noted. Thank you for the comment. We used the term "smallholder" from the literature	Government of United States of America	U.S. Department of State	United States of America
58591	5	17	5	17	REDD+ is not just forestry.	Noted. REDD+ is primarily forestly related.	Government of United States of America	U.S. Department of State	United States of America
18527	5	19	5	19	Although `blended finance' is mentioned here in the Executive Summary in relation to risk pooling, the subsequent section which discusses risk pooling and catastrophe insurance at length (15.6.4) does not refer to blended finance.	Taken into account. Revised the sentence. (vi) improved financing instruments for loss and damage events, including risk-pooling-transfer-sharing for climate risk insurance {15.4.3, 15.6.5};	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58593	5	20	5	20	Replace "political economy" with "politically feasible"	Accepted. Edited as per suggestion.	Government of United States of America	U.S. Department of State	United States of America
18529	5	21	5	21	I would move item (viii) higher up the list given that women potentially have a huge role in helping re-shape the climate finance situation	Noted. The numbering is not in order of importance.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
16667	5	25	5	25	There is no mention of iso14030 at all. If it is not a summary, it should contain content even in the main text	Rejected. Though not specifically mentioned ISO14030, the standards are mentioned in the main context already.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
16669	5	25	5	25	Taxonomy is important to vitalize climate finance. This needs to be described in the summary. Page 54 of the main text contains EU taxonomy(A key recent development is the EU Taxonomy for Sustainable Finance (TEG 2019)).	Taken into account. Due to limited space in the Executive Summary, it wasn't possible to add further discussion and detail on taxonomy.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
58595	6	2	6	2	Replace "in IPCC, the AR5" with "the IPCC in AR5"	Accepted.	Government of United States of America	U.S. Department of State	United States of America
58597	6	12	6	12	What are "alternative" sources of financing that are not public or private?	Noted. Reference is to the definition adopted by trhe UNFCCC. Alternative sources can incude philanthropic sectors. Others might include sources of finance where the distinction between public and private are not categorical.	Government of United States of America	U.S. Department of State	United States of America
82359	6	12	6	12	There is a problem in the definition … if climate finance is defined as "seeking" to support mitigation and adaptation, what about those financing that DO NOT explicitly (nor implicitly) seek to support but … that actually DO SUPPORT anyway? … A financial institution investing millions in e.g. renewable power may seek nothing but profit. And probably in the near future, if real transformational changes will have occurred at the whole economic/financial system level, financing e.g. renewables very often won't be linked with any will to support the mitigation but only because that's the new mainstream. Therefore the notion of "will" seems to be not necessary here and even quite confusing. It would mean that a lot of investment/financing not flagged at "seeking support" to climate action would not be accounted as really supporting, even if they do. ==> the wording of p.7 l.1 is actually much more accurate on this: "financial flows whose expected effect was to reduce GHG"	Noted. (This is the definition that was adopted by the UNFCCC and its factual basis, as reported)	Hugues CHENET	University College London	France
63405	6	13	6	16	This text refers to finance for 'adaptation, mitigation, and loss and damage' and therefore implies loss and damage is its own type of support which is not consistent with the Paris Agreement. As per Article 9 of the Paris Agreement, financial resources are for mitigation and adaptation. Support relevant to loss and damage could fall under adaptation, but should not be identified as an individual type of support.	Rejected. Article 8 of the Paris Agreement reaffirmed the distinct category for Loss and Damage to avert, minimize and address loss and damage associated with climate change impacts, including extreme weather events and slow onset events. Its financing arrangements under the Paris Agreement is a matter for Parties to resolve, but the category is now understood as distinct from adaptation.	Government of Canada	Environment and Climate Change Canada	Canada
18531	6	18	6	43	It could also be helpful to include here a reference on how carbon pricing, namely carbon taxes, can be used to finance adaptation? In other words, if the carbon tax is design to increase revenue (as opposed to being revenue neutral by reducing other taxes), the added revenue could either directly finance adaptation or indirectly as it increases the fiscal space. This is referenced on p.59, lines 6, 7 and 8	Rejected. The box does not discuss possible sources of financing (such as carbon pricing or taxes). Given a certain level of resource available, the box discusses alternative uses of available financing, not its sources.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58599	6	18	6	43	Box is verbose and largely unnecessary.	Rejected. That is an editorial opinion. Not substantive.	Government of United States of America	U.S. Department of State	United States of America
70813	6	18	6	43	Although the text rightly considers the interdependency between mitigation, adaptation and catastrophy finance, the box should recognize that the interdependency between catastrophy and adaptation finance is much more direct than the link between mitigation and adapation/catastrophy financing efforts. In addition, mitigation has a public good character where benefits spill over to other agents while adapation/catastrophy financing does not have this. Such crucial differences and interlinkages should be made clear	Rejected. The available literature does not allow us to make such distinctions. The standard classic definition of a public good is on which is non-excludable and non-rivalrous. All three meet that test. Spillover benefits apply to all.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
86441	6	18	6	18	I believe that the content of Box 15.1 fails to consider the conditionality and time-sensitivity of mitigation goals over Adaptation and over other SDGs. The title could be edited to: "Mitigation and adaptation finance need examination together, while priority to conditional and time-sensitive short-term goals should be given appropriate weight".	Rejected. Not certain what 'conditionality' and 'time-sensitivity' mean or that they permit a choice or priortization of one category over another. If we consider time-sensitivity, for example, we know from the evidence available that we are reaching adaptation limits in many parts of the world, and this means escalating costs unlerss adaptation is given priority now in such settings. Greater financing is needed for all three categories and all are becoming very urgent and pririty categories.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
82371	6	19	6	19	same remark than "seek" in the definition of climate finance: why would a will ("aim") be neccessary to define mitigation finance? Finance is rarely defined by a "will" neither to pollute or to mitigate … but it does imply pollution.. or mitigation. The part of finance that has no specific will is certainly the largest part of current transactions. See what is defined as "impact finance" or even the broader "socially responsible finance", it only accounts for a tiny bit of the whole. This is not to say that the rest (the majority) has no impact (+/-). ==> the wording of p.7 l.1 is actually much more accurate on this: "financial flows whose expected effect was to reduce GHG"	Rejected. Please see remarks earlier on same point.	Hugues CHENET	University College London	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86443	6	19	6	34	Text should be edited to reflect the necessary priority (while not exclusivity) to be granted to mitigation targets in the short-term (10 to 30 years, and especially the next 10 years). Two points are relevant: A) Current text reads: "If adaptation investments build greater resilience, they might moderate mitigation financing costs." However, there is no level of Adaptation financing sufficient (either now or in the future), to compensate the level of irreversible climate disruption and indefinitely recurring damages following from inadequate or late deployment of Mitigation efforts. B) While it is true that "Resources prioritising climate at the cost of non-climate development finance increases the vulnerability of a population for any given level of climate shocks", the very level of those same climate shocks will be decreased if higher short-term (i.e. 2030, to begin with) priority is justifiably assessed to Mitigation goals over both Adaptation and other SDGs, while still maintaining synergies.	Rejected. Please refer to response earlier to same point.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
82929	6	24	6	24	Markandya's IAM is an entirely different type of IAM from the ones assessed in WG III. (Cost-benfit not cost-effectiveness). Need to clarify.	Accepted. noted in text	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
8797	6	25	6	26	It is not clear to me what the formulation means. How does more resilience (based on adapatation investment) affect the financing costs of mitigation investment? Maybe the authors could elaborate a bit more on potential channels.	Accepted. sentence changed	Karol Kempa	Frankfurt School of Finance & Management	Germany
15023	6	25	6	26	In the sentence that starts with "Conversely…" it seems the words "adaptation" and "mitigation" should be swapped. The way it is currently stated, it seems to suggest that if we do more adaptation, we don't need to worry about mitigation and it's OK to let the planet warm up if we are adapted.	Accepted. Sentence changed	Galina Hale	UC Santa Cruz	United States of America
257	6	27	6	27	To ensurer applicability to a wider audience this should read "adaptation, eresilience and mitigation"	Noted.	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
29595	6	33	6	35	This sentence implies that all non climate ODA reduces the vulnerability of populations. Please elaborate. Please also revise the language, especially the last part of the sentence is not easy to understand.	Noted. There is no such implication, since the definition follows OECD	Government of Norway	Norwegian Environment Agency	Norway
259	6	34	6	34	To ensure consitency "the vulnerabiity nad exposure to any given climate hazard" See Viner et al 2020 Dynamics of risk	Noted.	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
27975	6	35	6	37	Delete "Policy coherence is also the reason why mitigation finance cannot be separated from consideration of scaling-back spending on fossil fuels to make room for climate mitigation finance."	Rejected. Sentence changed to include subsidies	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
58601	6	36	6	36	Replace "spending" with "subsidies" in "scaling-back spending on fossil fuels"	Accepted. Sentence changed to include subsidies	Government of United States of America	U.S. Department of State	United States of America
58603	6	38	6	43	The implication that the costs of climate change impacts will require a separate line of finance is neither supported by any established policy process nor the citations referenced. In fact, the Paris Agreement specifically excludes compensation in its work on loss and damage. Moreover, the costs associated with impacts from climate change cannot be determined solely by the quantum of mitigation, adaptation, and disaster risk reduction finance, as this text implies. Risks arise from the spectrum of decisions that affect exposure, vulnerability, and hazards. The IPCC should not get ahead of the policy process and imply that a third element of climate finance "needs to be considered". Delete the final two sentences of this box.	Rejected. Rising Loss and damage and hence its financing is a reality, independent of who provides the financing, and of the compensation issue	Government of United States of America	U.S. Department of State	United States of America
85895	6	40	6	43	This sentence attempts to link a number of separate issues and does not make sense. Suggest delete.	Rejected. Editorial suggestion	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
70815	6	41	6	41	There is a word missing in the sentence "the magnitude of potential impacts and", overall the sentence is not unambiguous as it is stated presently	Accepted. Sentence amended	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
58605	6	42	6	42	Add "and timing" as follows: "… overall quantum and timing of mitigation, adaptation, and disaster risk …"	Rejected. The timing issues are beyond the scope of this small box	Government of United States of America	U.S. Department of State	United States of America
15025	6	43	6	43	Last line is totally unclear - "third element" of what? What are the first two elements?	Accepted. Mention of unclear 'third element' dropped.	Galina Hale	UC Santa Cruz	United States of America
72569	7	1	7	36	It would useful to have more recent numbers for these climate finance flows.	Rejected. Details follow later	Karan Capoor	World Bank	United States of America
52885	7	3	7	4	The sentence "Most of this went towards mitigation and adaptation was underfinanced." is unclear. Revised as "Most of this went towards underfinanced mitigation and adaptation activities."	Accepted. Sentence changed	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
63407	7	4	7	7	These lines are miseleading. The view of a need for a common definition of climate finance is not consistent among Parties, and these lines present a one-sided perspective of this issue. Should references to the lack of a common definition remain, they should present the variety of perspectives, including that under the UNFCCC, Parties report on financial support using a bottom-up approach, following comprehensive reporting guidelines. Due to the bottom-up approach anchored in the Paris Agreement's Enhanced Transparency Framework, there are technical challenges and limited utility in developing a single definition of climate finance. There should also be reference to Standing Committee on Finance's contribution regarding operational definitions of climate finance. Notably, the 2014 Biennial Assessment adopted the following operational definition of climate finance: "Climate finance aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts". Found here: https://unfccc.int/topics/climate-finance/workstreams/transparency-of-support-ex-post/biennial-assessment-and-overview-of-climate-finance-flows/the-second-biennial-assessment-and-overview-of-climate-finance-flows-2014	Accepted. Rider added to sentence about different perspectives about the need for a clearer definition of climate finance	Government of Canada	Environment and Climate Change Canada	Canada
23551	7	7	7	10	Considering that AR5 underlines the lack of definition for climate finance, quoting estimations of finance needs should come with caveats. "Against the background of multiple challenges with regard to the comparability of and level of detail 5 provided in IAMs and sectoral studies, a detailed illustration on overall financing needs can have an 6 indicative character only" (15.5.2)	Noted. Please refer to later discussion in chapter and multiple sources that report lack of adequate climate finance as a key issue	Government of France	Ministère de la Transition écologique et solidaire	France
23553	7	7	7	7	Concerning the "lack of definition to such finance", parties agreed on guidelines for the reporting of financial information at COP21 in 2015 (decision 9/CP.21), on Modalities, procedures and guidelines for the transparency framework for action and support referred to in Art 13 of the Paris Agreement at COP24 in 2018, including reporting on climate finance from developed countries to developing countries. Therefore there is an operational definition of climate finance in the context of the $100bn goal and reporting to the UNFCCC	Noted. Guidelines on reporting of financial information did not discuss the dfinition of financing which remains an issue of continuing debate	Government of France	Ministère de la Transition écologique et solidaire	France
58607	7	9	7	9	635 billion USD includes public and private finance.	Accepted. Added "both public and private"	Government of United States of America	U.S. Department of State	United States of America
70817	7	9	7	9	635 billion USD (mean), it should be stated that this is per year.	Accepted. added 'annual'	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
82373	7	12	7	15	Clarification welcome: 2 warming targets are mentioned, not fully clear the 2 references are about these 2 targets respectively, as after the ":" there are also 2 different numbers.	Noted. amended to clarify	Hugues CHENET	University College London	France
82375	7	13	7	15	source of the 2nd number is not clear, and readers will expect more explanations about why the limited number (energy sector alone) is actually larger. Is it because 2nd number refers to the 1.5°C target? In general the many differences between various estimates of financial costs / investment needed etc. require a bit of explanation, otherwise readers who just look for numbers to quote/use get lost.	Accepted. yes, refers to 1.5	Hugues CHENET	University College London	France
58609	7	20	7	21	Mitigation finance accounted for 93% of total flows in 2017/2018, or USD 537 billion annually on average. Renewable energy financing alone was USD 322 billion in 2018. Average annual public climate finance totaled USD 253 billion in 2017/2018, representing 44% of total commitments. Tracked climate finance provided by governments and their agencies doubled to USD 37 billion in 2017/2018. Private finance, which reached USD 326 billion on average annually in 2017/2018, continues to account for the majority of climate finance, at around 56%. Of this quantity, 85% flowed to renewable energy, 14% to low-carbon transport, and under 1% to all other subsectors (https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2019/). Initial estimate of 2019 climate finance flows is USD 608-622 billion (https://www.climatepolicyinitiative.org/wp-content/uploads/2020/11/Global-Landscape-of-Renewable-Energy-Finance-2020.pdf).	Noted. We are in the process of updating these estimates, details in 15.3	Government of United States of America	U.S. Department of State	United States of America
84381	7	20	7	20	The figures for climate financing only cover the period to 2017. This leaves 3 years out of the discussion which presents a much more incomplete picture than one would get with data for 2018 and 19 included. This is an important gap which I believe you try to close on page 23 but it is not covered here.	Noted. We are in the process of updating these estimates, details in 15.3	Penny Apostolaki	Independent Experts / Current employment: Barclays Bank	United Kingdom (of Great Britain and Northern Ireland)
27977	7	21	7	24	Delete "In the context of policy coherence, it is also important to note that reported annual investments going into the fossil-fuel sectors, oil and gas upstream and coal mining, during the same period were about the same size as global climate finance.", or revise substantially to have a policy neutral statement.	Accepted. Sentence amended to include a balance with respect to access to financing for low carbon energy access	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58611	7	22	7	23	Quantify and add discussion of the citation: "It is also important to note that reported annual investments going into the fossil-fuel sectors, oil and gas upstream and coal mining ..."	Noted. Other sectoral chapters on energy have greater discussion on subject	Government of United States of America	U.S. Department of State	United States of America
58613	7	25	7	36	Adaptation finance made up 5% of flows. Adaptation finance rose significantly from its previous level in 2015/2016, with annual adaptation finance reaching USD 30 billion on average in 2017/2018 (https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2019/). Tracked adaption finance represents only a partial estimate, as definitional challenges, accounting issues, confidentiality restrictions, and an absence of universally accepted impact metrics results in limited data availability, particularly with regard to the private sector (https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2019/).	Accepted.	Government of United States of America	U.S. Department of State	United States of America
18533	7	31	7	33	There is more recent data available for financial flows which should be used where appropriate, for example, OECD (2020) Climate Finance Provided and Mobilised by Developed Countries in 2013-18, https://www.oecd.org/environment/climate-finance-provided-and-mobilised-by-developed-countries-in-2013-18-f0773d55-en.htm	Noted.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58615	7	34	7	24	Add: "... countries and the most vulerable members of developed countries the most."	Noted.	Government of United States of America	U.S. Department of State	United States of America
261	7	38	7	38	Ths definition should be addressed higher up the chapter (is it also in the Glossary), needs consitency with WG2 Ch17	Noted. we have amended the sentence here to refer to institutionss, for this section	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
82931	7	38	7	40	Not consistent with the glossary	Noted. glossary is unaffected	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
84759	7	38	7	46	Authors have provided a definition of climate finance. Lines 43-44 - "how financial institutions...can assess risks and opportunities from climate investments…" I suggest moving the word 'climate' from in front of 'investments' to in front of 'risks and opportunities' This emphasises that the risks and opportunities of climate are viewed in the context of *all* financing and investment decisions across the economy (notwithstanding the analysis of risk & opportunity of climate-related investments). Although this is a small shift - the importance is reinforcing that all financial flows (supply of capital and deployment in the real economy) - ultimately have to be 'climate finance' and sustainable.	Accepted. sentence changed accordingly	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
86445	7	38	7	39	I believe a more comprehensive definition of CLIMATE FINANCE could be the following: "Climate finance" can refer to 1) The dynamics of the global or national financial systems responding to climate change mitigation and adaptation needs 2) The capital sources, private or public, national and global, responding to climate change mitigation and adaptation needs 3) The establishment of financial practices responding to climate change mitigation and adaptation needs. I believe this definition would more comprehensivley reflect the current contant of Chapter 15 and it could also provide hints for further investigation and analysis of certain apsects of climate finance that could be added to some sections of the Chapter.	Noted. We have redefined the issue to a discussion of institutions and policies affecting climate finance, not climate finance per se	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
81571	8	1	10	12	The lack of a strong policy signal reflects in part the macroeconomic headwinds; but policy uncertainty also interacts unfavourably with macroeconomic outlook. This point could be made more strongly in the discussion, perhaps with reference to the growing literature on economic policy uncertainty.	Accepted.	Peter Phelps	University of Leeds	United Kingdom (of Great Britain and Northern Ireland)
82377	8	1	8	8	a reference with more information about the chronology before and after 2015 of how finance sector got involved in the climate conversation would be most welcomed. I suggest (and references therein): Chenet, H. (2021) “Financial risk management and climate change”, book chapter in Financial Risk Management and Modeling, Springer (Risk, Systems and Decisions series), Ed. R. Benkraiem, I. Kalaitzoglou, C. Zopounidis, ISBN 978-3-030-66690-3, in press (working paper version: Chenet, H., 2019. Climate change and financial risk. http://ssrn.com/abstract=3407940)	Noted. Space considerations do not allow a discussion of pre-2015 history	Hugues CHENET	University College London	France
58617	8	10	8	12	Overly optimistic view of opportunities from the pandemic.	Accepted. inserted cautionary note	Government of United States of America	U.S. Department of State	United States of America
28899	8	14	8	14	Please, define "Just Transition"	Noted. reference to later section	Nathalie Hilmi	Centre Scientifique de Monaco	France
58619	8	15	8	15	Change "... would be beneficial for a new social compact towards a more sustainable world." to "... would be beneficial for a new social compact towards a more sustainable world that addresses energy equity and enviromental justice."	Accepted. phrase inserted	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82933	8	20	8	20	need citations	Accepted. to be inserted more	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
84761	8	23	8	24	Ref 'this does not mean that finance necessarily plays an adequate enabling role'. For some reason this isn't quite right, maybe 'role' implies agency - so perhaps 'this does not mean that financial institutions allocate or deploy capital in a way that plays an adequate enabling role'?	Addressed. The term "role" is used in the literature on climate finance and the proposed change would make the sentence convoluted. We leave the term role but revise the term finance into financial sector and added a reference to a recent paper on this issue.	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
18535	8	25	8	26	the phrase `finance can represent a barrier to fill the climate investment gap (Hafner et al.2020)' is not clear and should be reworded - it is not obvious how finance could itself be a barrier to investment as finance is what's invested, presumably the author means something like `the considerations of the financial community'	Addressed. We revised the term finance into financial institutions, add an explanation and a reference to a recent paper on this issue.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
67313	8	25	8	26	The reference to the paper by Hafner ea 2020 is misplaced with regard to the message of this sentence, which is about the fact that finance can be a barrier if it doesn't recognize risks. Hafner ea (2020) could instead be relevant for the section on the financing needs (15.4.1. Definitions and qualitative assessment of financing needs) if a UK focus is needed. Indeed, Hafner ea (2020) provide a literature review on green energy investments barriers in the UK only, based on selected public documents and interviews with industry experts. I would suggest rephrasing the sentence on page as "on the contrary, without an appropriate recognition of the risk of inaction, the financial sector may delay the reallocation of capital and thus the transition (Battiston, S., Monasterolo, I., van Rujiven B., Riahi, K. (2020). Climate mitigation pathways need to account for the ambivalent role of finance. Working paper, review and resubmit at Science).	Accepted and implemented	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
82379	8	28	8	28	a reference with more information about the chronology before and after 2015 of how finance sector got involved in the climate conversation would be most welcomed. I suggest (and references therein): Chenet, H. (2021) "Financial risk management and climate change", book chapter in Financial Risk Management and Modeling, Springer (Risk, Systems and Decisions series), Ed. R. Benkraiem, I. Kalaitzoglou, C. Zopounidis, ISBN 978-3-030-66690-3, in press (working paper version: Chenet, H., 2019. Climate change and financial risk. http://ssrn.com/abstract=3407940)	Rejected. A timeline of the involvment of the financial sector is out of the scope of this subsection and it would not fit in terms of space.	Hugues CHENET	University College London	France
17915	8	29	8	30	awkard sentence - I believe it is supposed to be, "…financial investors take into account climate risk …" (no apostrophe, don't use 'price in' as a verb	Accepted and implemented	Robert Brecha	Climate Analytics	Germany
58621	8	29	8	29	Define white and grey literature.	Rejected. It is relatively common term.	Government of United States of America	U.S. Department of State	United States of America
67317	8	29	8	29	typo: remove the apostrophe in "There has been a significant growth in the white and grey literature on why financial investors' price in climate risk only to a limited extent in their decision-making and on related conceptual challenges and how to address them."	Accepted and implemented	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
82387	8	29		31	would be interesting to document exactly how much this concretely grew. Isn't there any bibliographic study available? To my opinion the peer-reviewed articles on this topic are really recent, barely nothing before 2015. One of the first examples is: Thomä, J., Chenet, H., 2017. Transition risks and market failure: a theoretical discourse on why financial models and economic agents may misprice risk related to the transition to a low-carbon economy. J. Sustain. Financ. Invest. 7, 82–98. https://doi.org/10.1080/20430795.2016.1204847	Noted. Thank you for the suggested literature but it was not possible to include due to limited space.	Hugues CHENET	University College London	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
15027	8	33	8	36	Climate risk is no more endogenous than any other investment risk. All repayment risks are exogenous to an individual investor but endogenous to the financial system as a whole. Climate risk is no different from others. I recommend dropping the sentence that starts in the middle of line 33 and drop "In contrast" in the beginning of the next sentence. These do not add anything to substance and are conceptually incorrect.	The statement is not correct and it is at odd with the scientific literature in climate finance and with the statements of financial supervisors. Climate financial risk differs from non-climate financial risk because of model uncertainty, tipping points, and endogeneity. Endogeneity of risk means here that the risk depends on the action of the investors, collectively, on a time horizon of several years. Shocks on prices are typically modelled in finance as unaffected by the actions of the market participants. Of course, in reality there is an endogenous component in non-climate financial risk. An example is the CDS market where the risk of default of an entity can be affected if many market players purchase CDS on that entity. However, in most situations, this endogeneity is neglected by finance academic models and by the industry. Indeed, in most finance textbooks and standard pricing models, risk of individual investments is treated as exogenous. The systemic component mentioned by the reviewer is seldom accounted for by market players. Overall, the fact that this comment has been raised suggests that it could be useful to clarify the passage for some readers who are not familiar with these issues. We have thus revised the statement referring to the tools used by the financial sector rather than to financial risk per se: "The financial industry mostly relies on assessment tools that treat risk as exogenous, that is, not affected by the action of financial players themselves. In contrast, today's climate investment path affects directly the future risk itself. This leads to a feedback loop between the perception of risk and the materialization of risk and the necessity to assess several plausible future scenarios (see Section 15.6.1). "	Galina Hale	UC Santa Cruz	United States of America
49871	8	41			There are other important reasons that many investors show insufficient interest in climate finance today, including investment horizon, discount rate, a bias for existing products, a bias for investment products with multi-year data history, simple institutional inertia, and others.	Taken into account. Many of the issues raised are discussed within the chapter.	Jason Patrick	New Zealand Green Investment Finance	New Zealand
67319	8	42	8	42	typo: portfolio->portfolios (As long as the probability of the transition is not too small, investors who want to have portfolio that withstand all scenarios would rationally rebalance the carbon intensive investments towards low-carbon ones.)	Accepted and implemented	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
5577	8	44	84	44	Replce Renewable by "low carbon sources"	Noted. Paragraph has been reviewed and edited.	Michel SIMON	Retraité/ Pdt d'association	France
15029	8	47	8	47	Another issue that is not discuss is the horizon of public and private investments. In most scenarios both phisical and transition risks fall beyond the asset duration.	This statement is not correct. Transition risk can materialise by 2030 because a succesfull transition can only start well before 2040. Physical risk is already materialzing in certain areas and is expected to materialize more clearly in developing countries in the next 1-2 decades. If cashflows (even if discounted over time) from economic activities ranging from real estate, energy and infrastructures are valued taken this risks into account the associated asset prices are affected. We have revised the paragraph explaining that "Despite both physical and transition risk can become material within a time horizon that is relevant for the valuation of many financial assets (see Section 15.6.1)"	Galina Hale	UC Santa Cruz	United States of America
15031	9	1	9	12	The definition/description of "policy signal" is a bit vague here. The rest of the chapter describes various policy tools (fiscal, monetary, debt, risk-pooling) that could be useful in mitigating climate change. Which of these policies' movements would carry the most weight in inducing private investors to realign their portfolio?	The paragraph has been revised as follows: "The second aspect which reinforces the first, is the fact that, despite the initial momentum of the Paris Agreement, for many investors, both public and private, the policy signal is not strong enough to induce them to realign their investment portfolios. The term policy signal refers here to the announcement of fiscal or regulatory action, backed up by public guarantees or investments, with magnitude and time horizon that can resolve or reduce the uncertainty on the multiple scenarios generated by the endogeneity of climate risk."	Galina Hale	UC Santa Cruz	United States of America
16665	9	1	9	3	The"TCFD, NGFS" content should be presented in the summary This sentence is the core of the current financial investment problem. And the solution must be connected to the TCFD & NGFS.	Accepted and implemented. Added a sentence in the summary as "Initiatives of financial supervisors in cooperation with the private sectors, such as the G20 Task Force on Climate related Disclosures (TCFD) and the Network of Central Bankers and Financial Supervisors for Greening the Financial System (NGFS), have an influence both on governments and on the financial sector. They could thus play an important role in tr.iggering the policy signal and in supporting its credibility in the perception of the private sector."	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
77633	9	2	9	3	Policy signal has historically been both not strong enough, and the policy signal and climate-related financial risks to investor portfolios tends to play out over significantly longer time horizons than investment structures and liquidity needs operate over (investment decisions are generally over much shorter time scale than the decade/multi-decade cycles of climate change risks and opportunities).	The comment is relevant. But we state already that the credibility is conditional to an appropriate time horizon.	Alex Rau	Climate Wedge LLC	United States of America
10863	9	3	9	5	Is not a double endogeneity to be considered here? In addition to the financial risk being endogenous, the impacts are endogenous in the sense that beyond financial impact they concern the person of the investor in the real world, his family, his well-being, his life perhaps. Apparently this situation exerts little influence upon the investors when they have to decide to move and reallocate (or not) their investments.	Not clear how to address this comment. Endogeneity of risk means here that the risk depends on the action of the investors, collectively, on a time horizon of several years.	Philippe Waldteufel	CNRS	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
18537	9	6	9	12	the length of the policy commitment is also crucial (the policy signal must be: loud, long and legal), but this is only briefly mentioned in this para - could strengthen this reference at line 12	Accepted and implemented. We explained that "The term policy signal refers here to the announcement of fiscal or regulatory action, backed up by public guarantees or investments, with magnitude and time horizon that can resolve or reduce the uncertainty on the multiple scenarios generated by the endogeneity of climate risk."	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
77859	9	6	9	7	As per immediately above, suggest adding ALLCAPS to this statement "low carbon transition does not occur by itself and requires a strong enough policy signal OPERATING OVER A SUFFICIENTLY LONG TIME SCALE" to affect investment decisions.	Addressed. Not possible to put words in capitalised letter for reasons of editorial style. We have however highlighted the importance time horizon, magnitude, incentives and removal of barriers.	Alex Rau	Climate Wedge LLC	United States of America
84763	9	6	9	12	Note that the UK's independent Committee on Climate Change outlined 'Key components of Sectoral Policy' in its report "Policies for the Sixth Carbon Budget and Net Zero", December 2020 (page 26). It notes that sectors will "require a combination of consistent direction, investable incentives, enabling measures, preparing for the future and fairness", going on to highlight bullets on: clear, long-term direction; investable incentives; removal of non-financial barriers; preparation for future challenges and sector specific issues.The report is available from https://www.theccc.org.uk/publication/sixth-carbon-budget/.	Accepted and implemented. Thanks for the comment, which support the argument made in the paragraph. We revised as "In summary, the low carbon transition does not occur by itself and requires a strong enough policy signal, characterized by clarity, long-term direction, incentives and removal of non-financial barriers (see for instance, [TODO add reference to bibliography and adapt quote here] UK's independent Committee on Climate Change report "Policies for the Sixth Carbon Budget and Net Zero", December 2020 (page 26))."	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
86447	9	6	9	7	This is largely, but not entirely, true. This sentence seems to support the mistaken dogma that nothing game-changing can really be achieved by finance without government support. It could be edited to reflect that, looking at the opposite causality direction, there is some level of research effort focusing on identifying the market and financial dynamics that could themselves induce or force government policy changes and SOE energy transition. I think some space to explore and describe these potential dynamics should be given at some point within Chapter 15.	The comment is relevant. The financial sector has some influence over governments. Hence, if it recognizes climate risk and signal its willingness to act on capital reallocation, conditional to some government action, this can facilitate the dynamics. We have added a sentence in the end that acknowledge this double direction: "Initiatives of financial supervisors in cooperation with the private sectors, such as the G20 Task Force on Climate related Disclosures (TCFD) and the Network of Central Bankers and Financial Supervisors for Greening the Financial System (NGFS), have an influence both on governments and on the financial sector. They could thus play an important role in triggering the policy signal and in supporting its credibility in the perception of the private sector."	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
77861	9	8	9	8	As per above, suggest adding ALLCAPS: "that the commitment would be large enough AND SUSTAINED FOR LONG ENOUGH"	Addressed as per previous comment of the same reviewer.	Alex Rau	Climate Wedge LLC	United States of America
82381	9	9			"whatever it takes"; on this precise item, this grey paper (or any coverage in the media) could be referenced: Kalinowski, W., Chenet, H., 2021. The Case for a "Whatever it takes" Climate Strategy. Veblen Institute. Paris.	Accepted. The suggested literature has been included.	Hugues CHENET	University College London	France
58623	9	10	9	10	It would be good to have a small section or callout box on "public-private partnerships" with some thoughts on best practices.	Thanks for the suggestion. We are already beyond space limits to add a new box.	Government of United States of America	U.S. Department of State	United States of America
58625	9	11	9	12	Feed-in-tariffs (FiTs) may have been a positive incentive when renewable electric power costs were much higher than fossil fuel power costs and higher prices were warranted to promote technology commercialization and reduce externalities. There were implementation difficulties in defining appropriate FiT premium prices and ensuring that they were actually paid when promised. That approach is obsolete now that renewable power costs are lower due to technology improvements and economies of scale and location in production. The preferred approach to expand renewable energy use now is to reduce costs through efficient price discovery and greater competition via auctions. See: https://doi.org/10.1016/j.erss.2021.101917	The paragraph only states that there are lessons to learn from successes and failures of FiT. We have revised as "achievement and issues with with Feed-in-Tariffs models across countries provide useful lessons."	Government of United States of America	U.S. Department of State	United States of America
82383	9	11			"FiTs models" has not been introduced/defined before	Taken into account. The paragraph has been revised and edited.	Hugues CHENET	University College London	France
28901	9	13	9	13	Please See Chapter 18 WGII	Not clear to what passage the comment refers to.	Nathalie Hilmi	Centre Scientifique de Monaco	France
58627	9	15	9	15	Delete "(unexpected and unlikely)"	Accepted.	Government of United States of America	U.S. Department of State	United States of America
82935	9	15	9	15	words in brackets don't add anything	Accepted.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
82385	9	16			would be more logic to list country - sector - project - instrument in that order ?	Accepted.	Hugues CHENET	University College London	France
15033	9	19	9	20	For the forecast of the Cycles, where do turning points come from?	Accepted. cycles figure deleted	Galina Hale	UC Santa Cruz	United States of America
58629	9	19	9	20	Hypothetical Figure 15.1 is not useful.	Accepted. cycles figure deleted	Government of United States of America	U.S. Department of State	United States of America
9245	9	20	10	8	Figure 15.1. Is there any historical data reference for the curve of 2020 and before? If so, it is recommended to label. The report mentioned "(macroeconomic real cycles and global financial cycles) are likely to impact climate finance flows to all sub-sectors and geographies", and it is recommended to supplement supporting literature.	Accepted. cycles figure deleted	Yongxiang Zhang	National Climate Center	China

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
20405	9	20	9	20	Figure 15.1 is hard to interpret. What does it even represent? There is no descriptor for y-axis (and the units are given only as a note). What is GFC, why it's highlihted around 2009 in a box? Why the question mark? Please also clarify the figure caption so that it explanins the idea what you intend to convey. Throwing some half-hearted references "for more information" doesn't seem useful. (Besides, two of them are missing some reference information.)	Accepted. cycles figure deleted	Tommi Ekholm	Finnish Meteorological Institute	Finland
31205	9	20			Figure 15-1 has a strange message: Is IPCC projecting climate finance to collapse in coming years? At least specific numbers on the y-axis should be removed if this is to be an indicative representation.	Accepted. cycles figure deleted	Jochen Harnisch	KfW	Germany
67311	9	20	9	20	Figure 15.1 lacks i) a figure caption with explanation of the acronyms (e.g. GFC); an explaantion of the question mark (?); an explanation of the results. Some text on how to read and interpret it would be very useful.	Accepted. cycles figure deleted	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
82937	9	20	9	20	What's the message?	Accepted. cycles figure deleted	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
52887	9	27	9	27	There should be a period after "(Coeurdacier and Rey 2013)".	Accepted. cycles figure deleted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
70819	9	29	9	30	"(with greater expected volatility in more risky and more leveraged regions, see Figure 15.1)". Figure 15.1 does not show difference in risk among regions	Accepted. cycles figure deleted	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
18539	9	30	9	31	this section on the relationship between COVID-19 and climate financing seems to rely on one paper (Hepburn et al. 2020) which is quoted twice, however the related section in the executive summary refers to a `strong consensus' (page 5, line 8)	This comment is fair. I agree this should be addressed. leave revisions to Dipak	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
23555	9		9		We suggest the removal of figure 15.1, as the curves are strictly hypothetical, this does not provide much information for the reader. It could even be misinterpreted.	Accepted. cycles figure deleted	Government of France	Ministère de la Transition écologique et solidaire	France
23557	10	2	10	6	Is there academic work supporting this and which could be quoted? (economic slowdowns leading to lower climate finance flows) Has this occurred during the GFC in 2007-10?	Accepted. cycles figure deleted	Government of France	Ministère de la Transition écologique et solidaire	France
81791	10	10	10	12	see previous comment. Considering projects from the point of view of 'bankability' may run counter to addressing climate change and equity. (cf. Kate Bayliss & Elisa Van Waeyenberge (2018) Unpacking the Public Private Partnership Revival, The Journal of Development Studies, 54:4, 577-593).	Accepted. article cited	Elena Hofferberth	University of Leeds	Switzerland
58631	10	20	10	22	Global macroeconomic headwinds are not really the reason for climate finance stagnation since 2016. See: https://www.statista.com/chart/17687/global-gdp-growth-by-region/ Two key reasons are declining renewable costs affecting total private sector finance and political will for public international finance.	Noted. Addressed by inserting 'in part'.	Government of United States of America	U.S. Department of State	United States of America
70821	10	20	10	20	"The reason is global economic headwinds". This is too simple: One of the reasons is global economic headwinds, but the other ones are related to insufficient policy response and insufficient potential to create profitable investments in the low carbon economy given current price settings (e.g. lack of carbon pricing)	Noted. Addressed by inserting 'in part'.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
58633	10	37	10	39	"rising public fiscal costs of mitigation and adapting to rising climate shocks affecting public indebtedness and country credit ratings" is overstated as the second reason for low climate finance growth. No numerical data or citations were provided to support this statement.	Noted. Citations added	Government of United States of America	U.S. Department of State	United States of America
67297	10	39	10	39	The meaning of the sentence is unclear when referred to the references (limited evidence of impact of disasters on public debt on V20 countries). Suggestion: clarify otherwise remove	Accepted. amended to clarify	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
11019	10	42	10	48	A very long sentence (over 7 lines) makes the argument difficult to read, I suggest dividing up into several sentences here	Accepted. amended to clarify	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
11017	10	43	10	43	The statement in the brackets (perversely often….falling growth) appears speculative. If there is scientific evidence for the link between raising carbon taxes and "cutting taxes for the better off", references are needed	Accepted. amended to clarify	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
18541	10	43	10	44	It would be good to get some evidence for this statement, especially the reference made to countries "cutting taxes for the better off in an attempt to stimulate growth" as I am not sure this is right?	Accepted. Two papers cited to show the discussions on cutting taxes on the well-off to stimulate growth, one in EU and another in USA	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58635	10	43	10	48	These views on carbon taxation and subsidy removal are opinion, overgeneralized, and verbosely phrased. See: https://www.conservationfinancenetwork.org/2018/11/27/colombia-puts-tax-on-carbon#:~:text=In%20Colombia%2C%20one%20of%20the,to%20start%20working%20in%2017. Many countries have reduced fossil fuel subsidies and government debt between 2007 and 2017, although some have had the opposite experience (https://www.imf.org/~/media/Files/Publications/WP/2019/WPIEA2019089.ashx).	Noted. The opinion of the Secretary-General OECD and the IMF both see progress on carbon taxes as presented. Sentence modified to reflect some countries n(not all) faced pushbacks and difficulties. The latest OECD tax report to G20 cited.	Government of United States of America	U.S. Department of State	United States of America
70823	10	45	10	46	"often leading to roll-backs of such fiscal measures in high-income and low-income countries alike". I do not agree with the author here and if such a statement is being made, it would be useful to put a reference here of studies showing that carbon taxes and abolishment of fossil fuel subsidies have been rolled back. What was rolled back in many countries, and well documented, was e.g. deployment subsidies for solar panels as they provided a too generous business case. However, this is a different story than is being told here.	Accepted. References cited	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
58637	11	1	11	4	Climate Vulnerable Forum country members are important in climate adaptation, but not representative of countries important for climate change mitigation.	Noted. OECD report on status of G20 and 44 OECD countries on carbon taxes added.	Government of United States of America	U.S. Department of State	United States of America
67299	11	5	11	8	The reference (Dafermos et al. 2018a) is not included in the final list of references. I suppose it refers to the cited one (Dafermos 2018) that however doesn't focus on insurance or credit risk but focuses on the role of central banks' monetary policies in the low-carbon transition. Suggestion: i) clarify sentence and delete reference; ii) consider adding: NGFS 2019 "A call for action".	Noted. Added	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
11021	11	10	11	14	Please add references for the statement following "paradoxically…", as I am not aware of empirical evidence	Accepted. Deleted.	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
27979	11	10	11	14	Delete "But it is also the case that, even if at greater risk from stranded assets in the future, the large-scale financing of new fossil fuel projects by the same large global financial institutions started to rise significantly since 2016, paradoxically because of perceived lower private risks and higher private returns in these investments, than in alternative but perceived more risky low carbon investments.", as there are a number of reasons for invetsment in fossil fuels and this sentence is not policy neutral.	Noted. other factors also noted.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
67301	11	10	11	10	The sentence and reference "Central banks are beginning to take notice which is helpful (Carney 2019)." of the important role that central banks have been playing since 2017 with the creation of the Network for Greening the Financial System (NGFS 2017), and which is already well acknowledged in the literature. I suggest to delete this sentence.	Accepted.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
58639	11	21	11	22	Avoid imprecise and vague generalizations like "global real and financial cycle downturns tend to last a long time".	Noted.	Government of United States of America	U.S. Department of State	United States of America
15035	11	23	11	25	The sentence in parentheses is completely irrelevant to the topic and should be dropped.	Noted.	Galina Hale	UC Santa Cruz	United States of America
72571	11	23	11	25	Agree that the "flight to safety" mumbers are astonishing. To be useful as a concept here, the question to be posed might be how can policymakers and regulators make financing for climate action an attractive haven for risk-free investors, especially since they do represent investments and assets with significant physical protection from climate risks. This is an area of future development and emphasis	Noted.	Karan Capoor	World Bank	United States of America
15037	11	27	17	23	These two sections are very poorly written and need to be edited for style, but also can be made more concise by limiting content to the information actually pertaining to the topic.	Noted.	Galina Hale	UC Santa Cruz	United States of America
60305	11	28	16	45	An issue that is being overlooked in the impact of Covid (particuarly) and a 'just transition' narrative is the ESG bandwagon crowding out the the climate changed agenda - there is massive institutional invetor demand for ESG products before any meaingful SG standards have been developed - threre are dubious claims for the asset class and there is a dwith the risk that capital is funnelled away from climate adaptain and mititation to more generalist objectives with weaker climas - this is a huge risk - there is also a huge risk of an ESG bublble - ESG indices include tech stocks whose - both of these factors combining to undermine the cause of climate fiannce	Accepted. Addressed by inserting new sentence.	Andy Sloan	Guernsey Finance/Guernsey Green Finance	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
67303	11	36	11	40	The sentence "Second, more public expenditures are now expected to be required well into 2021...and related reference (Hepburn et al. 2020) will largely benefit from revision at the light of the current policy evidence and debate. Indeed, all major governments have already agreed to expand fiscal spending (see e.g. US, EU). Also, in the EU, the debate on how to align the Recovery Fund (for COVID-19 spending) to the climate targets (NextGenerationEU, Green Deal program) is well known and ongoing, as in the Biden administrration in the US. In several developing countries, the World Bank Disaster Risk Finance initiative is supporting goverments in the design of climate aligned COVID-19 recovery measures. The IMF has also been considering debt jubilee initiatives. Most measures introduced so far are aimed at containing socio-economic losses and thus, the point made by Hepburn ea (2020) at best falls in the large literature that highlighted the need to align COVID-19 spending to the climate targets. We will be likely to see whether goverments have started to align COVID-19 recovery investments with the climate targets only in the coming year.	Accepted. Section revised completely drawing on multiple literature and citations	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
23559	11	37	11	41	Concerning the statement "these are likely to place the greatest emphasis on two things: short-term boost to jobs and 'bail-outs' of small and medium-enterprises with the greatest multiplier impacts on recovery, and neither of these are likely to include a shift to a climate resilient long-term investments (Hepburn et al. 2020). This will mean even more public debt with virtually no room left in public budgets to finance additional spending on climate." it does not reflect Hepburn et al. 2020. The paper rather describes what should be recovery investments aligned with a low-carbon and resilient economy, and stresses that such investments have a high multiplier. Besides, this sentence mixes rescue measures (bail-outs) and recovery measures. This could be rephrased in order to stress out that, while recovery efforts from public finance could serve additional climate action, there is doubt that it will be so.	Taken into account. Addressed.	Government of France	Ministère de la Transition écologique et solidaire	France
11023	11	40	11	40	The statement that additional public spending for COVID-19 related recoveries means that there is "virtually no room left in public budgets to finance additional spending on climate" is not correct in general. While true for some countries, there will likely be large differences between countries, with some countries even finding cheaper financing conditions. Compare Steffen, B., Egli, F., Pahle, M., & Schmidt, T. S. (2020). Navigating the clean energy transition in the COVID-19 crisis. Joule, 4(6), 1137-1141.	Taken into account. Addressed	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
58641	11	40	11	41	Statement "about no room left in public budgets for climate spending due to the pandemic" ignores increases in developed country stimulus spending that have occurred and are planned. Some Western European countries and the U.S. have proposed increased public expenditures to reduce climate change. USAID is planning large increases in climate-related development assistance.	Taken into account. Addressed	Government of United States of America	U.S. Department of State	United States of America
18543	11	41	11	43	I think this sentence could be revised as it could be read as if additional tax reforms/fiscal measures may not be possible for a few years. To increase fiscal space, some countries have already undergone some tax reforms (e.g. reduction of tax expenditures in Nigeria and Kenya; solidarity taxes in Argentina). I would suggest (or something similar): "Third, on the public revenues side, output has collapsed everywhere, and will likely take time to recover, and with it, revenue collection has also decreased."	Taken into account. Addresssed	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58643	11	43	11	43	Additional taxes could include carbon taxes and public deficits could be reduced by reductions in counterproductive subsidies.	Taken into account. Addressed	Government of United States of America	U.S. Department of State	United States of America
67305	11	43	11	46	The sentence requires referencing. See e.g. the keynote speech by ECB's vice president Luis de Guindos (2020): https://www.ecb.europa.eu/press/key/date/2020/html/ecb.sp201112~0913fc32f3.en.html; the European Banking Authority's assessment of the impact of COVID-19 on the EU banking sector 2020: https://www.eba.europa.eu/covid-19-placing-unprecedented-challenges-eu-banks	Noted. Cannot cite a speech	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
81793	11	43			This view can be challenged. The British government has just announced an increase of corporate taxation, for instance. Big corporations, especially technology companies, have gained throughout the pandemic. These could be taxed more heavily. Global approaches to corporate taxation and taxation of wealth have to be included in the financial strategy, cf. Pietro Maffettone & Chiara Oldani (2020). COVID-19: A Make or Break Moment for Global Policy Making. Global Policy 11 (4): 501-507.	Accepted. Addressed	Elena Hofferberth	University of Leeds	Switzerland
58645	11	44	12	1	Statements like "Banks will not be in a good position to finance new longer-term investments such as climate" and "only ameliorating possibility is that governments and citizens will become more worried about natural catastrophes" are inaccurate and overly dramatic. Renewable energy costs are continuing to fall. Financing costs for the public and private sectors have fallen sharply and may encourage greater infrastructure investment.	Taken into account. Addressed	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82939	11	45	12	7	all speculation, no citations	Accepted. Multiple new citations added to back up each and every point	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
11025	11	46	12	7	The statement "Fifth, the only ameliorating possibility…." is not correct in this general phrasing. Besides the effect described, there might be further chances, for instance due to a crisis-related low long-term interest rate environment, and well-designed policy responses w.r.t crisis-response and recovery. Compare for instance Steffen, B., Egli, F., Pahle, M., & Schmidt, T. S. (2020). Navigating the clean energy transition in the COVID-19 crisis. Joule, 4(6), 1137-1141. Generally, this paragraph has a very negative sentinent, while the academic literature on the topic in my understanding does indeed warn of the dangers, but also underlines that outcomes will eventual depend on an appropriate policy response, and could be both negative or positive	Accepted. Revised	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
66321	12	7	12	7	In this regard, COP26 must have a strong financial agenda, including the launch of negotiations on a new collective finance target, which must be agreed by 2025. It is of utmost importance that developed countries reaffirm their commitment to increase public climate finance over the next few years to build confidence ahead of the next round of negotiations.	Accepted. Revised	José Manuel Gil-Cruz	World Resources Institute (WRI)	Mexico
11027	12	13	12	20	A detailed study on the matter has been presented by Gillingham, K. T., Knittel, C. R., Li, J., Ovaere, M., & Reguant, M. (2020). The Short-run and Long-run Effects of Covid-19 on Energy and the Environment. Joule, 4(7), 1337-1341.	Accepted. Revised	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
23561	12	13	12	21	It is necessary to add that such a decline in emissions is temporary and short-lived, and by no means announcing a new trend unless more structural changes in the economy come.	Accepted. Revised	Government of France	Ministère de la Transition écologique et solidaire	France
58647	12	13	12	27	Temporary emission reductions from short-term reductions in GHG emissions due to economic shutdowns are not relevant to this report and have no bearing on what will happen when economic activity returns to normal levels. There is no positive lesson there.	Taken into account. Revised	Government of United States of America	U.S. Department of State	United States of America
15039	12	16	12	16	Since in the next lines decline is reported with "-" sign, it should be "-30-35% peak decline". Also, "peak decline" is a bit of an oxymoron.	Accepted.	Galina Hale	UC Santa Cruz	United States of America
82277	12	22	12	26	A paper in review could help quantifying the range of possibilities of such behavioural cahnges as mentioned here: https://doi.org/10.21203/rs.3.rs-155224/v1	Rejected. Cannot take into account paper under revision till it comes out	Jarmo Kikstra	IIASA	Austria
58649	12	27	12	41	Short-term stimulus plans are not a strong basis for continuing, medium- and long-term climate financing. Hepburn (2020) conclusion that stimulus could either increase or partly decrease fossil fuel use is certainly weak and does not really address the entrenched fossil fuel powered economic system.	Taken into account. Revised	Government of United States of America	U.S. Department of State	United States of America
67309	12	27	12	29	The message of d) is very strong and not supported by the references you added, which are either wrong (Carney and Bank 2019: ??) or not coherent with the topic (please check reference in Jorda ea 2019). Consider acknowledging that there is not consensus and that the topic is highly debated. This issue is discussed Bolton et al. 2020 (already in the list of references).	Accepted. Revised	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
81795	12	27	10	46	Up to date evidence suggests that recovery packages fall short of being sufficiently sustainable and Paris compatible (cf. UNEP 2021. Are we building back better? Evidence from 2020 and Pathways to Inclusive Green Recovery Spending	Taken into account. Revised	Elena Hofferberth	University of Leeds	Switzerland
8799	12	30	12	41	In my opinion it would be important to also mention Barbier (2020), who argues that the suggestions of Hepburn et al. (2020) (cited in the mentioned passage of the chapter) are important, but argues that the transitiin to a "sustainable, low-carbon economy after the COVID-19 crisis will require long-term commitments(5–10 years) of public spending and pricing reforms" (Barbier, 2020: 700). Full reference: Barbier, E.B. (2020), Greening the Post-pandemic Recovery in the G20. Environmental and Resource Economics 76: 685–703.	Accepted. Revised	Karol Kempa	Frankfurt School of Finance & Management	Germany
11029	12	30	12	41	This appears a very detailed account of a single paper only (different from the style of the chapter otherwise). I suggest also referring to further scholarship on the matter, e.g. the three papers Kuzemko, C., Bradshaw, M., Bridge, G., Goldthau, A., Jewell, J., Overland, I., ... & Westphal, K. (2020). Covid-19 and the politics of sustainable energy transitions. Energy research & social science, 68, 101685. Steffen, B., Egli, F., Pahle, M., & Schmidt, T. S. (2020). Navigating the clean energy transition in the COVID-19 crisis. Joule, 4(6), 1137-1141. Gosens, J., & Jotzo, F. (2020). China's post-COVID-19 stimulus: No Green New Deal in sight. Environmental innovation and societal transitions, 36, 250-254.	Accepted. All major citations now included	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
67307	12	30	12	41	This section reviews a the paper by Hepburn ea 2020, and this is not common in an IPCC chapter. Furthermore, it is not clear how this enters the narrative. Several papers have provided a discussion of challenges and measures to consider climate into the design of COVID-19 recovery policies. Consider revising it.	Accepted. All major citations now included	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
8801	13	3	13	4	There seems to be a mistake in the beginning of the sentence: "Expectations that recovery the package stimulus…"	Accepted. Changed	Karol Kempa	Frankfurt School of Finance & Management	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
17917	13	3	13	4	sentence as it stands does not make sense; maybe eliminate 'the' before 'package	Accepted.	Robert Brecha	Climate Analytics	Germany
18545	13	3	13	3	grammar "recovery the package"	Accepted.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58651	13	3	13	5	Stimulus that speeds up economic recovery will also speed up a return to business-as-usual GHG emissions.	Accepted.	Government of United States of America	U.S. Department of State	United States of America
70825	13	10	13	28	Absent a stronger commitment to climate governance (e.g. carbon pricing), putting in place conditions &-d would most likely lead to a substantial increase in emissions: either by directly stimulating emissions, or by stimulating green investment with no corresponding disincentive for 'not green' activity financed from other sources. This should be recognised as part of this 'recipe'.	Taken into account.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
52923	13	13	14	13	Option for financing from G-20 governments will put a burden on developing countries since G20 includes developing countries. This is against the nature of PA and the convention.	Taken into account.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58653	13	13	13	14	Move "('green fiscal stimulus')" to end of sentence.	Accepted.	Government of United States of America	U.S. Department of State	United States of America
86907	13	15	13	26	section 15.2.4 Realigning climate finance towards a Just Transition To help the reader link narratives - for the final publication draft we should consider inserting a dLCM section cross-reference for these paragraphs where we have discussions on guarantees, social value of mitigation actions/carbon remediation assets and cross-border climate financing with technical assistance, partnership and derisking by multilateral, regional and global institutions (also page 15 lines 24-27, line 48 page 15)	Taken into account.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
81797	13	17	13	18	see above. De-risking strategies may involve burden shifting on to governments, undermining their long-term ability and autonomy to design low-carbon transition, and policy space in general. This applies to countries in the global South in particular, being a factor adverse to creating a global level playing field (cf. Yannis Dafermos , Daniela Gabor & Jo Michell (2021): The Wall Street Consensus in pandemic times: what does it mean for climate-aligned development?, Canadian Journal of Development Studies / Revue canadienne d'études du développement)	Accepted.	Elena Hofferberth	University of Leeds	Switzerland
23563	13	18	13	18	We recommand to add the following reference to the statement "the 'social value of mitigation actions' or SVMAs" : Hourcade, J. C., Pottier, A., & Espagne, E. (2018). Social value of mitigation activities and forms of carbon pricing. International Economics, 155, 8-18.	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
82389	13	22		26	same that remark N°7: it would be key to highlight that the vast majority of North/rich capital market flows have only limited (positive) impact on global South/poor countries... And actually the opposite could be true as most polluting infrastructures are in poor countries, only final goods beign imported to rich countries. ==> There is no mention of current ""sustainable finance"" frameworks' blind side: in particular it is surprising that sustainable finance policy frameworks being currently emphasized by policy makers and governments (in particular the European sustainable finance action plan) give no attention to investment/financing towards/in developing countries, which are the most needed ones. The Chinese plan for greening the financial system is actually mentioning this, esp. through the Belt and Road initiative, but broadly speaking the efforts and initiatives to make the financial system more sustainable, while focusing a lot on climate change, largely ignore finance flows from rich capital markets to poor countries in their priorities (whether via direct regulation or indirect incentives to financial institutions). (source Ameli et al. 2021 ""Climate investment traps in developing countries"" DOI: 10.21203/rs.3.rs-119752/v1 ==> current revised version of the paper, under review, discusses the IMF role)	Accepted.	Hugues CHENET	University College London	France
58655	13	23	13	24	"where as much as two-thirds of collective investment may need to happen" is speculative and uncited.	Accepted.	Government of United States of America	U.S. Department of State	United States of America
23565	13	27	13	28	Refering to "green QE" as the way central banks can contribute to a green recovert is too specific. It is rather the inclusion of climate in the action of central banks, which is not only monetary policy stimulus: it also include the financial stability and financial regulation.	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
28903	13	27	13	27	Does the ECB policy of quantitative easing impact environmental policy objectives? Journal of Economic Policy Reform doi.org/10.1080/17487870.2020.1855176: https://www.tandfonline.com/doi/abs/10.1080/17487870.2020.1855176?journalCode=gpre20	Accepted.	Nathalie Hilmi	Centre Scientifique de Monaco	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
52889	13	28	13	28	Carney and Bank 2019 is not included in the reference list.	Accepted.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
18547	13	29	17	23	The Just Transition section needs clearer articulation of policy recommendation	Accepted.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
19485	13	29	17	23	This section appears not so much as an assessment of published literature than a social sciences essay in which the author develops a new idea. Quite a few of the statements are not provided with actual references that would point to the points made, but various underlying pieces that would support the theory the present author(s) is putting forward and/or a framing nature, not speaking to the topic itself. It would be useful to rethink this section, perhaps compress its merits into what the published literature can directly support, and avoid proposing new substance beyond what the purpose of an assessment is.	Taken into account. Revised and changed to reflect literture	Markku Rummukainen	Lund University	Sweden
20425	13	29	17	23	This section would benefit from major rewrrite with a focus on condensing the text, removing ambiguous statements and stating things more explicitly. It would be critically important to first start by explaining what is exactly meant by Just Transition. There are rather few references to back the arguments, so it's not clear for the reader which of the statemements arise from research and which are the authors' own views.	Taken into account. Section revised and condensed	Tommi Ekholm	Finnish Meteorological Institute	Finland
20427	13	29	15	11	There is too much emphasis on covid-19, which was just discussed at length in the previous section, and the connection beteween covid-19 and this context is not exactly clear.	Taken into account. Where relevant, included more tightly	Tommi Ekholm	Finnish Meteorological Institute	Finland
58657	13	29	17	23	This section needs more work to define what is meant by "Just Transition" and to align that with other terms of art being used today such as Enviromental Justice and Energy Equity.	Accepted.	Government of United States of America	U.S. Department of State	United States of America
70827	13	29	17	23	This section requires major revision or deletion. The current version is problematic since its purpose is not clear. It seems to mix the authors' opinions and interpretations of political agreements, and cite scientific literature mainly in order to build an argument. This is quite far from synthesising the available scientific and technical evidence in line with IPCC Principles & Procedures in a manner that is policy relevant but not policy prescriptive. The problem begins the title which frames the section, "realigning climate finance towards a just transition". With this title, the authors appear to have created their own political goal and process, and then select literature in support of it. Other examples include p14 lines 17-24 where the authors appear to develop a 3-point just transition plan (or is this a device for synthesising the relevant literature?). Also, the use of 1st person "we" is not typical of IPCC reports.	Taken into account. Major revisions done	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
82337	13	29	17	23	In section 15.2.4 Realigning climate finance towards a Just Transition, it is important to add that the current COVID recovery plans at national level have opted for high-carbon choices and only a very small percentage (3-5% by our research) of the international COVID stimulus funding is committed to green initiatives. Reference: https://www.carbonbrief.org/coronavirus-tracking-how-the-worlds-green-recovery-plans-aim-to-cut-emissions In addition, section 15.2.4 has talked much of the theory as to why just transition is important, and could have cited some existing quantitative analysis on the benefits of a just recovery plan for COVID-19. Here is an example for reference: https://c40.my.salesforce.com/sfc/p/#36000001Enhz/a/1Q000000gRCH/24OgSbRwj1hZ305yJbyPMZJQKhXXWNYE8k8sr2ADsi8	Taken into account.	Yinlong Xu	Institute of Environment and Sustainable Development in Agriculture, Chinese Academy of Agricultural Sciences	China

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86449	13	29	17	23	I believe that this paragraph should be substanstially expanded, also to be in line with Chapter 1, Section 15.2.4, Pages 49 to 51. It should include the main dimensions of Just Transition: inequalities across countries and inequalities across time, to reflect impacts and responsibilities carried by different percentages of human population. This paragraph, per se, refers to inequalities only WITHIN COUNTRIES. It does not describe the much more important dimension of inequality and justice BETWEEN COUNTRIES and BETWEEN REGIONS; it also crucially does not not describe the most numerically important dimension, the one of inequality and justice ACROSS GENERATIONS. Limiting the discourse about Just Transition to underprivileged segments of the population within each single country represents a very poor definition of a truly "just" Just Transition. I understand that this paragraph was referring in particular to the impacts of the pandemics vs. the Just Transition issue, but the title must be clear on that, and the text must still refer to a definition of Just Transition consistently referred to in the Report. As mentioned in another Comment, such a definition, based on a separate discussion and analysis based on space and time dimensions (unlike the one in the Glossary) is missing in the Report. One should be provided, free from ideological approaches, giving proportipnal weight to numerically important dimensions, i.e. across countries and especially across generations. This paragraph correctly identifies two main components of the Just Transition discourse: burden and capability. No matter how we look at a Just Transition, the future generations will carry: 1) The highest burden of climate devastation and 2) Zero capability to reverse the inaction that caused it - also in the name of a flawed and skewed discourse on Just Transition.	Taken into account.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
86905	13	29	13	29	15.2.4 Realigning climate finance towards a Just Transition: We should consider inserting a cross-reference to broader "UNFCCC Equity Principles" in our narrative on Just Transition? The Paris Agreement makes reference to - "Acknowledging that climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity" - "In pursuit of the objective of the Convention, and being guided by its principles, including the principle of equity and common but differentiated responsibilities and respective capabilities, in the light of different national circumstances" Paris Agreement https://unfccc.int/sites/default/files/english_paris_agreement.pdf	Taken into account.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
58659	13	30	13	31	This call is opinion, not fact: "Evidence from COVID-19 pandemic suggests that a shift to a new social compact for a Just Transition in all public policies … has also now become urgent."	Taken into account. Clear citations included on recent policies	Government of United States of America	U.S. Department of State	United States of America
58661	13	32	13	34	Discussion of "ongoing global burden of disease distributed unevenly" is off the topic of this chapter.	Taken into account. Is relevant	Government of United States of America	U.S. Department of State	United States of America
58663	13	38	14	14	Relationship of pandemics to social unrest is off the topic of this chapter and the policy recommendations on a new social compact are political polemic inappropriate for this report. This comment also applies to Figure 15.2.	Taken into account. relevant and reduced	Government of United States of America	U.S. Department of State	United States of America
72573	13	45	13	45	Consider different word to "redistributive" as adjectve for taxes	Taken into account.	Karan Capoor	World Bank	United States of America
82181	14	1	15	11	Figure 15-2 like all Figures in this Chapter is not clear - blue clors and others dominate the printed labels makin it so difficult to read. Of course, the use of a single spacing in the document in addition to a 8 or 9 font is not helpful at all.	Taken into account. will try change colors	Smile Dube	California State University, Sacramento	United States of America
82941	14	2	14	2	whats the message in the Figure?	Taken into account. message clarified in text	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
11041	14	3	14	24	It remains obscure how the general/philosophical discussion on the "redrawing of a new social contract" fits into this chapter. With also very little references to literature, it appears more like a piece from an essay than a summary of the evidence. I suggest re-considering whether these two paragraphs are required	Taken into account. revised to show why	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
18549	14	3	14	5	is it really true that a new social compact has been redrawn `often' in the past? And at a global scale? These lines need more justificationl or toning down.	Taken into account. Citations done	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
20431	14	3	14	3	Figure 15.2 is almost impossible to interpret for an outsider and needs a complete overhaul. What does it even represent? Y-axis maybe represents something, but I'm not sure. What do the + and - signs stand for in the t-10y? Why "t0", does it mean "2020" or "now"? Is the grey line an emission pathway? For whom, the top incomes or global emissions? What are the red and green arrows on the left and how the meaninng of solid arrows differ from the dashed ones? This is all very confusing. What do the boxes on the right represent. I can't even read them properly (bad image quality), but how they relate to the stuff on the left? Please also clarify the figure caption so that it explanins the idea what you intend to convey. Throwing some half-hearted references "for more information" doesn't seem useful.	Taken into account. Will revise colors	Tommi Ekholm	Finnish Meteorological Institute	Finland
31209	14	3			Figure 15-2 is difficult to understand and would need to be simplified. Does it have a scientific or rather an ideological focus?	Taken into account. will revise colors	Jochen Harnisch	KfW	Germany
81799	14	4			This points to the importance of greater efforts of democratising economic and political systems.	Taken into account.	Elena Hofferberth	University of Leeds	Switzerland
81801	14	6			Growth has also allowed to brush over inequalities and social imbalances. Moreover, benefits of growth have been very unequal, with the top 1% benefiting most. cf. Gallagher & Kozul-Wright 2019. World Inequality Database.	Accepted.	Elena Hofferberth	University of Leeds	Switzerland
81803	14	11			Trade Unions play a big role in Just Transition processes and should be named here. cf. Darren McCauley & Raphael Heffron. 2018. Just transition: Integrating climate, energy and environmental justice. Energy Policy 119: 1–7.	Accepted.	Elena Hofferberth	University of Leeds	Switzerland
86451	14	14	14	16	As mentioned earlier in my Comments, the COP 24 Silesia definition of Just Transition does not adeqately represent the global and generational dimensions of Just Transition, and it is therefore to be referred to by mentioning its very specific focus and limited scope. In other words, it might be looked at as "a piece of the puzzle", but not a good candidate for an overall definition of Just Transition.	Accepted.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
86453	14	17	14	24	This paragraph appears to refer to a definition of Just Transition in line with the COP 24 definition, i.e. a national focus even when referring to more vulnerable countries. I think a global search and review for the words "Just Transition" over the entire report is necessary to make sure it is clear when it refers to the limited-scope COP 24 definition, when it more correctly refers to more dimensions such as in Chapter 1, Section 15.2.4, and when (with capital letters, "Just Transition") refers to a definition of Just Transition which is still missing and should be given separatedly somewhere in the Report, including all dimensions and assigning proportional weight to the numerically important dimensions of burdens and capanilities of the transition, i.e. across countries and especially across generations.	Taken into account.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
58665	14	21	14	24	It is not the role of the for-profit private secor to invest for a Just Transition. Businesses invest to maximize risk-adjusted returns. Not-for-profit private sector motivations may differ (NGOs, foundations, etc.).	Taken into account.	Government of United States of America	U.S. Department of State	United States of America
58667	14	26	15	11	It is not surprising or relevant to this report on climate finance that higher-income countries could spend more on pandemic fiscal and monetary stimulus than medium- or low-income countries.	Taken into account. Relevance is to the size of resources available	Government of United States of America	U.S. Department of State	United States of America
1453	14		14		figure 15.2 has no quality	Taken into account.	Hamideh Dalaei	climatologist at Islamic Republic of IRAN Meteorological Organisation	Iran
3211	14		14		figure 15.2 has no quality to read.	Taken into account.	Hamideh Dalaei	climatologist at Islamic Republic of IRAN Meteorological Organisation	Iran
43449	14		14		figure 15.2 has no quality to read.	Taken into account.	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
50355	14		14		figure 15.2 has no quality to read.	Taken into account.	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
70027	14				Fig 15.2: the figure is complex, hard to read and its message is unclear. Some text on how to read and interpret it would be very useful. Consider revising it.	Taken into account.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82183	15	1	15	11	Global reserve currencies can and do issues bonds in their currencies. However, many developing counties still suffer from the Original Sin - unable to issue bonds in their own currency. There are increasingly more developing countries and sub national authorties that can do so. Thus, the recovery from the Covid pandemic will NOT improve the ability of these countries to inject liquidity into their economies and still have adequate space to include climate change, carbon mitigation, and overall adptation of their economies.	Taken into account.	Smile Dube	California State University, Sacramento	United States of America
23567	15	10	15	11	We recommand to add the following reference : Espagne, É., Godin, A., & Thomas Mélonio, A. (2020). Central banks at the heart of ecological reconstruction (No. c164f682-803f-4282-9d7a-6b889bdd647d).	Taken into account.	Government of France	Ministère de la Transition écologique et solidaire	France
58669	15	15	15	27	Calls for coordinated global pandemic stimulus are a political value judgment and short-term stimulus is not a sustainable, continuing source of climate finance to solve the long-term problems.	Taken into account. refers to cited papers	Government of United States of America	U.S. Department of State	United States of America
20429	15	24	15	27	One paper that would provide some concrete evidence and illustration for this is Ekholm et al. 2014 (http://dx.doi.org/10.1016/j.enpol.2013.04.001). They show how financial constraints could hinder the adoption of renewable energy (being more capital-intensive than fossil technologies), and how this problem is more pronounced in the developing countries, in the paper's case Sub-Saharan Africa.	Accepted.	Tommi Ekholm	Finnish Meteorological Institute	Finland
28905	15	24	15	27	Any reference?	Taken into account.	Nathalie Hilmi	Centre Scientifique de Monaco	France
60313	15	24	15	27	in terms of driving flows thru to sub saharan africa there is a need to create new structures to blend various types of private finance with public finance in addition to relying on the 'washington' consensus. See response to the CLFI consultation below: In our experience of developing policy and practice to encourage private capital, in its more narrow sense that is owners of significant private wealth investing through private structures into alternative assets classes, there are several practical aspects worthy of consideration to encourage the a greater flows of private capital to climate finance that could provide a pointer for investment into emerging economies including developing co-investment structures to crowd in private capital and equalising the demand and supply of risk adjusted returns through the development of structures and blended finance arrangements analogous to mezzanine arrangement of the private equity model. Transposing the approach taken by some to the financing of developing economies could be a route supplanting a textbook demand for developed (western) world macroeconomic parameters. Alongside this, in our own work we are giving working on the encouragement of a longer-term investment horizons in private capital, development of permanent capital and evergreen investment arrangements, given consideration to the appropriateness of the development of hybrid legal structures to accommodate heterogenous but parallel investment strategies and terms building in secondary liquidy within a closed ended arrangement. The relevance of such an innovative approach to structuring of collective investment would obviously not be restricted to emerging market investment. Another area of niche (but significant niche) interest, not included in the discussion of consideration 1 in the paper, is the encouragement of greater supply of private capital through the development of trust and foundation structures expressly designed to support the greater flow of family office and private wealth. Whilst the UN may had determined that in its opinion the debate determining the absence of conflict of ESG with fiduciary duty is concluded, for most the case is not proven. Creating a supportive private legal environment for those responsible for carrying out such duties should rationally catalyse a greater supply	Taken into account. Cannot go into regional details	Andy Sloan	Guernsey Finance/Guernsey Green Finance	United Kingdom (of Great Britain and Northern Ireland)
28907	15	28	15	29	Please explain why 100000 billion USD	Taken into account.	Nathalie Hilmi	Centre Scientifique de Monaco	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
53539	15	28	16	4	Given that the Katowice Rulebook took transparency rules as far as was possible suggesting that more should urgently be done in this domain, is not appropriate. The notion of "net flows" does not exist under the Paris Agreement or UNFCCC and was deliberately excluded. In addition it runs against the USD 100bn goal commitment, which clearly states that it should come from a variety of sources and instruments. Furthermore, the statement is soley based on one scientific source. We therefore suggest to delete lines 28-48 and 1-4 ("One of the most pressing actions that would be beneficial is to accelerate the implementation of the 100 billion USD a year and more in climate finance commitment from developed to developing countries, by agreeing rapidly on key definitions. Shifting to a grant equivalent net flows definition of climate finance, which is now universally accepted for all other aid flows by all parties since 2014 and which took effect since 2019 on every other public international good finance provision (under the SDGs), with the sole exception of climate finance, would resolve many uncertainties: the disbursement of climate finance flows on a grant equivalent basis that is comparable across institutions, instruments and countries, and measure with precision the effective transfer of resources (...) The absence of such a collective decision continues to be exceptionally costly for the implementation of the Paris Agreement and its collective actions because of the fractious and seemingly insoluble negotiating climate that this has created (Roberts and Weikmans 2017)."	Taken into account.	Government of Switzerland	Swiss Federal Office for the Environment Federal Department of the Environment, Transport, Energy and Communications DETEC Federal Office for the Environment FOEN International Affairs Division	Switzerland
58671	15	28	16	4	Long discussion of changing aid definitions to grant equivalent is a digression. Statement that "The world would gain collectively ..." is a speculative value judgment, rather than a fact. Loan guarantees can mobilize far larger amounts of private capital than are likely to be forthcoming from donor grants, especially with constrained, current fiscal resources of donor countries (a point mentioned earlier in the draft).	Taken into account. Net grant equivalency definition does not exclude private finance, sentence inserted.	Government of United States of America	U.S. Department of State	United States of America
70829	15	28	16	4	These lines need to be rewritten in a manner consistent with the IPCC Principles & Procedures or else deleted. In particular, discussion on the definition and modalities of climate finance must be policy relevant but not policy prescriptive. The section appears to argue that there are definitional issues to be addressed (definitions of climate finance and the concept of alignment). If so, these should be covered in a section dealing with definitions in Section 15.2.	Taken into account. The discussion is about bringing in literature to illustrate the issues	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
77863	15	28	15	29	Should specify that the 100 billion USD commitment was agreed at the Copenhagen climate summit COP15 in 2009	Taken into account. Already known	Alex Rau	Climate Wedge LLC	United States of America
84383	15	28	15	28	This paragraph raises an important issue - that of agreeing on definitions to unlock the flow of capital. I agree with the view of this paragraph but I think it would be useful to reiterate the need to make progress simultaneously on developing strict and transparent criteria for what a climate-aligned / mitigation project is. Otherwise, the impact of increased flow of capital can still be reduced by allocating the money to greenwashed projects and infrastructure.	Taken into account.	Penny Apostolaki	Independent Experts / Current employment: Barclays Bank	United Kingdom (of Great Britain and Northern Ireland)
27981	15	29	15	29	After "developing countries", add "commensurate with their financial needs to enhance their climate actions".	Taken into account. This is fairly explicit and obvious	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
23569	15	30	15	35	Concerning this sentence, at COP16, the Parties affirmed the commitment on the $100 billion expressed in the Copenhagen Accord and agreed that “funds provided to developing country Parties may come from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources”. There is an operational definition of climate finance flows from developed to developing countries	Taken into account. Does not rule out funds from variety of sources	Government of France	Ministère de la Transition écologique et solidaire	France
23571	15	30	15	30	Concerning the statement "agreeingly rapidely on key definitions", Such a definitional shift would unnecessarily undermine loan-based financial instruments which are sometimes the most appropriate (e.g. when there is a business case). Quoting a reference would be needed here.	Taken into account. Grant equivalency can handle all types of flows	Government of France	Ministère de la Transition écologique et solidaire	France
58673	15	30	15	35	Uses of climate finance that support profitable investments, such as clean energy, are more appropriately financed through loans rather than grants. Loan reflows will increase the scale and sustainability of this financing so that more people can benefit. A focus on grant funding for infrastructure instead of loans may also lead to maladaptation by increasing reliance on more expensive physical engineering (grey infrastructure) solutions instead of green infrastructure (nature-based solutions). Green infrastructure may be less costly and have other economic, environmental, and social benefits (one example is discussed in https://pdf.usaid.gov/pdf_docs/PA00MXMG.pdf).	Taken into account. Does not rule out private loans	Government of United States of America	U.S. Department of State	United States of America
82943	15	30	15	32	Explain grant equivalence? I have an intuitive sense but it would be good to have it clear.	Taken into account. sentence added	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
27983	15	36	15	36	Replace "Overseas" with "Official".	Accepted.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
29597	15	36	15	36	Nine years, not "enormous time", as the current ODA definition is from 1969. Please consider modifying the language.	Taken into account. Dates are shown	Government of Norway	Norwegian Environment Agency	Norway
29599	15	41	15	42	Please elaborate/explain the affirmation "Even private flows would benefit, by gaining clearer access to public funds defined on a grant equivalent basis".	Accepted. sentence added	Government of Norway	Norwegian Environment Agency	Norway
64381	15	41	16	9	One key gap is the near complete absence of data on individual expenditures e.g. to adapt to cliamte change. For isntance, hundreds of millions of small-holder farmers are doing their best to adapt their livelihoods to the changes around them - but there is no assessment on the total volume of this though it is probably significant. One could add a bullet here to at least recognise this.	Accepted. Unfortunately, there is no data as noted	Jan Kowalzig	Oxfam	Germany
349	15	44	15	44	Better specify AIR pollution	Noted.	Sandro Fuzzi	ISAC CNR	Italy
81573	15				Several of the figures and text within are not crystal clear (e.g. Figures 15.2-15.4, 15.6, 15.10-15.11).	Noted.	Peter Phelps	University of Leeds	United Kingdom (of Great Britain and Northern Ireland)
29601	16	1	16	2	Please elaborate/explain the statement "The absence of such a collective decision continues to be exceptionally costly"	Noted.	Government of Norway	Norwegian Environment Agency	Norway
29603	16	1	16	4	Please modify the text to show that this is not limited to the question of the grant equivalence aspect of the 100 bill goal. Decision FCCC/CP/2009/11/Add.1 is referenced at page 25, line 25-29 and it does not say anything on grant equivalence.	Noted.	Government of Norway	Norwegian Environment Agency	Norway
23573	16	5	16	6	We suggest to complete, not just after the pandemic: ensuring a just transition is also a concern for the rescue phase.	Noted.	Government of France	Ministère de la Transition écologique et solidaire	France
86909	16	6	16	6	We should consider inserting a reference to "science-centred UN Build Back Better" plan to help anchor the reader	Noted.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
58675	16	9	16	13	One cited source does not constitute enough evidence on the jobs question. There are some studies specifically on renewable energy, but a lifecycle analysis is needed on the whole value chains.	Noted.	Government of United States of America	U.S. Department of State	United States of America
58677	16	13	16	15	Facts and figures with citations needed for statements about financing expansion from multilateral financial institutions as bilateral aid flows have fallen sharply.	Noted.	Government of United States of America	U.S. Department of State	United States of America
10203	16	18	16	31	Seems like the operative distinction here is between "complicated" problems and "complex" (more specficially, wicked or super-wicked) problems - well-characterised in the literature so might be useful here to make the distinction explicit, e.g. Levin et al, Policy Sci (2012) 45:123–152	Noted.	Gary Kendall	Nedbank	South Africa
52891	16	18	16	28	The sentence that starts with "A review…" is too long, 11 lines. Should be shortened or broken into separate sentences. The examples can be provided in footnotes.	Noted.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
70831	16	18	16	35	This is not especially about finance. The knowledge that there is a prisoners dilemma and unequal distribution of costs has been made before and should basically being made in the beginning of the chapter and not every now and there….	Noted.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
58679	16	19	16	21	Listed conditions for successful disaster and health risk management that a "small number of actors are involved, solutions are relatively well-established scientifically, and public costs to address them are relatively small" do not seem to apply to climate mitigation and adaptation financing, except for utility-scale renewable energy now that the costs have fallen.	Noted.	Government of United States of America	U.S. Department of State	United States of America
52893	16	31	16	32	"As one observer…" A reference is needed for this statement. Otherwise, it is not clear, why this opinion note deserves to be stressed in the report.	Accepted.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58681	16	31	16	38	There should be no unattributed quotes in the IPCC report. The first part is not controversial since it is basically defining the economic concept of externalities. The second part about unequal burden sharing leading to a sense of victimhood and policy backlashes is an opinion that should be deleted.	Accepted.	Government of United States of America	U.S. Department of State	United States of America
82945	16	31	16	38	"One observer" is not a sufficient citation!!!	Accepted.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
10205	16	32	16	38	Atrribution? "As one observer notes…" who/where? Also quote needs work, reads poorly (some missing words?).	Accepted.	Gary Kendall	Nedbank	South Africa
15041	16	32	16	38	Source is needed for the quote.	Accepted.	Galina Hale	UC Santa Cruz	United States of America
27985	16	36	16	36	After "climate policies", delete (.).	Accepted.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58683	16	42	16	43	Environmental and social benefits already have to be labeled in green bonds and climate bonds to receive certification. https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-green-bond-standard_en; https://www.climatebonds.net/market/best-practice-guidelines https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/	Noted.	Government of United States of America	U.S. Department of State	United States of America
81805	16	42			ESG as private, voluntary mechanism is prone to 'greenwashing' (cf. Yannis Dafermos , Daniela Gabor & Jo Michell (2021): The Wall Street Consensus in pandemic times: what does it mean for climate-aligned development?, Canadian Journal of Development Studies / Revue canadienne d'études du développement). The need for common public binding standards should be stressed.	Accepted.	Elena Hofferberth	University of Leeds	Switzerland
70833	16	44	17	23	It is not clear what kind of lists you are using here. Level of attention, or level of argument? What is the "first level of argument" then?	Noted.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
70835	16	44	17	23	These texts are not the strongest in the chapter and could be considered for substantial shortening. It is .e.g unclear why at the end suddenly a project is being mentioned in the UK by the Grantham and LSE cooperating iwth UK Finance. Should this serve as an example to other countries? And what is the outcome of the project in terms of lessons learned? There are every year hundreds projects started using a combination of public,private and academics and most of them do not survive the period of funding, so I would be cautious to include these as examples in the AR6 unless we can really learn lessons here and now for sure that partnerships endure longer than the period of governmental funding......	Accepted.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
58685	16	47	16	47	In many countries, not true that only national governments and not subnational governments can borrow.	Noted.	Government of United States of America	U.S. Department of State	United States of America
27987	17	14	17	15	Replace "decarbonization" with "mitigation" measures; and replace "fossil fuels" with "various economic sectors and industries".	Noted.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
52895	17	18	17	18	The phrase "just transition" needs to be capitalized to be inline with the rest of the chapter	Noted.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
11031	17	19	17	23	The detailed description of a specific research project and its financiers seems inappropriate for the chapter style	Noted.	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
58687	17	19	17	19	Large-scale climate mitigation is not likely to be achieved with a focus on SMEs. Climate adaptation financing is more relevant for SMEs.	Noted.	Government of United States of America	U.S. Department of State	United States of America
82391	17	19		23	quite too anecdotical. The first 17 pages avoid such anecdotes. (+ word missing for Grantham "Institute" l.21?)	Accepted.	Hugues CHENET	University College London	France
66323	17	20	17	20	Delete "and" at the beginning of line 20 and append the following: "universities, NGOs and civil society organizations (CSO) for more carefully....".	Taken into account.	José Manuel Gil-Cruz	World Resources Institute (WRI)	Mexico
60307	17	25	19	27	private wealth should be considered as a separte actor in its own right. There needs to be a more granular distinction between private capital - this is an issue with the CoP agenda too. Private capital does not just mean non public funds, in the finanical world it usually means alternative instruments and private (ie none institutional) investors. The significance of private capital and alternatives assets has increased hugely given global changes in wealth distribution over the last three decades. Private wealth - ie family offices - is a hugely significant sub set of the traditional sense of private capital and can usually invest with greater concern to impact. Either way it is estimate that up to $40trn is potentially available to be unlocked and transfers of owenership across generations likely to catalyse greater flow.	Taken into account. Private wealth added as a source in the Box on financial actors and instruments	Andy Sloan	Guernsey Finance/Guernsey Green Finance	United Kingdom (of Great Britain and Northern Ireland)
263	17	26	17	29	Whether CCC is a subset of Sutainability or the otherway around is purely subjective, I would argue that CC is the overarching frame, in that the eviudence from previous reports and the literature would clearly indicate that if CC is not tackled then the SDG and other environmental targets are not achievable.	Taken into account. Addressed in edits	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
70837	17	26	20	38	This is an important definitional paragraph which I would have been expected to read at the top of the Background Section. So consider moving this in parts (especially definitional aspects) to 15.2 just to frame the whole chapter better. However parts of this text, e.g. distinction between public and private, should be here as this is not a definitional question, but a caveat to the data used in 15.3.	Noted. Being considered together with co-LAsand CLAs	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
86455	17	26	17	28	I think climate finance is more correctly defined outside of environmental finance, because the climate crisis represents a close and existential threat to human civilization. The climate emergency is an environmental problem but first and foremost a human survival problem.	Taken into account. Addressed in edits	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
81807	17	29			ESG as private, voluntary mechanism is prone to 'greenwashing' (cf. Yannis Dafermos , Daniela Gabor & Jo Michell (2021): The Wall Street Consensus in pandemic times: what does it mean for climate-aligned development?, Canadian Journal of Development Studies / Revue canadienne d'études du développement). The need for common public binding standards should be stressed.	Noted. Addressed where discussing ESG and market integrity in other parts of the chapter	Elena Hofferberth	University of Leeds	Switzerland
58689	17	30	17	30	Something missing after "each other as"	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America
58691	17	33	17	35	"Climate finance" definition should be at the beginning of this report.	Noted. Being considered together with co-LAsand CLAs	Government of United States of America	U.S. Department of State	United States of America
82393	17	33		35	different from the definition used on p. 6 (cf. the use of "seek" and other notions of "will" in other places / see my previous comments); Here the notion of expectation is not necessarily from the investor/financer, it's from an observer. It's quite different from an expectation from the investor itself (then it can be seen as a will).	Taken into account. Text edited including coross referencing the chapter Box discussing the investor and financier perspective	Hugues CHENET	University College London	France
265	17	39	17	40	This is a very valid point, however it needs to be addressed higher up the chapter and merged with th discusion on the definition of climate finance	Noted. Being considered together with co-LAsand CLAs	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
58693	18	1	19	14	Climate finance definitions should be at the beginning of this chapter.	Noted. Being considered together with co-LAsand CLAs	Government of United States of America	U.S. Department of State	United States of America
82947	18	1	18	1	Shouldn't this box come earlier? Its foundational	Noted. Being considered together with co-LAsand CLAs	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
3563	18	7			As 'Investment' in line 13 and 22 is in italics, 'Cost' should probably be as well.	Editorial. Noted	Niccolò Manych	MCC Berlin	Germany
3565	18	26			As 'Investment' in line 13 and 22 is in italics, 'Financing' should probably be as well.	Editorial. Noted	Niccolò Manych	MCC Berlin	Germany
3567	18	37	18	42	The problem of the strict boundary between public and private focuses on the commercial aspect, thus it would be useful to mention that public is official and private is commercial, e.g. like on page 19, line 30: public (official) and private (commercial).	Noted. The paragraph referenced already takes a nuanced view by stating that some "public" finance can be commercial and some "private" finance be of philantropic nature of come with advantagieous conditions	Niccolò Manych	MCC Berlin	Germany
51621	19	1	19	8	Box 15.3, p. 15-19 Table 1 lists sources of finance on the left - taxes and levies, earnings and savings and capital markets. These have very different implications for financial flows. Public and private finance are not simple substitutes. A renewable energy project might be financed up front with capital markets and savings but in the long term, it will be underpinned by a power purchase agreement with the (usually public sector) utility. This will lead in the long-term to an outflow of funds to the private sector from tax payers and electricity consumers. It is vital that the different implications of these different financing mechanisms, in terms of cost and social equity are fully analyzed.	Noted. Very valid point and discussed in other parts of the chapter, e.g. on enabling conditions. PPA or equivalent do not per finance the initial investment, they greatly contribute to making it a profitable investment and hence help convince investors and financiers	Kate Bayliss	SOAS, University of London	United Kingdom (of Great Britain and Northern Ireland)
267	19	7	19	14	It is good to have this table, howvere it is incomplete, especially from the perspective of the private sector	Noted. Categories are deliberataly quite broad as we would otherwise need to specify a very long list of individual actors without still being comprehensive	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
10207	19	7	19	8	Choice of formatting makes this information less accessible - please reconsider (e.g. justification creates unnecessary large white space between "Public" and "financial" in the Actor column).	Editorial. Noted	Gary Kendall	Nedbank	South Africa
8277	19	16	19	27	I would suggest to mention the EU Taxonomy, and it's benefits and critism, as an attempt to create a clear definition of what is considered to be green.	Noted. EU Taxonomy and taxonomies more generally discussed later in the chapter	Frida Zahlander	DanChurchAid	Denmark
66325	19	27	19	27	In order to provide certainty in climate finance, taxonomies can be useful instruments as they provide clarity and transparency to the different market investors while being supported by a scientific basis and backed by regulatory bodies (as in the case of the European Union taxonomy). This could provide a tool to facilitate green recovery and increase sustainability in national economies.	Noted. EU Taxonomy and taxonomies more generally discussed later in the chapter	José Manuel Gil-Cruz	World Resources Institute (WRI)	Mexico
269	19	28	20	18	Good box, needs to be aligned with CH17 WG2	Noted.	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
63409	19	29	19	30	Recommend the following alternative wording: " Public international climate finance can flow through different multilateral, bilateral, regional and other channels". This change will ensure consistency with the list of channels agreed within the modalities, procedures and guidelines on reporting finance under the Paris Agreement's Enhanced Transparency Framework.	Taken into account. Edited accordingly	Government of Canada	Environment and Climate Change Canada	Canada
23575	19	33	19	33	Make sure that GCF is explained (Green Climate Fund) in the chapter. Also mention other multilateral climate funds under the Financial Mechanism (Adaptation Fund, GEF)	Taken into account. Edited accordingly	Government of France	Ministère de la Transition écologique et solidaire	France
8275	19		19		"Climate-relevant sectors" - as previously discussions in this report, education is also an essential relevant sector to mitigate emissions.	Taken into account. Edited accordingly	Frida Zahlander	DanChurchAid	Denmark

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
11033	20	2	20	2	What I am missing here is a discussion of the role not just of national development banks, but also of multilateral development banks (compare e.g. Steffen, B., & Schmidt, T. S. (2019). A quantitative analysis of 10 multilateral development banks' investment in conventional and renewable power-generation technologies from 2006 to 2015. Nature Energy, 4(1), 75-82.) and bi-lateral policy banks (compare e.g. Chen, X., Gallagher, K. P., & Mauzerall, D. L. (2020). Chinese overseas development financing of electric power generation: A comparative analysis. One Earth, 3(4), 491-503.)	Noted. Addressed later in the Chapter	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
81809	20	4			De-risking strategies may involve burden shifting on to governments, undermining their long-term ability and autonomy to design low-carbon transition, and policy space in general. This applies to countries in the global South in particular, being a factor adverse to creating a global level playing field (cf. Yannis Dafermos , Daniela Gabor & Jo Michell (2021): The Wall Street C onsensus in pandemic times: what does it mean for climate-aligned development?, Canadian Journal of Development Studies / Revue canadienne d'études du développement)	Taken into account. The suggested literature has been included.	Elena Hofferberth	University of Leeds	Switzerland
271	20	8	20	9	Can the ratio of ovehead spend to deployment of capital be provided (i.e. what % of the money for Climate Finance is pent on bureacracy)?	Noted. Only anecdotal quantitative evidence available	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
84385	20	17	20	18	Something is missing from this sentence	Taken into account. Edited accordingly	Penny Apostolaki	Independent Experts / Current employment: Barclays Bank	United Kingdom (of Great Britain and Northern Ireland)
82395	20	21		23	The discussion on this is not that clear for many stakeholders. Personal quote: sometimes reviewers of articles on climate finance (in the broad sense) comment that "Art.2.1(c) has nothing to deal with capital markets!!" … A bit more arguments and references would be welcome. E.g. Zamarioli et al (under review) "Climate-consistent finance as a pretty penny for climate action".	Noted. Further context provided to support the transformational perspective provided by Article 2.1c and its link to the alignment concept used on the ground	Hugues CHENET	University College London	France
82397	20	26			on climate alignement, cf. Raynaud, J., Voisin, S., Tankov, P., Hilke, A., Pauthier, A., 2020. The Alignment Cookbook - A Technical Review of Methodologies Assessing a Portfolio's Alignment with Low-Carbon Trajectories or Temperature Goal. INstitut Louis Bachelier. Paris. Chenet, H., Hilke, A., Duan, W., 2017. Finance sector alignment with international climate goals – Reviewing options and obstacles. SSRN Electron. J. https://doi.org/https://dx.doi.org/10.2139/ssrn.3322324	Taken into account. Reference added, along with other references	Hugues CHENET	University College London	France
82399	20	28		38	Raynaud et al. 2020 would need to be referenced besides other references of this paragraph	Taken into account. Reference added, along with other references	Hugues CHENET	University College London	France
27989	20	30	20	30	Delete "includes remaining fossil fuel-related investments and".	Noted. Reworded to "remaining investments and financing for high-GHG emission activities"	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
58695	20	33	20	35	Unnecessary, obvious statement that ignores the usual situation of complex tradeoffs.	Noted. Edited	Government of United States of America	U.S. Department of State	United States of America
82189	21	1	21	11	Figure 15.3 is not useful as the labels are hardly readable	Noted. Layout to be improved	Smile Dube	California State University, Sacramento	United States of America
83913	21	4	21	4	The definition of GDP from the expenditure side is misleading in its reference to OPEX. GDP from the expenditure side is made up of investment and final consumer (including government for accounting conventions) expenditure completely netting out OPEX. What the definition alludes to is Gross output, which is considerably larger than GDP. I would suggest just striking OPEX to correct this.	Taken into account. Edited	Gregor Semieniuk	University of Massachusetts Amherst	United States of America
83911	21	5	21	5	To avoid confusion about GDP, I recommend adding that the global GDP figure is in purchasing power parity (and at current or constant 2017 PPP USD?).	Taken into account. Edited	Gregor Semieniuk	University of Massachusetts Amherst	United States of America
58697	21	6	21	10	Limitations of GDP are well known and are best referenced.	Noted. Limitations already acknowledged. Language strangthened and reference added.	Government of United States of America	U.S. Department of State	United States of America
58699	21	10	21	11	Figures need consistent labels on y-axis.	Taken into account. Adjusted	Government of United States of America	U.S. Department of State	United States of America
58701	21	10	21	11	Update beyond 2018 if there is agreement that it is important to show non-climate financial flows in a report on climate financing. GDP is not an indicator of financial flows. Figure15.3 is by location as well as type of economy.	Taken into account. Updated to 2020	Government of United States of America	U.S. Department of State	United States of America
82401	21	10		11	explanation of the fig.15.3 is not clear; esp the unit used ; + the explanation (graph seems to stop in 2018, while the number quoted is for 2019)	Noted. Edited	Hugues CHENET	University College London	France
10209	21	11	21	11	Vertical axis label missing, both panels (e.g. "GDP, 2017 $ trillion") - compare with Figure 15.7	Taken into account. Added	Gary Kendall	Nedbank	South Africa
70839	21	11	21	11	Consider stacking the lines so that they match the global total, what is the unit of the Y-axe? Percentiles or billion US$?	Taken into account. Updated	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10865	21	13	21	15	This figure allocating 60% of GHG emissions to direct responsibiity of infrastructures over a life cycle is surprizing. Does that mean for example that CO2 emitted while building a coal electric plant will reach 1.5 times the CO2 released by the plant during its operating lifetime ?. Is this supported by the sectoral analyses included in the report?	Taken into account. Reference removed as length limitation does not allow getting into the necessary details	Philippe Waldteufel	CNRS	France
58703	21	13	21	15	But wouldn't it also capture, e.g., production of wind turbines which directly reduce emissions? As fewer coal mines and oil rigs are built and more wind turbines established, will the relationship described here shift accordingly?	Taken into account. Reference removed as length limitation does not allow getting into the necessary details	Government of United States of America	U.S. Department of State	United States of America
27991	21	15	21	16	Check the units used. Should these be "trillion" or "billion"?	Taken into account. Corrected	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
53541	21	15	21	16	Shouldn't amounts be in trillions rather than billions?	Taken into account. Corrected	Government of Switzerland	Swiss Federal Office for the Environment Federal Department of the Environment, Transport, Energy and Communications DETEC Federal Office for the Environment FOEN International Affairs Division	Switzerland
67351	21	15	21	17	Passage: "In 2018, global GFCF reached 21.9 billion USD 16 compared to 15.4 billion USD in 2008, a 42% increase (Figure 15.4).". There seems to be an error: the figures are in thousands of billion i.e. trillion. Otherwise the ratio over GDP mentioned earlier would not hold. In anycase, the WB data confirm that these are trillion (see https://data.worldbank.org/indicator/NE.GDI.TOTL.CD)	Taken into account. Corrected	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
70841	21	15	21	16	Shouldn't amounts be in trillions rather than billions?	Taken into account. Corrected	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
52933	21	20	21	21	Should also add convention goals not just PA. Additionally, editorial mistake to add cross reference to chapter.	Taken into account. Edited	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58705	21	21	21	21	Which temperature goal? 1.5 or 2°C?	Taken into account. Edited	Government of United States of America	U.S. Department of State	United States of America
15043	22	0	22	1	What are the unites on the vertical axes?	Taken into account. Added	Galina Hale	UC Santa Cruz	United States of America
10211	22	1	22	1	Vertical axis label missing, both panels (e.g. "GDP, 2017 $ trillion") - compare with Figure 15.7	Taken into account. Added	Gary Kendall	Nedbank	South Africa
19987	22	1	22	1	Figure 5.4 is not legible. It is importnt to improve the quality and legibility of the Figure	Taken into account. Edited	Rafiu Adewale Aregbeshola	University of South Africa	South Africa
58707	22	1	22	1	Figures need consistent labels on y-axis.	Taken into account. Edited	Government of United States of America	U.S. Department of State	United States of America
58709	22	1	22	1	Not clear why total gross capital formation is relevant to climate finance.	Noted. We use it as a way to put climate investments, actual and needs, into perspective	Government of United States of America	U.S. Department of State	United States of America
70843	22	1	22	1	Consider representing these as % of GDP to support the message above the text on p21	Noted. We do want to keep the GFCF volumes as we use them to put climate investments, actual and needs, into perspective	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
82191	22	1	22	1	Figure 15.4 is totally unreadable - the issue of font size again.	Noted. Layout to be improved	Smile Dube	California State University, Sacramento	United States of America
81577	22	3	22	4	"One the stock side (Figure 15.5), there is a growing gap between the values of tangible and financial 3 assets, which results from the financialisaton of economies at domestic and international levels. In other 4 words, an increasingly significant portion of available capital is not financing the real economy." Whilst this may be the case, some caution is needed here. The link between finance and the real economy has become more complex and difficult to ascertain in an era of financialisation. Following the Global Financial Crisis, more financial capital has also been retained for macroprudential purposes.	Taken into account. Edited	Peter Phelps	University of Leeds	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86911	22	5	22	8	15.3.2.1 Financial Flows and Stocks: Orders of Magnitude "This trend, however remains uneven between developed countries, most of which have relatively deep capital markets, and developing countries, where local capital market development remains partial or elusive (Section 15.6.7). Bonds, a form of debt financing, represent a significant share of total financial assets. As of August 2020, the overall size of the global bond markets (amount outstanding) was estimated at approximately 128.3 trillion USD, out of which over two thirds from "supranational, 10 sovereign, and agencies", and just under a third from corporations (ICMA 2020b)." 1. We should consider rephrasing the reference to "local capital market development remains partial or elusive" to "developing countries at different stages of development". The developing country universe is not homogenous and dLCM may not be a priority option for some countries due to reasons of scale. There are also historical inequity legacy contexts for countries. 2. We should consider including figures for green bonds outstanding for the same time horizon of August 2020 using the same data source which can then be cross-referenced by all sections in the Chapter?	Noted. Wording adjusted in relation to developing countries. Bonds and green bonds are discussed in further depth later in the chapter.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
58711	22	7	22	7	Quantify the "significant share" and add/discuss a citation. Bonds are best described as "publicly tradable debt instruments". They can attract large volumes of private capital from international and domestic sources. Bond financing is generally less costly than loan financing, but only viable for large transactions.	Taken into account. Figure and referenced added	Government of United States of America	U.S. Department of State	United States of America
58713	22	11	22	11	Quantify the increasing number and volume of bonds and add/discuss a citation.	Taken into account. Figure and referenced added	Government of United States of America	U.S. Department of State	United States of America
67353	22	13	22	14	Passage: "these still only represent a small share of the total bond market, while 13 already raising concerns in terms of both underlying definitions (Section 15.6.6) and risks of increased 14 climate-related indebtedness (Section 15.6.1, 15.6.3).". It would be useful to report a range of such share for reader to grasp the magnitude of the gap already at this point of the reading.	Noted. Edited	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
82403	22	15		20	very interesting "conclusion", but among the 3 items, one seem to directly build upon what has been said earlier, whereas the 2 others are more teasers for the upcoming sections… Maybe this weakens the robustness of the point by point arguments needed to convince the reader of the objectivity of the chapter.	Noted. Partly addressed	Hugues CHENET	University College London	France
27993	22	16	22	17	Delete "and relatively larger size of remaining fossil fuel-related finance flows,".	Rejected. Demand not substantiated. This is a factual statement.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
67355	22	19	22	20	Passage "Third, the in principle availability of necessary volumes of finance for addressing climate-related 20 investment needs (Section 15.4) and gaps (Section 15.5).": not very clear what it means and in particular how it differs from 2)	Taken into account. Edited	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
10213	23	0	23	0	Vertical axis label missing - compare with Figure 15.7	Taken into account. Added	Gary Kendall	Nedbank	South Africa
52897	23	0	23	0	Figure 5.5 does not report units, potentially "Numbers in billions of USD"?	Taken into account. Added	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58715	23	1	23	1	Not clear why total assets is relevant to climate finance. Data are too old. Most readers will not understand Figure 15.5 without definitions.	Noted. Updated to the extent possible given data availability. Definitions provided with the Figure. Total assets are a useful reference point when discussing the climate consisteny of all fnance, and to put needs into perspective	Government of United States of America	U.S. Department of State	United States of America
58717	23	1	23	2	Disaggregate foreign vs domestic shares of climate finance by type of economy.	Noted. Foreign versus domestic not technically possible. Split per type of economy cannot be done due to data availability and IPCC country grouping norms	Government of United States of America	U.S. Department of State	United States of America
70845	23	1	23	1	Consider stacking the bars of tangible and debt-equiity and adding a category "Other" which includes these further categories, such as gold reserves, bank depositis, etc. . Please consider changing the word "elements" for categories. Please give units Y-axe	Noted. Partly taken into account	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
82193	23	1	23	15	Figures 15.5 and 15.6 are unreadable	Noted. Layout to be improved	Smile Dube	California State University, Sacramento	United States of America
23577	23	5	23	8	The report should compare consistent data: here, it cannot compare higher bound in 2016 and lower bound in 2018. If there are data limitations, we suggest to quote figures from the same time series (data from lower bound or from CPI).	Noted. To be addressed when more recent UNFCCC SCF figures are available	Government of France	Ministère de la Transition écologique et solidaire	France
70847	23	6	23	8	To my information estimates from UNFCC and CPI are not similar and it would be good to outline that estimates diverge. See also our other comment on this.	Noted. CPI now actively contributes to the UNFCCC SCF, which implies a general alignment between CPI Landscape and UNFCCC SCF aggregates	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10215	23	10	23	11	Important typo referencing section on fossil fuel financing, should be: "see Section 15.3.2.3".	Editorial. Corrected	Gary Kendall	Nedbank	South Africa
23579	23	11	23	12	Considering all uncertainties and methodological heterogeneities accross estimations of needs, including the fact that they can hardly be summed in a headline figure (Section 15.4.2), such a comparison between flows and needs should be avoided, unless it comes with a caveat. "Due to highly heterogeneous financing data in NDCs and resulting questions marks behind the accumulated numbers on financing needs we refrain from performing a comparable analysis against current flows." (15.5)	Taken into account. Edited	Government of France	Ministère de la Transition écologique et solidaire	France
82405	23	11			self referencing section 15.3.2.2 (rather 15.3.2.3) on fossil fuel financing …?	Editorial. Corrected	Hugues CHENET	University College London	France
58719	23	13	23	13	Use CPI data. Preliminary 2019 data are available now.	Noted. Will be done when complete and final data is available	Government of United States of America	U.S. Department of State	United States of America
74265	23	13	23	15	This chart should be modified to include investments in carbon free nuclear energy.	Noted. While some countries include finance for nuclear energy as climate finance, most international data sources don't.	Jeffrey Merrifield	Pillsbury Law Firm	United States of America
5573	23	33	23	33	replace "Renewable " by "low carbon". . Nuclear is a relevant option.	Noted. While some countries include finance for nuclear energy as climate finance, most international data sources don't.	Michel SIMON	Retraité/ Pdt d'association	France
81575	23				Figure 15.5: it is not easy to distinguish visually between 'Tangible' and 'Total financial'.	Noted. Layout to be improved	Peter Phelps	University of Leeds	United Kingdom (of Great Britain and Northern Ireland)
18551	24	1	34	1	The scenarios in table 15.2 need to be explained more clearly. The text should also show how the scenarios compare to existing investment flows into the different technologies.	Noted. It was not possible to provide further elaboration due to limited space.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
52899	24	1	24	6	The concept of home bias, used in a few places in the text, does not cover cross-border lending that are not made directly to the projects rather made (1) through the intermediation of a domestic bank in the hosting country or (2) made in the form of syndicated loans. This generally depends on the local financial regulations in a country, where in many countries' foreign financial institutions outside the country (unless have a branch) cannot directly fund a project. They can either lend to a local bank (e.g., syndicated loans) and the local bank distributes these funds to the local borrowers, or they can also lend to a local bank with an agreement to directly fund a specific project in the hosting country. The share of these funds used in the finance of PPP projects is quite significant. Therefore, this detail should be explicitly stated in the text.	Taken into account. Deleted as discussed elswehere in the Chapter	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
9247	24	7	24	10	"Climate finance in developing countries remains heavily concentrated in emerging economies, with BRICS accounting for 25% to 43% depending on the year, a share similar to that represented by developed countries. LDCs and SIDs, on the other hand, continue to represent less than 5% year-on year" (developing countries' climate funding is highly concentrated in emerging economies, among which the BRIC countries account for 25%-43%, which is close to the level of developed countries, and least developed countries and small island countries account for Ratio is less than 5%) I checked, the "Report" cited no relevant statements in the relevant reports of the Climate Policy Initiative (CPI), and could not find the cited Bloomberg New Energy Fund (BNEF) 2018 report, but from the BNEF 2019 report, the report is mainly data The list does not involve the relevant expressions of emerging economies. At the same time, the climate funding in the article is unclear. It is neither climate funding support provided by developed countries to developing countries, nor is it clear whether the relevant data refers to cross-border capital flows or the mobilization of funds by countries themselves. It is recommended to delete them.	Noted. Wording partly edited. This section clearly states that it discussed global climate finance, thus covering both domestic and international. Disagregated BNEF data is available per country. Authors also gained access to disaggregated CPI data.	Yongxiang Zhang	National Climate Center	China
52901	24	7	24	7	Use only BRICS as they are part of the emerging economy group of countries, rather than referring them as the full list of emerging economies. If there is need to use emerging economies, the list of countries included should be made clear, as there is not a rigid definition of emerging economies.	Noted. To be adjusted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58721	24	9	24	9	5% together or each for LDCs and SIDS?	Taken into account. Edited	Government of United States of America	U.S. Department of State	United States of America
49859	24	13			Please check the comment that the majority of tracked climate finance is assessed as coming from private actors. I believe that, depending on the definition used, public sources are still greater.	Noted. Edited	Jason Patrick	New Zealand Green Investment Finance	New Zealand
51623	24	13	24	21	It is acknowledged that private finance comes with public support such as co financing, guarantees or fiscal measures. But it is not recognized that projects ultimately lead to an outflow of funds. Private finance can create liabilities that are akin to debt. The full long-term fiscal costs of private finance, and the effects on global social equity, need to be considered.	Noted. Addressed in later sections of the chapter	Kate Bayliss	SOAS, University of London	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58723	24	13	24	13	Since the majority is private finance, the emphasis on donor public finance earlier in this chapter is misplaced.	Noted. The chapter discusses various types of finance.	Government of United States of America	U.S. Department of State	United States of America
83915	24	13	24	15	Consider adding that there is considerable uncertainty about the exact share of private and public sources of finance as discussed in Mazzucato and Semieniuk (2018), already cited in the chapter.	Noted. Edited	Gregor Semieniuk	University of Massachusetts Amherst	United States of America
83917	24	16	24	21	Consider mentioning the growing importance of project finance (as opposed to balance sheet financing) as discussed in Steffen (2018). Steffen, B. (2018) 'The importance of project finance for renewable energy projects', Energy Economics, 69, pp. 280–294. doi: https://doi.org/10.1016/j.eneco.2017.11.006.	Taken into account. Edited	Gregor Semieniuk	University of Massachusetts Amherst	United States of America
58725	24	18	24	19	Quantify the rise in climate finance. See climate bonds initiative.	Noted. Already discussed earlier and later in the chapter	Government of United States of America	U.S. Department of State	United States of America
70849	24	27	24	27	Consider replacing "should in principle" for "could also" because the freeing up of investment by lowering costs of solar panels could also be heading towards non-climate related investments, depending on the earmarking of the funds. There is no imperative why they should go to climate.....	Taken into account. Edited	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
58727	24	33	24	33	What are the various estimates of adaptation financing "needs"?	Noted. Partly addressed later in the chapter (which however mainly focuses on mitigation) - also see WG II	Government of United States of America	U.S. Department of State	United States of America
58729	24	34	24	35	Unclear what "improved coherence between climate change adaptation and disaster-risk-reduction (DRR)" means.	Noted. Edited	Government of United States of America	U.S. Department of State	United States of America
41663	24	38	24	40	Delete sentence from 2015 reference to note that insurance role is underexplored. As demonstrated in Section 15.6.4 insurance has come a long way and more literature now exists.	Taken into account. Deleted	Watson Charlene	ODI	Switzerland
58731	24	39	24	39	Microinsurance can be beneficial, but is likely to require continuing donor or government subsidies, especially as climate risks increase.	Noted. Deleted	Government of United States of America	U.S. Department of State	United States of America
58733	24	42	24	42	"estimates are heavily skewed" is poor wording that implies that the numbers are incorrect. They are correct and reflect the higher profitability of renewable energy investments, lower risks, and lower marginal abatement costs for these carbon emissions. Griscom et al. (2017) define cost effective AFOLU emission reductions as less than $100/tCO2e which is not competitive with renewable energy. Based on 2018 prices, which have declined since then for PV and wind, they are: (i) onshore wind $24/tCO2 and (ii) utility-scale solar photovoltaic $28/tCO2. See: https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.32.4.53	Taken into account. Edited	Government of United States of America	U.S. Department of State	United States of America
11231	24				A recent series of 3 papers by the Climate Policy Initiative published on December 10, 2020 provides insight into high-emissions finance and investment alignment. The findings of these 3 papers could enhance the data provided in section 15.3 https://www.climatepolicyinitiative.org/publication/paris-misaligned/	Noted. Referenced in the section	Ebenezer Arthur	Wangara Green Ventures	Ghana
58735	25	1	25	1	Spell out Organisation for Economic Cooperation and Development (OECD).	Editorial. Acronyms to be checked/addressed throghout the chapter	Government of United States of America	U.S. Department of State	United States of America
82407	25	3		9	I think it is important to highlight that only a marginal part of financing can explicitly be linked to climate finance, as most finance is by definition financing companies, most of them (esp. the largest) being involved in multiple activities! Only a theoretical world with pure players would allow such tracking exercise to cover the vast majority of flows. What about a $ financing a large company active both in fossil fuels and renewable energy? there's no way to treat this $ with such approaches.	Taken into account. Edited	Hugues CHENET	University College London	France
19559	25	16	25	16	Insert after "... Box 15.4": "International public climate finance data auffer from political economy problems related to the use of Rio Markers (see the empirical assessment by Michaelowa and Michaelowa 2011)." Reason: the reference discusses systemic problems in reporting which bilateral activities are climate finance, linked to the political economy of this process. New reference: Michaelowa, Axel; Michaelowa, Katharina (2011): Coding Error or Statistical Embellishment? The Political Economy of Reporting Climate Aid, in: World Development, 39, p. 2010–2020	Noted. Discussions, debates and limitations about international climate finance are due to a range of factors and causes	Matthias Honegger	Utrecht University, Perspectives climate research, IASS-Potsdam	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
23581	25	16	25	16	Concerning the statement "accounting scope and methodologies continue to be debated" we suggest to take into account that "Since the Copenhagen Accord, a system for tracking and accounting for climate finance has emerged" (Bhattacharya, Calland et al., 2020). At COP16, the Parties affirmed the commitment on the $100 billion expressed in the Copenhagen Accord and agreed that "funds provided to developing country Parties may come from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources". The Standing Committee on Finance of the UNFCCC has issued biennial assessments (2012, 2014, 2016, 2018). Parties agreed on guidelines for the reporting of financial information at COP21 in 2015 (decision 9/CP.21), on Modalities, procedures and guidelines for the transparency framework for action and support referred to in Art 13 of the Paris Agreement at COP24 in 2018, including reporting on climate finance from developed countries to developing countries.	Taken into account. Edited - body and box	Government of France	Ministère de la Transition écologique et solidaire	France
23583	25	16	25	16	Typo for the reference "Box 15.4" : Box 15.5?	Editorial. Corrected	Government of France	Ministère de la Transition écologique et solidaire	France
51625	25	16	25	19	There is a need to scale up public finance but care is needed in using it to attract private finance. As stated public and private finance are not substitutes and often private finance leads to an outflow of public funds in the long term. Attention could usefully be given to alternative ways to increase fiscal space such as debt relief and boosting tax revenue.	Noted. Addressed in other parts of the chapter	Kate Bayliss	SOAS, University of London	United Kingdom (of Great Britain and Northern Ireland)
72575	25	19	25	23	An obvious challenge here is the lack of some globally acepted adaptation or resilience metrics. Another is the difficulty in creating a proper climate rationale for adaptation. One approach might be to affirmatively focus climate finance resources on cross-scutting mitigation and resilience opportunities, especially in land, soil, agriculture etc issues, especially in Sub Saharan Africa.	Noted. Here the focus is on international climate finance. Broader aspects of finance for adaptation and resilience are addressed in other parts of the chapter and WG II	Karan Capoor	World Bank	United States of America
8443	25	21	15	23	Recent research on supply chain effects of COVID-19, e.g. Guan et al. 2020 - https://doi.org/10.1038/s41562-020-0896-8, or on economic effects of extreme weather events, e.g. river floods in Willner et al. 2018 - https://doi.org/10.1038/s41558-018-0173-2, indicates that local events have global economic consequences. Thus, local adaptation to these events might result in global benefits as well.	Noted. Edited.	Lennart Quante	Potsdam Institute of Climate Impact Research	Germany
55111	25	24	25	47	The box may mention that the 100 billion goal is also a commitment of SDG 13 of The 2030 Agenda for Sustainable Development.	Taken into account. Added	Government of Brazil	Ministry of Foreign Affairs of Brazil	Brazil
58737	25	24	25	27	This commitment was initially announced by developed countries in 2009 at the 15th Conference of the Parties in Copenhagen (OECD and CPI, 2015). The Parties subsequently agreed to create a new funding mechanism, the Green Climate Fund (GCF) to help meet this target and administer funds for climate action.	Noted. GCF discussed elsewhere in the Chapter as well as in Chapter 14	Government of United States of America	U.S. Department of State	United States of America
85897	25	24	26	28	Suggest delete box 15.5 - 'Measuring progress towards the 100 billion USD yr-1 by 2020 goal - issues of method'. Issues addressed here are issues currently under active discussion in the UNFCCC and its constituted bodies and other fora. Many of the views expressed here reflect the subjective opinions or negotiating positions of some parties rather than a factual reflection of currently agreed decisions or reported statistics on these issues. In relation to the assessment of finance flows, the information referred to in this report appears to be a selective use of reporting provided in the SCF BA and does not provide a balanced picture.	Rejected. Acknowledging the sensititivities relating to this issue, it is being addressed in a contained manner in a Box.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
28909	25	25	43	27	Any reference to support the statement	Noted. Source comes 2 lines further (UNFCCC, 2009)	Nathalie Hilmi	Centre Scientifique de Monaco	France
82949	25	28	25	28	is "funding" the right word?	Taken into account. Edited	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
51247	25	31	25	31	Reference Clapp et al. 2012 is not listed in the final References List	Noted. Will be addressed in final formatting	Schumacher Kim	Tokyo Institute of Technology	Japan
64383	25	36	25	40	While these lines only list examples and thus do not claim to be a complete overview, i wonder if it would be worth to include as one issue of concern the problem of estimating the 'climate-relevance' of funded programmes, e.g. by identifying the climate component or the climate-specific proportion of funded programmes. There are several assessments that look at the overreporting when it comes to programmes where climate action is only one of several goals of a project (e.g. many developed countries report programmes with climate only as a secondary goal at 50% of the project volume, even if at closer look such projects often have a much smaller climate-relevance). (Oxfam's work is helfully referenced further below.)	Noted. Already mentioned in the exiwting text	Jan Kowalzig	Oxfam	Germany
58739	25	42	26	44	Was supposed to largely include the GCF. Report how much total financing and mitigation and adaptation financing it has provided. Are there any evaluations of GCF effectiveness?	Noted. Space constraints in a Box format do not allow to address this issue here. GCF is, however, discussed elseweher in the chapter and in Chapter 14	Government of United States of America	U.S. Department of State	United States of America
58741	26	1	26	1	Can this be updated past 2018?	Noted. Will be cosnidered as apropriate based on available information	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
64385	26	5	26	9	The upper and lower bound (32% and 44%) given in this reference of Oxfam's work are not the lower and upper bounds of the grant equivalents of reported climate finance (as the wording suggests), but of the 'climate specific net assistance' (as Oxfam calls it) of reported climate finance. This includes *both* a) counting grant equivalents of loans rather than their face value, as the grant equivalent is a better representation of actual assistance to developing countries, *and* b) discounting for over-estimation of the climate-relevance of reported programmes/projects. The issue of climate-relevance is mentioned at the end of that para, but the way the lower and upper bounds of Oxfam's estimate are introduced makes it appear as if they are only about the issue of grant equivalents. (DISCLAIMER: I am one of the authors of Oxfam 2020, i.e. where those numbers are coming from)	Taken into account. Edited	Jan Kowalzig	Oxfam	Germany
58743	26	10	26	11	Can this be updated past 2018?	Noted. Will be cosnidered as apropriate based on available information	Government of United States of America	U.S. Department of State	United States of America
63411	26	14	26	21	This paragraph does not accurately reflect the accounting of private finance mobilised.We recommend this paragraph recognize that: The OECD-Development Assistance Committee (DAC) has established an international standard for measuring private finance mobilised. This standard applies methods tailored to different financial mechanisms taking into account the role of risk taken and/or amount provided by all official actors involved in a given project, including recipient countries. This approach allows for attribution between all actors involved in a project and contributes to avoiding double counting.	Taken into account. Edited	Government of Canada	Environment and Climate Change Canada	Canada
58745	26	17	26	17	Sectoral private investments could be a useful proxy, particularly for renewable energy.	Noted. No action required	Government of United States of America	U.S. Department of State	United States of America
58747	26	19	26	20	$100 billion/year goal was not intended to include private finance.	Rejected. Wording from the goal states it may "come from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources of finance"	Government of United States of America	U.S. Department of State	United States of America
63413	26	20	26	21	This statement is misleading: “neither correspond to the geographical scope of the 100 billion USD goal, nor address the issue of attribution to the extent required in that context.” The OECD-DAC approach applies to overall development assistance so therefore has a different geographical scope than the USD 100 billlion goal. However, when accounting for climate finance using this approach, only the relevant geographical scope is considered which is easily facilitated by the project level reporting required by the OECD-DAC approach.	Noted. The sentence referred to relates to the MDB methodology, not the OECD DAC methodology	Government of Canada	Environment and Climate Change Canada	Canada
3569	26	28			Missing '.' at the end of the paragraph.	Editorial. Will be addressed in final formatting	Niccolò Manych	MCC Berlin	Germany
3571	26	28			The '(Peake and Ekins 2017)' seems to be in a different font size.	Editorial. Will be addressed in final formatting	Niccolò Manych	MCC Berlin	Germany
27995	26	30	27	9	This section to be substantially revised, as it is fully biased against financial flows to fossil fuels industry, or it should be deleted.	Noted. Some edits were made to the section, which, however needs to be retained in the context of discussing the consistency of overall investment and finance flows with climate mitigation goals	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
30599	26	30	28	13	How about adding sentences regarding current sitution and guidlines for transition finance? Although no consensus has been built for what transition finance means, many institutions have already issued transition bonds or loans to help high-GHG emitting industries become less carbon-intensive in the long-term (e.g., climate finance transition handbook by ICMA).	Noted. Transition now mentioned multiple times in the section	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan
58749	26	30	28	13	A discussion of subsidies for fossil fuel would be good here.	Noted. Already included a few paragraphs down	Government of United States of America	U.S. Department of State	United States of America
70851	26	30	28	13	Personally I miss the notiion here that an implicit subsidy is created by allowing the fossil industry for not paying for the external costs of climate change. I agree that this is difficult to calculate, but it should be mentioned at least......I	Taken into account. Edited	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
58751	26	32	26	32	Which temperature goal? 1.5 or 2°C?	Noted. Clarified	Government of United States of America	U.S. Department of State	United States of America
58753	26	32	26	33	Fossil fuel investments, expenditures on internal combustion engines, HFCs, and public and private investments associated with deforestation would be a start as a proxy for harmful investments.	Noted. Already covered to a great extent	Government of United States of America	U.S. Department of State	United States of America
10217	26	40	26	42	Firstly, "below 2°C" is the weaker of the two Paris targets; secondly, the share of fossil fuels in energy supply - whether coal, oil or gas - all must be decreased to (virtually) zero, since energy supply is comparatively easy-to-abate, and "net-zero" is a staging post toward "net negative". If invoking CCS to overcome this dilemma, then the statement about coal needing to be phased out is debatable. Reference the relevant sections of Energy chapter?	Taken into account. Edited to focus on 1.5	Gary Kendall	Nedbank	South Africa
86457	26	40	26	41	To what extent and under which assumptions can oil not be phased out to reach net zero?	Noted. Timing is the question	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
30601	27	4	27	7	"These estimates also result in fossil fuel investments remaining larger in aggregage than the the total tracked climate finance worldwide." It is questionable if we could make such comparison between two data whose basis are different. The sentence shou l d be deleted.	Noted. While not identical in scope the two measures are similar enough to be compared	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
3573	27	12			Many academic papers exist as well, e.g. on coal finance: (Manych et al. 'Finance-based accounting of coal emissions', in press at erl).	Noted.	Niccolò Manych	MCC Berlin	Germany
15045	27	12	27	22	It is unclear whether discussion in this paragraph and calculations include carbon-fuel-based devices, such as heaters, boilers, and vehicles. They should	Noted. The paragraph discussed financing for fossil fuels companies and investments. Difficult in this context to capture equipments.	Galina Hale	UC Santa Cruz	United States of America
72583	27	19	27	22	Recognizing the competitiveness of export credit agencies in promoting a country's industry and exports, there should be efforts to have ECAs join the other MDBs/IFIs on accounting and reporting on climate co-benefit targets as well as GHG footprinting of their support.	Noted. Such recommendation is beyond the scope of an IPCC assessment	Karan Capoor	World Bank	United States of America
86913	27	20	27	22	15.3.2.3 Fossil fuel-related and transition finance "Official export credit agencies, which are owned or backed by their government, de-risk exports by providing guarantees and insurances or, less often, loans. In 2016–2018, available estimates indicate the provision of about 31 billion USD yr 20 -1 worth of fossil fuel-related official export credits, out of which close to 80% for the oil and gas, and over 20% for coal (Oi Change International and Friends of the Earth - U.S. 2020)" We should help the reader by inserting a cross-reference to section 15.6.7 development of local capital markets section discussion on derisking renewable energy and bond market development with the similar variety of guarantees. IEA Africa Energy Outlook 2019 notes that a) "around $100 billion was invested in the energy sector in Africa, or about 5.5% of the global total. Of this, $70 billion was invested in fossil fuels and $13 billion in renewables. Another $13 billion was spent on electricity networks" b) "Africa needs a significant scale-up in electricity sector investment in generation and grids, for which it currently ranks among the lowest in the world. Achieving reliable electricity supply for all would require an almost fourfold increase, to around $120 billion a year through 2040"	Noted. Section 15.6.7 already cross referenced multiple times throughout the chapter. Will consider possibility in this sub section	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
19843	27	22	27	22	Insert after "...US 2020": "Shishlov et al. (2020) discuss policies that could lead export credit agencies to discontinue fossil fuel investments ." Reason: This reference is the first detailed assessment of how policies could be designed to shift export credit agencies financing towards low carbon activities. New reference: Shishlov, Igor; Weber, Anne-Kathrin; Stepchuk, Inna; Darouich, Laila; Michaelowa, Axel (2020): External and internal climate change policies for export credit and insurance agencies, CIS Working Paper No. 104, ETH/University of Zurich, Zurich	Noted. Beyond the scope of this section. Will be considered for inclusion elsewhere in the Chapter	Axel Michaelowa	University of Zurich	Switzerland
275	27	23	27	27	This is an EXCELLENT point, I would recommend this be highlughted very explicitly in the Exec Summ	Noted. Will be considered in final versions of the summary	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
52929	27	23	27	25	Statement that increased new finance for fossil fuel lock in GHG emissions must be based on robust scientific evidence not on author's judgement. The author does not give evidence or confidence on this statement	Noted. This is a factual statement, i.e. fossil fuel investments results in future GHG emissions. The second part of the sentence is already conditional.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
51249	27	29	27	30	Inconsistent reporting is one the key barriers to scaling sustainable finance and ESG investing, and should be substantiated through additional and more recent literature, notably Schumacher, K. (2020). Green investments need global standards and independent scientific review. Nature, 584(7822), 524–524. https://doi.org/10.1038/d41586-020-02472-5	Noted. Reference added, more in Section 15.6.3	Schumacher Kim	Tokyo Institute of Technology	Japan
82543	27	30	33	27	Suggest citing at least one recent study here, beyond the 2017 2° Investing Initiative. Climate risk assessments have become much more commonplace since 2017; thus more recent literature that explores the relationship between climate risk assessments and climate action or states that more such research is needed, would strengthen this point. Sentence in reference: "Further developed in Sections 15.6.3, there is currently not enough evidence in order to conclude whether climate-related risk assessments result in increased climate action and alignment on the ground (e.g. 2° Investing Initiative 2017)."	Noted. Indeed, but while methdoological developments have taken place, a lot come from commercial providers. And developments to date don, at this stage, change the conclusion presented here. With this in mind, reference nevertheless updated to more recent. More in Section 15.6.3.	Constabile Kerry	Oxford University School of Geography	United States of America
70853	27	32	27	32	"alignment on the ground": vague language, not clear what is being meant with this - what is the impact of risk assessments on finance?	Taken into account. Edited	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
27997	28	2	28	5	Delete "Given the scale of historical support to fossil fuel production and consumption, this greatly reduces the efficiency of public instruments and incentives aimed at redirecting investments and financing towards climate beneficial activities.", as this is not a policy neutral statement.	Noted. Edited	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
27999	28	6	28	13	This paragph should refer to insufficient fossil fuel subsidies that encourage wasteful consumption, or should be deleted, as it is not policy neutral.	Noted. Edited	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58755	28	6	28	6	Change "especially in the energy production, transport, and buildings" to "especially in the electricity, transport, buildings, and industrial sectors".	Noted. Energy also covers heating	Government of United States of America	U.S. Department of State	United States of America
18553	28	8	28	9	While I agree that the political economy is a major hurdle, given the impacts of COVID 19 (and noting that the sources are from 2014 and 2018) can we still stay that the political economy is the same? Nigeria is the obvious example of a change in the political economy, but the focus on a "green recovery" by the international community can also put more pressure on governments to change the status quo. I would suggest putting a caveat saying that the effects of COVID 19 on the political economy are still unclear (or something similar).	Noted. As you say, effects of the crisis are unclear in terms stronger or weaker incentives for reforms	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
18555	28	13	28	13	It would be useful to have data on the volumes of finance for fossil fuels coming from MDBs and DFIs	Noted. The section focuses on institutions (commercial banks, export credit agencies) that remain major providers of finance for fossil fuel. This is now much less the case for multiateral and bilateral development finance institutions	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
24985	28	15	29	28	New research has demonstrated a positive relation between ESG investment and corporate performance, yet this is not elaborated in Chapter 15. A useful meta-analysis can be found here: A. Gunnar Friede, Timo Busch & Alexander Bassen (2015) ESG and financial performance: aggregated evidence from more than 2000 empirical studies, Journal of Sustainable Finance & Investment, 5:4, 210-233, DOI: 10.1080/20430795.2015.1118917	Accepted. The suggested literature has been included.	Emil Beemer	Dutch Research Institute For Transitions, Erasmus University Rotterdam	Netherlands
28451	28	15	29	28	Good to see the connection between ESG investment strategies & corporate financial performance in this chapter.This positive performance of ESG-dominated portfolios is tremendously important in attracting capital towards sustainable finance. In my opinion it could be highlighted even more with sources such as: (Friede, Busch & Bassen, 2015) DOI: 10.1080/20430795.2015.1118917. (Muhmad & Muhamad, 2020): DOI: 10.1080/20430795.2020.1727724 and (Consolandi , Eccles & Gabbi, 2020) DOI: 10.1080/20430795.2020.1824889	Accepted. The suggested literature has been included.	Naud Loomans	Eindhoven University of Technology	Netherlands
50209	28	15	29	28	The positive correlation between the returns on ESG investments can be further supported by the following meta-analysis. The study is based on compiling evidences from more than 2000 empirical studies. It is one of the largest meta-analysis done till date addressing the subject. Gunnar Friede, Timo Busch & Alexander Bassen (2015) ESG and financial performance: aggregated evidence from more than 2000 empirical studies, Journal of Sustainable Finance & Investment, 5:4, 210-233, DOI: 10.1080/20430795.2015.1118917	Accepted. The suggested literature has been included.	Rishikesh Joshi	TU Delft	Netherlands
70855	28	15	29	28	There is a doubling of arguments and numbers here with the previous analysis on climate finance products: climate investments are counted in sustainable investments as well. I would consider removing this paragraph from the analysis as it does not necessarily add to the storyline telilng. Some numbers on sustainable finance could be given right up to the definitional paragraph in 15.3.1 to just give an indication that sustainable finance is much larger than climate finance. But the last sentence of this paragraph is true and a relevant point to make: it iis unlikely that ESG would enable climate-aligned investments by itself. This is again making clear that a seperate paragraph on sustainable finance products is probably not needed in the AR6......	Taken into account. The section has revised and shortened.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
75607	28	15	29	28	I was very happy to see the positive connection between ESG investment strategies & CFP (corporate financial performance) included in this chapter. It is exactly the time-independent positive outperformance of ESG-dominated portfolios in the market that forms this incredibly important pull factor for investors (from private venture capitalists to large institutional investors such as pension funds) into sustainable finance. It would therefore be highly appreciated if it would slightly more emphasized/elaborated upon with more references and citations of (meta) studies performed. If I may make a few (starting) suggestions, I would recommend the following studies: A. Gunnar Friede, Timo Busch & Alexander Bassen (2015) ESG and financial performance: aggregated evidence from more than 2000 empirical studies, Journal of Sustainable Finance & Investment, 5:4, 210-233, DOI: 10.1080/20430795.2015.1118917 This is the largest second-order meta-analysis done to date, the study combines the findings of about 2200 individual studies. An excerpt from the abstract: "(...) this study is by far the most exhaustive overview of academic research on this topic and allows for generalizable statements. The results show that the business case for ESG investing is empirically very well founded. Roughly 90% of studies find a nonnegative ESG–CFP relation. More importantly, the large majority of studies reports positive findings. We highlight that the positive ESG impact on CFP appears stable over time. Promising results are obtained when differentiating for portfolio and nonportfolio studies, regions, and young asset classes for ESG investing such as emerging markets, corporate bonds, and green real estate." A way in which you could potentially refer to this study this would be: "The second-order meta-analysis performed by Friede, Busch and Bassen (2015) provided a solid – and most exhaustive to date – empirical foundation to the business case for ESG investing. Over 2000 of peer-reviewed first-order meta-analyses and vote-count journal studies were systematically reviewed; a large majority showcased a positive link between Corporate Financial Performance (CFP) and ESG investment. Hereby it is critically important to note that this positive relation was stable over time and held true across several categorizations, such	Taken into account. The suggested literature has been included.	Amira El-Feiaz	Technische Universiteit Eindhoven	Netherlands
75609	28	15	29	28	PERTAINING TO COMMENT NO.1 I was very happy to see the positive connection between ESG investment strategies & CFP (corporate financial performance) included in this chapter. It is exactly the time-independent positive outperformance of ESG-dominated portfolios in the market that forms this incredibly important pull factor for investors (from private venture capitalists to large institutional investors such as pension funds) into sustainable finance. It would therefore be highly appreciated if it would slightly more emphasized/elaborated upon with more references and citations of (meta) studies performed. If I may make a few (starting) suggestions, I would recommend the following studies: B. Gregor Dorfleitner, Sebastian Utz & Maximilian Wimmer (2018) Patience pays off – corporate social responsibility and long-term stock returns, Journal of Sustainable Finance & Investment, 8:2, 132-157, DOI: 10.1080/20430795.2017.1403272 An excerpt from the abstract: "This paper presents new evidence on the implications of corporate social responsibility (CSR) on stock returns. By implementing a longterm focus as well as using subdivided measures for CSR, we cater to the intangible nature and the heterogeneity of CSR activities. We use a novel classification of these activities into nine areas, each belonging to one of the standard environment, social, and governance (ESG) dimensions. Using cross-sectional return regressions and buy-and-hold abnormal returns, we find that firms with strong CSR significantly outperform firms with weak CSR in the mid and long run in certain areas. Firm returns increase up to 3.8% with respect to a one-standard-deviation increase of the CSR rating. In a two-stage least squares (2SLS) approach we verify that the main economic channel for the appreciation of strong CSR stocks is unexpected additional cash flows. The results are relevant for assessing the efficiency of CSR, and have broader implications for asset managers who can expect abnormal returns by investing in firms that exhibit a high CSR in the respective scores and holding the stocks for a longer period."	Taken into account. The suggested literature has been included.	Amira El-Feiaz	Technische Universiteit Eindhoven	Netherlands

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
75611	28	15	29	28	PERTAINING TO COMMENT NO.1 I was very happy to see the positive connection between ESG investment strategies & CFP (corporate financial performance) included in this chapter. It is exactly the time-independent positive outperformance of ESG-dominated portfolios in the market that forms this incredibly important pull factor for investors (from private venture capitalists to large institutional investors such as pension funds) into sustainable finance. It would therefore be highly appreciated if it would slightly more emphasized/elaborated upon with more references and citations of (meta) studies performed. If I may make a few (starting) suggestions, I would recommend the following studies: C. Siti Nurain Muhmad & Rusnah Muhamad (2020): Sustainable business practices and financial performance during pre- and post-SDG adoption periods: a systematic review, Journal of Sustainable Finance & Investment, DOI: 10.1080/20430795.2020.1727724 An excerpt from the abstract: "Since the adoption of Sustainable Development Goals (SDGs), companies have started to focus on the environment, people, and planet with the belief that it will lead to better financial performance. Thus, the relationshipbetween sustainability practices and financial performance of companies has attracted much attention among researchers. This study identified the trends and issues highlighted in previous studies concerning the relationship between these two variables. Content analysis was adopted in this study to examine the literature comprising a total of 56 articles indexed in Web of Science (WoS) and Scopus. About 96% of the publications reported a positive relationship between sustainability practices and the financial performance of companies. A way in which you could potentially refer to this study this would be: An extensive content-focused meta-analysis was performed Muhmad & Muhamad in 2020, focusing on the financial performance of corporations and their SDG-linked (Sustainable Development Goals) practices. A clear positive relationship is reported in approximately 96% of the publications.	Taken into account. The suggested literature has been included.	Amira El-Feiaz	Technische Universiteit Eindhoven	Netherlands
75613	28	15	29	28	PERTAINING TO COMMENT NO.1 I was very happy to see the positive connection between ESG investment strategies & CFP (corporate financial performance) included in this chapter. It is exactly the time-independent positive outperformance of ESG-dominated portfolios in the market that forms this incredibly important pull factor for investors (from private venture capitalists to large institutional investors such as pension funds) into sustainable finance. It would therefore be highly appreciated if it would slightly more emphasized/elaborated upon with more references and citations of (meta) studies performed. If I may make a few (starting) suggestions, I would recommend the following studies: D. Moinak Maiti (2020): Is ESG the succeeding risk factor?, Journal of Sustainable Finance & Investment, DOI: 10.1080/20430795.2020.1723380 An excerpt from the abstract: " This study finds that three-factor models with market, size and ESG factors perform better than the Fama–French three-factor model. Higher Sharpe ratios for ESG, environment, social and governance factors indicate that portfolios formed on these factors show better investment performance over traditional size and value-based portfolios for all cases. The main message of the study is that ESG, environment, social and governance factors play an important role in predicting returns hence they should not be ignored while considering investment decision." A way in which you could potentially refer to this study this would be: Maiti (2020) compares performance of investment portfolios using the Fama-French 3-factor model on one hand, and 3-factor models with integration of ESG on the other. They find higher Sharpe ratios for the latter, empirically supporting improved investment performance that comes with sustainability over traditional size and value-based portfolios for all cases. These results point out the critical role ESG factors play in predicting financial returns.	Taken into account. The suggested literature has been included.	Amira El-Feiaz	Technische Universiteit Eindhoven	Netherlands

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
75615	28	15	29	28	PERTAINING TO COMMENT NO.1 I was very happy to see the positive connection between ESG investment strategies & CFP (corporate financial performance) included in this chapter. It is exactly the time-independent positive outperformance of ESG-dominated portfolios in the market that forms this incredibly important pull factor for investors (from private venture capitalists to large institutional investors such as pension funds) into sustainable finance. It would therefore be highly appreciated if it would slightly more emphasized/elaborated upon with more references and citations of (meta) studies performed. If I may make a few (starting) suggestions, I would recommend the following studies: E. Costanza Consolandi , Robert G. Eccles & Giampaolo Gabbi (2020): How material is a material issue? Stock returns and the financial relevance and financial intensity of ESG materiality, Journal of Sustainable Finance & Investment, DOI: 10.1080/20430795.2020.1824889 An excerpt from the abstract: "This paper investigates the role of the intensity and relevance of ESG materiality in equity returns. Adopting the classifications of materiality provided by the Sustainability Accounting Standards Board (SASB), the paper introduces the concept of the financial relevance and financial intensity of ESG materiality in order to estimate how it explains equity returns. The results of the analysis, based on a large sample of U.S. companies included in the Russell 3000 from January 2008 to July 2019 show that not only do ESG rating changes (ESG momentum) have a consistent impact on equity performance, but also that the market seems to reward more those companies operating in industries with a high level of concentration of ESG materiality. The implication is that the equity premium of listed companies is better explained by the concentration of material issues (i.e. the Gini index) than by the ESG momentum." A way in which you could potentially refer to this study this would be: Consolandi, Eccles and Gabbi (2020) perform one of the first studies with a focus on ESG intensity and materiality – as proxied by ESG ratings and classifications of materiality provided by the Sustainability Accounting Standards Board (SASB). The results of the analysis, based on a large sample of	Taken into account. The suggested literature has been included.	Amira El-Feiaz	Technische Universiteit Eindhoven	Netherlands
3575	28	17			Space missing: '34%since'	Accepted. Spacing errors have been addressed.	Niccolò Manych	MCC Berlin	Germany
58757	28	17	28	17	How were sustainable investments defined for this number? From 2016 through what year? Why is the increase in just five developed economies an important number for this report? Which five countries?	Noted. It was not possible to provide further elaboration due to limited space, the refereence provided can be looked at for further information.	Government of United States of America	U.S. Department of State	United States of America
58759	28	22	28	23	Unclear what this means or includes: "Shareholder activism/corporate engagement is the other key approach, which has been well established and continued to grow to nearly USD 10 trillion."	Noted. The section author believes the meaning of this sentence is clear enough to include.	Government of United States of America	U.S. Department of State	United States of America
82409	28	22		26	the same question should be mention as to the potential impact of shareholder activism and corporate engagement … Even just counting the relevant $$$ is probably very weak / assumption dependent, so even worse in terms of GHG impact. Moreover each of these approaches is not exclusive to the others, so it's difficult to allocate any final impact to a source of sustainble finance action...	Noted. The section author believes the meaning of this sentence is clear enough to include.	Hugues CHENET	University College London	France
58761	28	24	28	26	Unclear what questions have arisen.	Noted. The section has been revised and shortened.	Government of United States of America	U.S. Department of State	United States of America
28001	28	28	28	38	The two sentences are not policy neutral and should be revised substantially or be deleted.	Noted. The section has been revised and shortened.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
75621	28	28	28	32	"Although research points towards the ambiguous direct impact of divestment on reducing GHG emissions or on the financial performance of fossil fuel companies, its indirect impact on framing the narrative around sustainable finance decisions (Bergman 2018) and the inherent potential of the movement for building awareness and mobilizing broader public support for effective climate policies, could be considered to be the more relevant outcomes (Braungardt et al. 2019)." It would be good to have a reference/citation for the research that is pointing towards the ambiguous direct impact of divestment.	Noted. It was not possible to provide further elaboration/literature due to limited space.	Amira El-Feiaz	Technische Universiteit Eindhoven	Netherlands
82411	28	36		37	not clear at all (at least not intuitive!) how divestment could contribute to mitigate systemic CC related financial risks… or from a very indirect perspective. An investor can only divest if another investors re-buys the asset, so it seems that anyway the risky asset will be hold somewhere in the financial system...	Noted. Divestment could contribute to mitigate climate change by increasing finance flows to low carbon assets/mitigation.	Hugues CHENET	University College London	France
58763	28	38	28	39	There is generally no reduction in financing costs for green bonds, although they may be easier to sell more quickly.	Noted. It was not possible to provide further elaboration of green bonds here due to limited space.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86915	28	38	28	41	15.3.3 Consideration on the impact of sustainable finance products "As there is still at best an emerging trend of price premiums for green investments in the market, as seen in the green bonds market (see Section 15.6.6), the broader impact of sustainable investment initiatives could play a key role in strengthening the demand and supply of such investment opportunities for the near future" [we should consider inserting a reference to: particularly in developing countries where most climate investments are needed and support for bond market development in appropriate country contexts is provided [section 15.6.7]]	Noted	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
10219	28	42	28	44	Such a forward-looking approach to guide investments has been proposed by the Future-Fit Business Benchmark, or F2B2 (advanced by the Future-Fit Foundation), which is methodologically unique because it works backwards from a set of system principles describing what is required, rather than focussing on current performance relative to peer group some other arbitrary standard.	Noted. Thank you for your suggestion but due to space limitations it was not possible to include.	Gary Kendall	Nedbank	South Africa
81811	28	45			see above. ESG as private, voluntary mechanism is prone to 'greenwashing' (cf. Yannis Dafermos , Daniela Gabor & Jo Michell (2021): The Wall Street Consensus in pandemic times: what does it mean for climate-aligned development?, Canadian Journal of Development Studies / Revue canadienne d'études du développement). The need for common public binding standards should be stressed.	Taken into account. The recommended literature is included.	Elena Hofferberth	University of Leeds	Switzerland
82413	29	3			TCFD not defined earlier (+ "the" TCFD would be needed?)	Accepted. The TCFD is now defined earlier in the text.	Hugues CHENET	University College London	France
82415	29	3		6	the sentence about TCFD leads nowhere… what it is supposed to demonstrate? It indeed just says that many organisations support climate related risk assessment and disclosure … but it says nothing about its potential real impact. Having such an impact relies on two assumptions which are yet far from being demonstrated: companies and investors are able to correctly/robustly/convincingly assess those risks (+ they really disclose 100% of it), investors will base their decisions upon such information, even it their time horizon is totally disconnected (that is the essence but also the flaws of the "Tragedy of the horizons" narrative by M.Carney (2015).	Taken into account. Impacts of risk disclosure are discussed in the chapter.	Hugues CHENET	University College London	France
23585	29	6	29	10	It would be also useful to add results on the relation between disclosure/ESG criteria and effective emissions reductions / divestment from fossil fuel activities. https://publications.banque-france.fr/en/showing-cleaner-hands-mandatory-climate-related-disclosure-financial-institutions-and-financing	Taken into account. The recommended literature is included.	Government of France	Ministère de la Transition écologique et solidaire	France
86459	29	6	29	10	This is a very good point. It would be very interesting and appropriate to add a mention or better yet a preliminary evaluation of the debate over divestment vs. engagement as the most effective finance decarbonization strategy. Evidence seems to point to: - No effect of equity divestment when not announced, as per standard corporate finance, unless new capital expenditure is financed through sale of shares - Some effect on strategic shift by equity divestment when announced, due to symbolic and 'social shaming' effects - Evidence for limited effect of engagement alone, often limited to the establishment of side green investement projects alongside the maintenance of core carbon intensive capital expenditures and investments - Evidence of noticeable effect of debt divestment, which affects upstrem project financing. Debt divestment includes not only bonds, but also and especially revolving credit, loans, and in the case of oil&gas, RBL (Reserve-Based Lending). All these are debt investment instruments for which the banking sector plays a central role. An important area of investigation is the relevancy of primary vs secondary markets for debt instruments	Noted. Thank you for your suggestion but due to space limitations it was not possible to include further elaboration and discussion.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
85423	29	8	29	10	A missed opportunity in chapter 15 is to give the clear and unambiguous signal that green is now profitable. This would make the positive impact of the chapter much larger. However you seem to bury this message. For example you site (Friede et al. 2015) who are not afraid to state a clear message in their abstract: "this ... exhaustive overview ... allows for generalizable statements. The results show ... business case is emperically well founded ... large majority of studies report positive findings". Contrary to Friede et al. you bury what should in their and my opinion be the main message in the middle of the text in a large and hard to read sentence that states it much more ambiguously and is immediately further negated by citing research pointing out that this is apparently not why asset manager are investing in green stocks. Maybe this is a strategic choice to mask positive news so policy makers don't rest on their laurels, but if so I don't think it does the research justice and will fail to activate the people who actually make green investments. I would start 15.3.3. by saying something like: "The peer reviewed literature clearly establishes that green investments have become a profitable business opportunity, and investments that are managed taking into account sustainability criteria, have increased continuously in recent years." On page 29 line 6-7 I would split up the references. I would leave out the phrase "focused on developed economies" when referring to Friede because they included everything and explicitly mention that investments in developing nations are no longer trailing. I would skip the word "towards" in "Research indicates towards a positive relation" or use the clearer "Research shows a positive relation". I would leave out "disclosure and economic sustainability" because it makes the message of the sentence unclear (I didn't understand it). So I would suggest a simple sentence like: "Research overwhelmingly shows a positive relation between ESG and corporate financial performance (Friede et al. 2015)." Other sources that also clearly make this point and that I would propose could be added to chapter 15 here:	Taken into account. The chapter has been revised and shortened.	Auke Hoekstra	Eindhoven University of Technology	Netherlands
58765	29	12	29	14	Actually, many impact investors will accept positive, but somewhat lower, financial returns when there are environmental and social benefits. See: https://thegiin.org/research-and-opinions/	Noted. Higher returns are generally the first priority of investors.	Government of United States of America	U.S. Department of State	United States of America
63415	29	17	29	28	We would recommend the inclusion of the Power Past Coal Alliance Finance principles:" The Powering Past Coal Alliance Finance pricinples encourages investors, insurers and banking institutions to stop new coal investments and phase out current coal related investments by 2030 in the OECD, 2050 for the rest of the world."	Noted. Thank you for your suggestion but due to space limitations it was not possible to include the recommended material.	Government of Canada	Environment and Climate Change Canada	Canada
82417	29	17			the elements argue for more mobilisation and awareness indeed, clearly, but say nothing about changes of real behaviours and eventual impact at the end of the investment chain. I would strongly nuance l.17. "Growing greening" can still be totally marginal. What is clear is that there is a growing interest in greening it, and even some will to do it. But whether the finance sector is really "greening" is discutable beyond the margins. This is a bit mentioned through the reference to Ameli et al 2019 (l.28) but more nuances across the paragraph would be welcome rather than just in the end.	Noted. Text has been revised and shortened.	Hugues CHENET	University College London	France
86461	29	17	29	20	It might be worth adding to the mention of BlackRock announcments something along the lines of: "Despite the announcement, BlackRock's difficulties in tilting investments is linked to investments on indexes, as a potential example of the importance of passive vs. active portfolio management affecting decarbonization of investments".	Noted. Thank you for your suggestion but due to space limitations it was not possible to include further elaboration here.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
10221	29	19	29	20	Advertorial for Barclays, but the proof of this net-zero pudding will be in the eating - so far, the ingredients of this pudding are obscure, for instance no firm commitment / dates to exit fossil fuel financing - does this belong in IPCC AR6? Rather refer to UN Principles for Responsible Banking (2019), with a large number of signatory banks committing to align strategy and financing with Paris Agreement and the SDGs.	Taken into account. Mention of Barclays have been removed.	Gary Kendall	Nedbank	South Africa
58767	29	19	29	19	Regarding Blackrock: https://theenergymix.com/2021/01/15/85-billion-in-coal-investments-leave-blackrock-open-to-charges-of-greenwashing/	Noted. Thanks for this comment..	Government of United States of America	U.S. Department of State	United States of America
86463	29	20	29	25	If relevant for further information about the Climate Action 100+: Among the founders is the Global Investor Coalition on Climate Change is a joint collaboration among four regional partner organisations: Ceres, IIGCC: Institutional Investors Group on Climate Change (A membership body of European institutional investors), IGCC: Investor Group on Climate Change (A membership body of Australian and New Zealand institutional investors and advisors), Asia Investor Group on Climate Change.	Noted. Thanks for this comment..	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
19991	29	29	39	2	The identification of financing needs should be holistic. I suggest the application of an inclusive financial approach that covers not only investment and financing of renewable enrrgies, but also the amelioration of the effects of "dirty energy" on the biosystem as well.Given that the realisation of full adotion of clean energy will not only take some time, the impact of dirty energy during the phase-out stage will continue, and may be adversely inimical to the environment and the entire eco system. This is why it is considered important to deploy a hydra-headed approach that galvanises the application of clean energy while ameiorating the effects of dirty energy concommitantly. This approach may be zoomed in under the "inclusive energy financing/investment".	Noted. Inclusivity is included in the 15.4.1. - Definitions. We agree that the impacts of dirty energy must be accounted for, loss and damage is a them throughout the chapter	Rafiu Adewale Aregbeshola	University of South Africa	South Africa
58769	29	29	29	31	Economists do not like the term "needs".	Noted. Definition of needs, is ellaborated in 15.4.1.	Government of United States of America	U.S. Department of State	United States of America
85899	29	29	40	2	Suggest this section can be shortened. Any reference to financial needs should also mention that because of different methodologies in calculating quantitative needs/activities that it should be made very clear these figures cannot be aggregated.	Taken into account. Methodological challenges mentioned in the first paragrpah of section 15.4.2	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
46381	29	30	29	44	It is unclear, why financing needs are taken out as a separate category without also adequately addressing technology and capacity building needs. While the latter are briefly mentioned, it is not clarified how specific needs are identified and how they relate to financing needs. The link to loss and damage (please avoid this politically charged term and replace it e.g. with "economic losses due to climate change") is not explained and does not seem to fit into the overall concept of the section on financing needs given the lack of consideration of other needs. Please revise in a more balanced manner.	taken into account. LAD matters were to be out source to other chapter. There is also quite substantive academic and practice literature on 'loss and damage'	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
7711	29	31			to provide financial needs of decreasing greenhouse gases, it suggested that it obtained from developed countries which have most of industrial activities (not on base of geographic distribution of issues which are out of their region).	Noted.	Leila Rashidian	Meteorological	Iran
9031	29	31	29	31	- to provide financial needs of decreasing greenhouse gases, it suggested that it obtained from developed countries which have most of industrial activities (not on base of geographic distribution of issues which are out of their region).	Noted.	Behzad Layeghi	IRIMO	Iran
47185	29	31	32	2	Transition costs for smaller projects are disadvantageous for SIDS compared to global optimum. It may underestimate costs for SIDS. Models are globally aggregated : sub- region level and country-level analyses are necessary.	Taken into account. improved paragraph on p 32 lines 23-28	Stuart Minchin	The Pacific Community	Australia
70857	29	31	32	2	This subparagraph is underdeveloped. There are a number of claims followed by a bunch of references. However, in the few instances where I cheked the references, I discovered that they had not been entirely properly cited. E.g. IEA (2020b) - which is not a research report but a comment by the way- which emphasizes the role of carbon pricing in grid parity, thus contradicting the sentence in which the comment is being cited. Also the statement about CERs decline was due to the EU ETS collapse is wrong as the CER to EUA conversion in the ETS was limited to about 4,5% of emissions and known to the market. The decline is due to a bunch of other reasons, most importantly the negative press that CDM/CERs got which reduced demand for such allowances through e.g. voluntary compensation schemes. It would be best to thoroughly revise this part and make the style and argumentation in line with the other paragraphs. Otherwise, it may be skipped as well.	Taken into account, thanks for this comment .The mentioned reports (IEA, FS_UNEP Centre) shows general trends of renewable technology developments and their increasing competitiveness over traditional fossil-fuel sources.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
52903	29	32	29	32	Also, financing needs are used "as" an indicator…. "as" is missing in the sentence.	Editorial. sorry for typo, "as" inserted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58771	29	38	29	38	Why is Chapter 15 describing the contents of Chapter 12?	Noted. refering to Chapter 12 for futher infromation	Government of United States of America	U.S. Department of State	United States of America
43309	29	40	29	44	Examples of financing needs in terms of institutional capacity would greatly help the reader.	Accepted. we added some example "(facilitating to achieve social and economic goals underpinning knowledge, skills, notional and international cooperation) "	Daniele Tori in	The Open University Business School	United Kingdom (of Great Britain and Northern Ireland)
58773	29	46	30	2	It's a tautology that sufficient finance is needed for finance to become an enabler.	Noted. Agree, there are some overlapping, but this section stresses on the qualitative aspects of financing needs	Government of United States of America	U.S. Department of State	United States of America
58775	30	3	30	3	"home bias" is unclear.	Editorial. We meant “prioritizing own country or regions” by home bias. We clarified by putting it within parenthesis	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
72317	30	10	30	38	Several well-investigated barriers are responsible for the suboptimal level of building energy renovation processes, including split incentives, lack or inadequate information about costs and (co-) benefits, high upfront investment costs, decision-making process, lack of access to finance, and scarcity of available private capital. From the viewpoint of financial institutions, high transaction costs, small project sizes and perceived risks associated with credit or estimated energy savings are among the most commonly cited barriers. The duration of the financing may also not suit the long pay-back of energy renovation projects in buildings. Moreover, limited underwriting EE loan practices and lack of standardization of energy savings measurement and verification methods are also important inhibiting factors. High interest rates often attached to financial EE products can be explained in part by the lack of liquidity and exit opportunities for investors through secondary markets. The above barriers and solutions to energy efficiency investments are describe in the following article, which should be cited here: Bertoldi, P, Economidou, M, Palermo, V, Boza-Kiss, B, Todeschi, V. How to finance energy renovation of residential buildings: Review of current and emerging financing instruments in the EU. WIREs Energy Environ. 2021; 10:e384. https://doi.org/10.1002/wene.384	Accepted. Thank you. We cited the article. Bertoldi, P., Economidou, M., Palermo, V., Boza-Kiss, B., & Todeschi, V. (2021). How to finance energy renovation of residential buildings: Review of current and emerging financing instruments in the EU. Wiley Interdisciplinary Reviews: Energy and Environment, 10(1), e384.	bertoldi paolo	european commission	Italy
58777	30	11	30	11	Economists and MBAs dislike use of "payback period" as an investment criterion since it does not account for the time value of money and may not give correct rankings.	Accepted. We amended it as follows "Some important elements are the duration of loan and profile as long-term loans and heavily heterogeneous returns represent challenges in the financing of mitigation technologies and policies. "	Government of United States of America	U.S. Department of State	United States of America
58779	30	17	30	18	This phrase is unclear: "low correlation between the project and dominating asset classes".	Taken into account. We meant that climate projects (mitigation and adaptation) might not accrue the highest yield from the asset, hence we inscribe that a low correlation between the climate projects and dominating asset classes might provide an opportunity in climate action by satisfying the appetite of institutional investors, which tend to manage portfolios with consideration of the Markowitz modern portfolio theory that argues that investors favour a portfolio with a lower risk level over a higher risk level for the same level of return (Marinoni et al. 2011)	Government of United States of America	U.S. Department of State	United States of America
58781	30	19	30	20	Explanation needed on Markowitz modern portfolio theory.	Noted. In addition, a low correlation between the climate projects and dominating asset classes might provide an opportunity in climate action by satisfying the appetite of institutional investors, which tend to manage portfolios with consideration of the Markowitz modern portfolio theory that argues that investors favour a portfolio with a lower risk level over a higher risk level for the same level of return (Marinoni et al. 2011)	Government of United States of America	U.S. Department of State	United States of America
58783	30	24	30	24	Explanation needed on "opportunity cost".	Accepted. High transaction costs, attributed from various factors, such as complexity and limited standardisation of investments, limited pipelines, complex institutional and administrative procedures, create significant opportunity costs of green investments comparing with other standard investments (IRENA 2016; Nelson et al. 2016; Feldman et al. 2018).	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
51239	30	27	5	34	1.Africa is not one homogenous market: - solutions for one country even in the same region might be completely different to another country 1.The total need for grid connected renewables is tiny compared to other markets elsewhere in the world. The economies are small. Lack of energy access has little to do with actual demand for increase in generation and IPP activity. There are a few countries with strong economic growth but off a low base, but ultimately populations are poor and can't afford cost reflective tariffs. 2.Putting big money into African renewables is a myth outside the few large procurement windows that come around occasionally (South Africa, Egypt, Morocco, Algeria).The total project activity is very small (outside of South Africa and the Arab speaking nations). It is vastly over serviced in terms of available debt capital. In Sub-Saharan Africa – excluding South Africa, the new solar additions are in total around 0.9 GW . This is a capital cost of around $720m (less than $400m debt to be provided by the EC facilities, the World Bank, AfDB, all the European DFIs, all other commercial banks across the continent, and all of the other debt facilities that are available across the market including Chinese providers). 3.Projects take a VERY LONG TIME from conception to financial close and operation (for wind in some cases over 10 years). This suggests that solar is a much more effective solution than others. a.For example, only handful of countries have commissioned any onshore wind capacity Since 2014. The commissioning of the 310MW Lake Turkana wind farm in Kenya in 2018 was the region's first large-scale wind farm outside of South Africa. It took over 13 years to get to financial close. The 158MW Taiba N'Diaye project will see Senegal become the next country to bring a large wind farm online. Unlike solar, Facing more challenging grid connection, land acquisition and infrastructure requirements, wind farms must overcome higher hurdles than PV projects. More importantly they involve a large percentage of total power capacity. Coming online over 2018-20, two wind projects of 310MW and 158MW developed in Kenya and Senegal, respectively, amount to 14% and 11% of 2018 installed capacity. b.Even after signing of a PPA – which can take longer than 5 years and usually does, the	Noted.	Gregor Paterson-Jones	www.gregorpatersonjones.com	United Kingdom (of Great Britain and Northern Ireland)
86917	30	27	30	31	15.4.1. Definitions and qualitative assessment of financing needs "A stronger standardisation and alignment of power purchase agreement terms with best practices globally has led to a substantially increased interest of capital markets also in less developed countries" [we should consider amending to "increased interest in development of local capital markets in developing countries", section 15.6.7?]. "Notably, Power Purchase Agreement (PPA) significantly increase the probability for more balanced investment and development outcomes and ultimately more sustainable independent power projects in African countries" We should consider amending to refer to developing countries rather than African countries? - [PPA agreements are widely used in different locations in both developing/developed country contexts.] [Here is an example of fintech https://qz.com/africa/1981679/flutterwave-raises-170-million-to-connect-african-fintech/ which with a footprint across 33 African countries, potentially valuable with PAYGO/distributed energy models]	Taken into account. As per suggestions, we amended it	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
74267	30	29	30	31	There are a number of African countries that are have indicated a strong interest in pursuing carbon free nuclear generation for their baseload power needs. International financing should recognize this growning trend. The pargraph should reflect this information. https://www.iaea.org/newscenter/news/is-africa-ready-for-nuclear-energy	Accepted. added a line p33, line 1-2	Jeffrey Merrifield	Pillsbury Law Firm	United States of America
58785	30	31	30	31	This applies to not only African countries. Topic needs more explanation for people unfamiliar with PPAs. Cite: https://ppp.worldbank.org/public-private-partnership/sector/energy/energy-power-agreements/power-purchase-agreements Also applicable for other types of infrastructure development, public and private: https://www.wbcsd.org/Programs/Climate-and-Energy/Energy/REscale/Corporate-renewable-power-purchase-agreements-PPAs	Accepted. removed reference to Africa, and added references	Government of United States of America	U.S. Department of State	United States of America
58787	30	34	30	34	Explanation and examples needed for fintech. See: Nelson, Paul. 2019. FinTech Partnerships Playbook: How Donors Can Pursue Private Sector Engagement to Strengthen Digital Finance Ecosystems. Washington, DC: USAID.	Noted. Thank you. We provided cross reference for further understanding about fintech Section 15.6.8	Government of United States of America	U.S. Department of State	United States of America
49861	30	35			When introducing blockchain in the climate context one should note the huge energy use of blockchain as it is currently administered	Noted. We agree	Jason Patrick	New Zealand Green Investment Finance	New Zealand
77865	30	35	30	38	Remark on decentralization of energy systems using blockchain technology is unsubstantiated and speculative as no such example exists at any credible scale, it should be modified to reflect this speculative potential	Noted.	Alex Rau	Climate Wedge LLC	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
5571	30	39	31	7	The comparison made is between cost of renewable energy(Wind and solar) and others (fossils or nuclear) is unfair,. Indeed, you compare the cost of a servive available when you need it, and the same service available from time to ttime, even when you don't need it. To make a fait comparison, you have to include the cost of storage of energy or the cost of the alternate supply. And then, wind or solar are not competitive, by far!	Rejected. It might be unfair from social cost and benefit point of view. The comparison was made based on the opportunity cost	Michel SIMON	Retraité/ Pdt d'association	France
15319	30	39	31	7	“For example, the recent Chinese policy direction towards tougher access to and a substantial cut in feed-in-tariff in 2018 led the significant drop in renewable investment and new capacity addition in China (Hover 2020; FS-UNEP Centre and BNEF, 2019).” The statement on "a substantial cut in feed-in-tariff in 2018 led the significant drop in renewable investment in China" does not tally with the facts, and it is suggested to modify it to “For example, the recent Chinese policy direction towards tougher access to and a substantial cut in feed-in-tariff in 2018 led the significant drop in renewable investment and new capacity addition in China (Hover 2020; FS-UNEP Centre and BNEF, 2019). However, the much bouncing back of newly installed capacity 71.67GW wind power and 46.65GW solar power in 2020 shows the strong development of zero carbon power generation driving by lower cost and policies to support them by energy revolution strategies in China.”	Accepted. we modified it as per suggestions	Government of China	China Meteorological Administration	China
20409	30	39	30	39	The phrase "ideally not relying on the pricing of positive externalities" is unclear. Please clarify.	Noted. we meant " the positive externalities not often considered"	Tommi Ekholm	Finnish Meteorological Institute	Finland
58789	30	39	30	39	Do not confuse financial analysis and economic analysis. Economic analysis should value externalities. Financial analysis does not value externalities. Climate mitigation and adaptation related examples of use of financial and economic analysis include: https://pdf.usaid.gov/pdf_docs/PA00WGJS.pdf https://pdf.usaid.gov/pdf_docs/PA00X1KT.pdf Cooley, David; et al. 2021. Cost-Benefit Analysis of Improved Cacao Production Methods in Ghana. Washington, DC: Crown Agents USA and Abt Associates, Prepared for USAID Matek, Benjamin et al.. 2020. Cost-Benefit Analysis of Wood and Charcoal Use for Household Cooking and Supply- and Demand-Side Alternatives for Lilongwe, Malawi. Washington, DC: Crown Agents USA and Abt Associates, Prepared for USAID.	Taken into account. We agree, hence we mentioned the economic viability considering the positive externalities of green projects	Government of United States of America	U.S. Department of State	United States of America
84765	30	42	30	44	With respect to RE functioning without financial support - this is true but it may be useful to state at the end of the sentence on line 44 'although power sector policy and regulation will remain important." or similar. A phrase in the UK debate over 'merchant' renewables has been "subsidy free does not mean policy free". A detailed Q&A by the respected online analysis and science provider CarbonBrief covers "What does subsidy free actually mean?" (available from: https://www.carbonbrief.org/what-does-subsidy-free-renewables-actually-mean) A useful blog from Imperial College Business School "The dangers of subsidy free renewables" by Charles Donovan Executive Director, Centre for Climate Finance & Investment, which raises questions and illustrates the interaction of support, risk and cost (available from: https://www.imperial.ac.uk/business-school/ib-knowledge/finance/the-dangers-subsidy-free-renewable-energy).	Noted.	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
11035	30	43	30	44	In addition to the industry reports, I suggest to also refer to academic research on the matter here, e.g. Schmidt, T. S., Steffen, B., Egli, F., Pahle, M., Tietjen, O., & Edenhofer, O. (2019). Adverse effects of rising interest rates on sustainable energy transitions. Nature Sustainability, 2(9), 879-885.	Accepted. we cited the article Schmidt, T. S., Steffen, B., Egli, F., Pahle, M., Tietjen, O., & Edenhofer, O. (2019). Adverse effects of rising interest rates on sustainable energy transitions. Nature Sustainability, 2(9), 879-885.	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
20411	30	47	30	47	Please, do not use "volatile" as a verb.	Accepted. amened	Tommi Ekholm	Finnish Meteorological Institute	Finland
58791	30	47	30	47	Replace "often volatiles" with "is often volatile". Also note that annual value may decline when unit prices fall even if the amount of renewable energy capacity obtained has increased.	Accepted. amened	Government of United States of America	U.S. Department of State	United States of America
58793	30	48	30	48	The Government of China also did not actually make payments for a lot of FiTs it had approved in previous years. A better example would be reduction in wind power investments in the U.S. when tax preferences for wind fell in 2017.	Accepted. We added few lines "For example, the recent Chinese policy direction towards tougher access to and a substantial cut in feed-in-tariff in 2018 led the significant drop in renewable investment and new capacity addition in China (Hover 2020; FS-UNEP Centre and BNEF, 2019). However, the much bouncing back of newly installed capacity 71.67GW wind power and 46.65GW solar power in 2020 shows the strong development of zero carbon power generation driving by lower cost and policies to support them by energy revolution strategies in China"	Government of United States of America	U.S. Department of State	United States of America
72579	31	1	31	7	Carbon markets have been created by regulation and can be moulded by smart regulation, especially at a time when all climate action opportunities should be pursued. A logical extension of the idea of affirmative inclusion of certain carbon asset classes may be to provide simplified methodologies for targeted sectors and countries. The use of positive lists and standardized baselines in general, and certainly for sectors and countries that are difficult to access, would be most appropriate here. In addition, where these are targete dto improve the livelihoods of the poorest and vulnerable people, consideration should be given to cross-cutting vulnerability and/or adaptation credits.	Noted. We agree	Karan Capoor	World Bank	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
19561	31	4	31	4	Insert after "… targets": "(Michaelowa et al. 2019)". Reason: The reference reviews the development of the international carbon markets over the past 20 years. New reference: Michaelowa, Axel; Shishlov, Igor; Brescia, Dario 2019 Evolution of international carbon markets: lessons for the Paris Agreement, in: WIREs Climate Change, 10, e613, DOI: 10.1002/wcc.61	Accepted. Michaelowa, Axel; Shishlov, Igor; Brescia, Dario 2019 Evolution of international carbon markets: lessons for the Paris Agreement, in: WIREs Climate Change, 10, e613, DOI: 10.1002/wcc.61 is cited	Matthias Honegger	Utrecht University, Perspectives climate research, IASS-Potsdam	Germany
58795	31	5	31	5	Spell out and explain first use of acronyms, such as CER.	Accepted. Certified Emission Reductions (CER)	Government of United States of America	U.S. Department of State	United States of America
11037	31	6	31	7	The last sentence ("the dependency on regulatory intervention to ensure fair market access only has proven to burden investor appetite") does not seem correct in general. In the area of renewable energy investments, one of the most important climate finance sectors, investors in industrialized countries were very much happy about regulators substituting market risk by the risk of regulatory reversals (as happens through instruments like feed-in tariffs, auctions for PPAs, etc.). Compare Polzin, F., Egli, F., Steffen, B., & Schmidt, T. S. (2019). How do policies mobilize private finance for renewable energy?—A systematic review with an investor perspective. Applied Energy, 236, 1249-1268.	Noted.	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
78019	31	7	31	8	Suggested edit: In between these sentences add the following paragraph: "However, given recent evidence that the EU ETS, that came out of the Kyoto ETS, cut emissions by 1.2 GT C02 from 2008 - 2016, and that the EU will cut its emissions by 21% from 2005 levels by 2020, some analysts believe a reauthorizaiton of the CDM in the context of conditional mandatory ETS caps on all countries, is the best and only realistic way to rapidly generate the required funding for, particularly developing country, carbon removal in the next two decades that is necessary to prevent catastrophic climate change (Kramer, 2019) (Bayer and Aklin 2020). In this view breakthough carbon negative electric power generation technologies that can retrofit existing fossil fuel power plants, or be installed as new stand alone renewable energy based power plants, and in either case produce a net negative outcome through Direct Air Capture (DAC), would allow for profitable DAC in both the developed and developing countries with revised conditional mandatory cap and trade and CDM agreements. Developed country emissions caps would be conditional on profitable DAC in the north that would support jobs and economic growth, and emissions caps in developing countries would be conditional on CDM funding to sustain these caps from developed countries ((Chichilnisky and Bal 2019, p. 262-71)." Rationale: See references. References: Bayer, Patrick and Michael Aklin. 2020. The European Emissions Trading System reduced CO2 emissions despite low prices. PNAS 117(16): 8804-12. Chichilnisky, Graciela and Peter Bal. 2019. Reversing Climate Change. Singapore: World Scientific Publishing Co. Pte. Ltd. Kramer, David. 2019. Should carbon emissions be taxes or capped and traded? PhysicsToday. 72(28): 28-30.	Accepted. Bayer, Patrick and Michael Aklin. 2020. The European Emissions Trading System reduced CO2 emissions despite low prices. PNAS 117(16): 8804-12. Chichilnisky, Graciela and Peter Bal. 2019. Reversing Climate Change. Singapore: World Scientific Publishing Co. Pte. Ltd. Kramer, David. 2019. Should carbon emissions be taxes or capped and traded? PhysicsToday. 72(28): 28-30.	Ron Baiman	Benedictine University	United States of America
72321	31	14	31	27	Barriers to investment to energy efficiency are also discussed in chapter 9 section 9.9.1, while financial mechanisms for energy efficiency and on-site renewable energies are discussed in 9.9.4 and 9.9.5	Noted.	bertoldi paolo	european commission	Italy
11039	31	15	31	16	An academic reference for the statement "These greenfield type projects… acting from conviction" can be found in Steffen, B., Matsuo, T., Steinemann, D., & Schmidt, T. S. (2018). Opening new markets for clean energy: The role of project developers in the global diffusion of renewable energy technologies. Business and Politics, 20(4), 553-587.	Accepted. Steffen, B., Matsuo, T., Steinemann, D., & Schmidt, T. S. (2018). Opening new markets for clean energy: The role of project developers in the global diffusion of renewable energy technologies. Business and Politics, 20(4), 553-587.	Bjarne Steffen	ETH Zurich (Swiss Federal Institute of Technology	Switzerland
58797	31	15	31	15	Greenfield term is not necessarily correct here.	Noted.	Government of United States of America	U.S. Department of State	United States of America
84767	31	16	31	16	Remove 'acting from conviction', or otherwise say what time period is meant by first movers. Certainly by 2003-2004 mainstream financiers were looking at where they could enter markets (in Europe and wider) on conventional risk-return analysis which is why policy and regulation were so important.	Noted. We provided the reference	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
72319	31	18	31	20	A good summary of the multi-benefits deriving from energy efficiency investments are described in the recent report by the European Commission, which could cited here: Shnapp, S., Paci, D., Bertoldi, P. Untapping multiple benefits: hidden values in environmental and building policies. EUR 30280 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-19983-0, doi:10.2760/314081, JRC120683.	Noted. thank you for sharing this reference	bertoldi paolo	european commission	Italy

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58799	31	21	31	21	The overgeneralization that energy efficiency is "at a low priority for firms" is not well supported.	Rejected. there are plenty literature claming that investment in energy efficiency is at a low priority for firms, and the financial environment is not favourable due to lacking awareness on energy efficiency by financial institutions, existing administrative barriers, lack of expertise to develop projects, asymmetric information, and split incentives (UNEP DTU 2017; Cattaneo 2019)	Government of United States of America	U.S. Department of State	United States of America
72323	31	21	31	24	Here you could cite: Bertoldi, P, Economidou, M, Palermo, V, Boza-Kiss, B, Todeschi, V. How to finance energy renovation of residential buildings: Review of current and emerging financing instruments in the EU. WIREs Energy Environ. 2021; 10:e384. https://doi.org/10.1002/wene.384 .	Noted. thank you for sharing this reference	bertoldi paolo	european commission	Italy
18557	31	24	31	27	There is a long history of interventions to tackle energy efficiency. However, the authors write as if Energy Service Companies are a relatively recent innovation; they originated, however, in the 1970s notably in Texas, US (Time Energy) as a result of the rapid rise in oil prices during that decade (Bullock, Cary, and George Caraghaiur. Guide to Energy Services Companies, 2001). The subsequent discussion of Energy Performance Contracting and ESCOs on page 58 lines 23 and 31 provides a more accurate reflection of the current situation. The authors should also mention here the important role of local banks in supporting energy efficiency, which was well demonstrated by the EBRD's long running programme Sustainable Energy Initiative (2006-15).	Noted. Thank you. We talked about the local source of finance in promoting clean energy	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58801	31	24	31	24	Another financial barrier involves the separation of sources of capital for constructions from funds to support on-going energy costs within organizations with construction capital expenditures. The use of off balance sheet performance contracting can address this barrier. In performance contracting, an energy service company (ESCO) covers the up-front capital cost of energy efficiency measures and then recoups that investment with a return over time. The building owner working with the ESCO saves from day-one because the agreements are set such that the return to the ESCO plus the new, reduced energy costs are less than the previous energy costs alone. This arrangement is known as an Energy Savings Performance Contract (ESPC). In some situations, the local utility serves the role of the ESCO and the arrangement is similiar to on-bill financing or Utility Energy Service Contracts (UESC). Reference: Shonder, John. "The economics of energy savings performance contracts." ASHRAE Transactions, vol. 116, no. 2, 2010, p. 394+. Accessed 21 Feb. 2021.	Noted. we talked abou the role of Energy Service Companies (ESCO) which is business model is expected to facilitate the investment in energy efficiency by sharing a portion of financial risk and providing expertise, there has been limited progress made with ESCO business models, and only slightly over 20% of projects used financing through ESCOs (UNEP DTU 2017).	Government of United States of America	U.S. Department of State	United States of America
58803	31	24	31	24	ESCOs need to be explained.	Accepted. Energy Service Companies (ESCO)	Government of United States of America	U.S. Department of State	United States of America
72325	31	24	31	27	The ESCO model also faces barriers and it is limited to large buildings, very often non-residential and public buildings, and only for cost-effective projects. The ESCO model is working best when the financing is provided by a third party, e.g. commercial banks, directly to the end users with the technical guarantee of the ESCO, which retain the technical risk of the project. When the financing is on the ESCO balance sheet an option to further stimulate the ESCO markets is to use forfeiting. Barriers and opportunities for ESCO business in the EU are discussed in the following articles, which should be cited here: Paolo Bertoldi, Benigna Boza-Kiss, Analysis of barriers and drivers for the development of the ESCO markets in Europe, Energy Policy, Volume 107, 2017, Pages 345-355, https://doi.org/10.1016/j.enpol.2017.04.023.	Accepted. We agree	bertoldi paolo	european commission	Italy
77867	31	24	31	27	It should be noted that securitization of energy efficiency assets (specifically receivables from shared savings contracts) such as demonstrated in Mexico by the InterAmerican Development Bank's energy efficiency securitization program (IADB 2015, https://www.iadb.org/en/news/idb-support-energy-efficiency-financing-through-issuance-green-bonds-mexico) has significant potential to accelerate broad-scale project financing of EE assets and investments. Securitization has already occurred at scale in the financing of wind and solar energy and tax credit markets, and similar efforts to standardize and structure cashflow risk from energy efficiency investments will transform investor appetite for this sector.	Taken into account. Securitization is applicable for developed economies, developing markets rely on the local source e.g, banking, money leanding ….	Alex Rau	Climate Wedge LLC	United States of America
58805	31	31	31	32	Delete "so the transport sector cannot achieve such transformation in isolation with other sectors" since this is not necessarily correct.	Noted. Here we emphasize the cooperation of the transport sector with other allied sectors	Government of United States of America	U.S. Department of State	United States of America
58807	31	42	31	42	Replace "low" with "lack of"	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America
58809	31	45	31	45	Rephrase "stringent hurdles"	Accepted. Rephrased	Government of United States of America	U.S. Department of State	United States of America
58811	31	45	31	46	Why would anyone invest in energy efficiency if "it may not necessarily generate direct or indirect benefits".	Noted. those are challenges	Government of United States of America	U.S. Department of State	United States of America
58813	31	47	31	47	Investors prefer increasing revenues over stable revenues.	Noted. We do agree	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
43765	32	3			Although global costs of renewable technologies have decreased dramatically, there may still be a tendency to underestimate costs for SIDS and other developing countries because of different risk factors, scales of installations, etc. A complementary analysis of localized estimates would be appreciated since the relatively coarse geographical resolution of IAMs not adequately accounts for these.	Accepted. added to p30 last paragraph	Government of Jamaica	Meteorological Service Division	Jamaica
47183	32	3	40	2	A region specific evaluation of Renewable Energy costs is needed, and especially for SIDS and pacific region as global estimates are not necessarily relevant,	Noted.	Stuart Minchin	The Pacific Community	Australia
70859	32	3	40	2	It is not clear if investments in this paragraph include e.g. purchases for fossil fuel energy products and thus include OPEX. If it is , it would be good to state it somewhere. Otherwise, it would be a pity that the focus would be only on investments and not on costs. In terms of operational costs, the scenarios would then probably be more similar (e.g. a fossil fuel and a renewable scenario).	Noted. unclear to which paragraph the reference is made to. Sometimes investment (CAPEX) is discussed, and sometimec OPEX. However, focus is on CAPEX mostly in this chapter	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
74269	32	3	32	26	This section should be modified to include a discussion of the assessment of financing needs for new, carbon-free nuclear power generation, including providing incentives for the deployment of safer Generation IV advanced reactors. This section currently only focuses on renewables.	Noted. Nuclear energy is considred in the data tables. Also, the discussion around RE is that costs are overestimated in IAMs.	Jeffrey Merrifield	Pillsbury Law Firm	United States of America
83919	32	3	40	2	It is difficult for me to be more precise in location here, but somehwere in this subsection 15.4.2 it might also be useful to reference other, stylized but serious etsimates of investments expressed as a share of global GDP, among which I count Pollin (2015), Rezai et al. (2018) and UNCTAD (2019) and which tend to find needs between 2 and 3 per cent of GDP for extended periods in the near future. Full references: Pollin, R. (2015) 'Greening the Global Economy', in. Cambridge, MA: MIT Press. Rezai, A., Taylor, L. and Foley, D. (2018) 'Economic Growth, Income Distribution, and Climate Change', Ecological Economics. Elsevier, 146, pp. 164–172. doi: 10.1016/J.ECOLECON.2017.10.020. UNCTAD (2019) Trade and Developmnet Report 2019: Financing a Global Green New Deal. United Nations Conference on Trade and Development.	Accepted. Reference added	Gregor Semieniuk	University of Massachusetts Amherst	United States of America
20415	32	4	32	14	There are some papers that analyze this topcis which should be mentioned here. For example, Ekholm et al. 2014 (http://dx.doi.org/10.1016/j.enpol.2013.04.001) analyze how financial constraints (high cost of capital) hinders the transition to a low-carbon energy system (wind and solar power are capital intesive); while McCollum et al. 2018 (https://doi.org/10.1038/s41560-018-0179-z) provide a top-down view of energy investment needs for reaching Paris Agreement targets.	Accepted. References added	Tommi Ekholm	Finnish Meteorological Institute	Finland
46383	32	4	32	14	Laying out of the difficulties in assessing financial needs regarding the missing methodologies and different approaches on methodologies is appreciated. A more detailed focus, what approaches exist and work for the different sectors as well where improvements are needed, would be helpful.	Accepted. added reference from other studies estimating financing needs in this section	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
47465	32	15	31	25	In the context of finance needs, the focus on globally decreasing costs of renewable technologies must not lead to masking the significantly higher costs for SIDS because of geographical challenges and regionally specific constraints regarding the scale of implementation etc. Please revisit and provide a more complete picture!	Accepted. a line of the possibility of underestimating costs for SIDS was added	Government of Saint Lucia	Department of Sustainable Development - Ministry of Education, Innovation, Gender Relations and Sustainable Developement	Saint Lucia
58815	32	16	32	16	Need to explain LCOE and discuss alternative measures. The levelized cost of energy (LCOE) is the net present value of costs over the expected lifetime of a facility divided by the discounted projected production of electricity. The annual costs and electricity production are discounted to reflect the time value of money. The LCOE can also be described as the average revenue per unit of electricity generated needed to recover the capital and operating and maintenance costs plus the opportunity cost of money. The LCOE is an imperfect measure for comparing generation technologies that produce power with different dispatchability, but it will become a better measure with increasing use of energy storage to complement intermittent RE availability. U.S. EIA (2019a) recommended using the levelized avoided cost of electricity (LACE) or the LACE-to-LCOE ratio for comparing the competitiveness of different power generation technologies. See: https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf	Noted. I agree with the comment, however, the LCOE is the standard benchmark for comparing different generation sources, albeit imperfect, like any other indicator.	Government of United States of America	U.S. Department of State	United States of America
77869	32	16	32	16	CORRECTION: International Renewable Energy Agency (IRENA)	Accepted. corrected	Alex Rau	Climate Wedge LLC	United States of America
82951	32	16	32	16	Auction prices don't discover LCOE which is a very narrow concept as flagged in Chapter 6. Auctions shhoudk also discover integration costs.	Accepted. Removed statement on auction prices	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
58817	32	19	32	20	Also see BloombergNEF projections of renewable energy costs and adoption rates, which tend to be more optimistic.	Noted.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
77871	32	20	32	25	Indeed, such conservativity has been demonstrated including in the PV growth forecasts by the IEA in its annual outlook, which has consistently been outperformed in reality (e.g. Hoekstra 2017, https://maartensteinbuch.com/2017/06/12/photovoltaic-growth-reality-versus-projections-of-the-international-energy-agency/)	Accepted. added reference	Alex Rau	Climate Wedge LLC	United States of America
82953	32	25	32	25	Watch for coherence with Ch 6.	Noted.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
58819	32	26	32	26	Figure needs more explanation. A more useful alternative is IRENA Figure ES.1 in https://www.irena.org/publications/2020/Jun/Renewable-Power-Costs-in-2019.	Noted. figure enlarged	Government of United States of America	U.S. Department of State	United States of America
1455	32		32		figure 15.7 has no quality	Noted.	Hamideh Dalaei	climatologist at Islamic Republic of IRAN Meteorological Organisation	Iran
3213	32		32		figure 15.7 has no quality to read.	Noted.	Hamideh Dalaei	climatologist at Islamic Republic of IRAN Meteorological Organisation	Iran
37281	32		32		There is no mention about nuclear industry, Countries like India and China have long terms plans	Taken into account. We have added a statement on the role of nuclear and CCS for the next decade	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
37283	32		32		to invest in nuclear. India has ambitious three stage plan for nuclear.	Taken into account. We have added a statement on the role of nuclear and CCS for the next decade	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
43451	32		32		figure 15.7 has no quality to read.	Noted.	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
50193	32				I suggest to add and discuss the possibility to use more sophisticated investment models such as real option modeling to handle more complex investment decisions under uncertainty (Engelen and Cassimon, 2018). Such models allow to incorporate multiple sources of uncertainty in the decision-making process (Cassimon, De Backer, Engelen, Van Wouwe and Yordanov, 2011a; Cassimon, Engelen and Yordanov, 2011b) and are therefore better suited to analyze climate transition scenarios (Sanders, Fuss, and Engelen, 2013). For instance, Li, Kool, and Engelen (2020) use real option modeling to analyze the investments in a hydrogen economy, while Engelen, Kool, & Li (2016) find that more governmental support for a hydrogen economy is necessary. Li, Y.; Kool, C.; Engelen, P.J. (2020), "Analyzing the Business Case for Hydrogen-Fuel Infrastructure Investments with Endogenous Demand in The Netherlands: A Real Options Approach". Sustainability 2020, 12, 5424. Engelen PJ., Cassimon D. (2018) Real Options. In: Marciano A., Ramello G. (eds) Encyclopedia of Law and Economics. Springer, New York, NY, ISBN 978-1-4614-7883-6, DOI: https://doi.org/10.1007/978-1-4614-7883-6. Engelen, P. J., C. Kool, & Y. Li (2016). A Barrier Options Approach to Modeling Project Failure: The Case of Hydrogen Fuel Infrastructure. Resource and Energy Economics, vol.43, 33-56. Sanders, M., Fuss, S. and Engelen, P.J. (2013), "Mobilizing Private Funds for Carbon Capture and Storage: An exploratory field study in the Netherlands", International Journal of Greenhouse Gas Control, vol.19, 595-605. Cassimon, D., M. De Backer, P.J. Engelen, M. Van Wouwe and V. Yordanov (2011a), "Incorporating Technical Risk into a Compound Option Model to Value a Pharma R&D Licensing Opportunity", Research Policy, vol.40, 1200-1216. Cassimon, D., P.J. Engelen and V. Yordanov (2011b), "Compound Real Option Valuation with Phase-Specific Volatility: a Multi-phase Mobile Payments Case Study", Technovation, vol.31, 240-255.	Noted. for IPCC scenario database managers	Peter-Jan Engelen	University of Antwerp	Belgium
50357	32		32		figure 15.7 has no quality to read.	Noted.	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86919	33	3	33	4	15.4.2. Quantitative assessment of financing needs "Ameli et al. (2021) flag the "climate investment trap" created by inappropriate assumptions on financing costs in developing countries" We should consider cross referencing to : 1. Renewables are most sensitive to WACC https://www.sciencedirect.com/science/article/pii/S1364032118307925 2. Indebtedness in developing countries affects WACC. Whilst renewables maybe said to be cheaper elsewhere - the higher cost of financing can make technologies such as solar more expensive in developing regions https://www.iea.org/reports/world-energy-investment-2019/financing-and-funding-trends 3. Africa & IAM models https://www.sciencedirect.com/science/article/abs/pii/S0301421515300616 https://www.sciencedirect.com/science/article/pii/S0301421518301484	Accepted. added a line and suggested references	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
20421	33	10	33	31	There are not that many references in this section.	Noted.	Tommi Ekholm	Finnish Meteorological Institute	Finland
74271	33	10	33	32	This section needs to be modified to include other carbon-free forms of generation beyond renewables, such as nuclear.	Accepted. modified section to be more inclusive of other energy technologies	Jeffrey Merrifield	Pillsbury Law Firm	United States of America
70861	33	15	33	15	before total a "the" is missing. In this paragraph 1.5.4.2 I spotted various more language mistakes (verbs, articles, plurals), so a thorough editing on language is needed still.	Editorial. for editorial review	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
58821	33	20	33	20	Are consistent definitions being applied for near-, medium-, and long-term in AR6? What are they?	Noted. long-term is mid to end of century	Government of United States of America	U.S. Department of State	United States of America
28003	33	23	33	23	After "shift", delete "from fossil generation and extraction".	Accepted. corrected	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
58823	33	31	33	31	This analysis excludes hydro. This should be stated. The cost of electrifying transportation should be called out.	Accepted. hydropower mentioned and electrifying transport	Government of United States of America	U.S. Department of State	United States of America
20413	34	1	34	1	This table needs some work to be more readable. 1) Please add the units to the table caption (now they are in notes). 2) The hierarchy with the "of which..." expressions is hard to read. The numbers don't seem to add up, e.g. Solar + Wind is not equal to Renewables. There are maybe more categories in the breakdown that are not presented here. 3) What is "inter-quartile range"? The same as 25%-75% range? 4) The scenario categories could be expressed and used in the same way than elsewhere in the report.	Noted.	Tommi Ekholm	Finnish Meteorological Institute	Finland
31173	34	1			Table 15.2 is a rich and very useful table. Could there be a way to visualise it's results in analogy to Figure 16.2 and 16.3 in Chaper 16 "Investment and Finance" of IPCC AR5 WG III.	Noted.	Jochen Harnisch	KfW	Germany
31175	34	1			The investment needs for energy efficiency in the middle of the road scenarios above 2°C seem implausibly low. There seems to be a smaller number of model results. Still, this should be represented differently in order to not send misleading policy signals.	Noted.	Jochen Harnisch	KfW	Germany
58825	34	1	34	2	List source below table and explain how numbers were estimated and who estimated them.	Noted.	Government of United States of America	U.S. Department of State	United States of America
82955	34	1	34	1	The warming levels in column 1 are not the same as those used inChapter 3. This will confuse.	Noted.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
84387	34	1	34	1	It is not clear where electricity produced by other means such as hydrogen, biofuel, synthetic fuel sits in this table	Noted.	Penny Apostolaki	Independent Experts / Current employment: Barclays Bank	United Kingdom (of Great Britain and Northern Ireland)
84389	34	4	34	5	It will be useful to say how the estimated investment in fossil fuel in 2030 compares to the current/recent investment in fossil fues (as you have done for renewables)	Noted.	Penny Apostolaki	Independent Experts / Current employment: Barclays Bank	United Kingdom (of Great Britain and Northern Ireland)
28005	34		34		Table 15.2 appears to fully support a top-down approach without considering the special circumstances of developing countries, the need to enhance energy access in these countries and achieve SDGs. The table should be revised substantially.	Noted.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
37277	34		34		Rationale for the value of investment in Nuclear should be explained.	Noted.	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
37279	34		34		Why is it so less compared to the projected expenditure of renewables?	Noted.	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
58827	35	1	35	2	List source below table and explain how numbers were estimated and who estimated them.	Noted.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
19989	36	1	36	9	Read in conjuction with Table 15.3, the information presented in this section of the chapter doesn't really tell much about the regional pattern of power sector investment in the developing countries. This is very esseantilly because various documented studies have suggested that developing countries will be adversely affected by emmissions. It is thus considered important to back up the arguement with a clear statistical convinction on what the emerging markets and developing countries have invested in renewable energy as opped to fossil fuel exposures. The same goes for the information contained in lines 10 to 24, and through to Figure 15.8. The focus of the chapter seems to focus more on the analysis of current situation, rather than strategic planning towards financial structure adjustments in the long term (2020-2050) as a way of meaningfully reducing financial commitments to pollutant energy generation. I suggest the inclusion of extensive coverage/focus on the trend analysis of current climate-related investment patterns in the developing countries, as well as high-pollutant countries - to adequately project the possible future financial commitments to clean energy. I propose the adoption of various foresacting techniques backed with the deployment of historical data.	Noted.	Rafiu Adewale Aregbeshola	University of South Africa	South Africa
82177	36	1	36	9	It is not clear why countries with abundant coal or hydroelectric schemes would want to give up that capacity in favor of some sustainable energy sources that (a) take a while to come to stream and (b) with unresolved storage of electricity in terms of batteries etc. The most pressing issue in developing countries is getting 24/7 supply of electricity in urban and semi-urban environments. There is a huge gap in the supply of eletricity in rural areas where 2/3 of the population resides. Its not clear to me how climate finance can address these huge infrastructural issues.	Noted. The majority of countries in the world, don't have massive coal and hydroelectric resources	Smile Dube	California State University, Sacramento	United States of America
28007	36	3	36	4	Delete "these not only need to replace existing fossil generation capacity, but additionally".	Accepted, sentence adjusted to: "..., as these still have growing energy demand and it is still considerably lower than the global average. ".	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
18559	36	4	36	7	The statement `Global electricity demand is project to incresae by up to 75% . . . ' should have a reference.	Taken into account, the sentence has been removed in the process of consolidating the section..	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58829	36	5	36	5	Citation needed for global electricity demand growth. Better to disaggregate by region or type of economy and different time periods in a table. Are the demand estimates linked to the supply estimates assumed in the finance table?	Taken into account, the sentence has been removed in the process of consolidating the section..	Government of United States of America	U.S. Department of State	United States of America
58831	36	16	36	17	Annualized investment between now and 2050 is a misleading way to present investment requirements since demand is increasing over this long period and technologies and costs are changing. Ignoring the time pattern of investment leads to confusion over how much financing is actually needed in upcoming years and misstates the present value of the cost.	Taken into account. Focus of the chapter 15 analysis is on 2020-2030	Government of United States of America	U.S. Department of State	United States of America
28009	36	23	36	23	Delete "its overall composition would shift decisively away from fossil fuels".	Taken into account, the sentence has been removed in the way of consolidating the section..	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
58833	36	24	36	24	Call out electrification of transportation.	Taken into account. Financing needs for EVs have been included in the analysis	Government of United States of America	U.S. Department of State	United States of America
74273	36	24	36	25	This chart made undervalue the intended investment in nuclear given projections that nuclear generation could double to over 750GW by 2050. https://world-nuclear-news.org/Articles/IAEA-forecasts-doubling-of-nuclear-capacity-by-205	Taken into account. We have added a statement on the role of nuclear and CCS for the next decade	Jeffrey Merrifield	Pillsbury Law Firm	United States of America
58835	37	1	37	1	Clarify that total investment here refers to the energy sector only.	Noted with thanks. Figure 15.8 has been removed. Please section on quantitative analysis of investment needs in non-energy sector..	Government of United States of America	U.S. Department of State	United States of America
84769	37	5	37	6	"Some of the solutions…" these are not mutually exclusive	Taken into the paragraph has been rewritten in the way of consolidating the section..	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
58837	37	7	37	7	Pumped hydro is costly, energy inefficient, location-limited, and likely to become noncompetitive with battery energy storage.	Taken into account, link to needed investments to pumped hydro has been removed..	Government of United States of America	U.S. Department of State	United States of America
58839	37	9	37	9	Ignores the importance of front-of-the-meter storage in utility-scale renewable energy integration and peak load supply. See: https://pdf.usaid.gov/pdf_docs/PA00X315.pdf	Taken into account, behind-the-meter discussion has been removed in the consolidation process of the section. Thank you for your comment. .	Government of United States of America	U.S. Department of State	United States of America
72327	37	10	37	10	The energy efficiency investments of "1.1 trillion USD yr-1" seems on the low side, what is the source of the figure? Only for the energy renovation (retrofits) of existing buildings in the EU-27, it is estimated an annual investment cost of about 300 billions Euro per year. See the new Renovation Wave document published in October 2020 and the annexed financing document, https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/renovation-wave_en and https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1603122391413&uri=CELEX:52020SC0550	Taken into account. Needs ranges are based on IEA and IRENA estimates	bertoldi paolo	european commission	Italy

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58841	37	21	37	21	Is this worldwide or in OECD countries only? Of greater interest would be developing country subtotals. Annualized investment is a misleading way to present investment requirements since demand and the time period was not specified here. Ignoring the time pattern of investment leads to confusion over how much financing is actually needed in upcoming years and misstates the present value of the cost.	Taken into account, please see table 15.3 for investment needs for R6 (developed countries as one region, and 5 other regions). In addition, see investment gap discussion in section 15.5.2 using R2 split (developed and developing countries). Regional breakdown is based on official UN M49 classification from 2021. Regarding time dimension, Section 15.4 (needs) and 15.5. (gaps) uses a short term view (until 2030). For mid-term perspectives see Figure 3.4, 3.5, 3.6 in Chapter 3 in this report..	Government of United States of America	U.S. Department of State	United States of America
58843	37	26	37	27	Unclear whether 70% refers to share of total private sector mitigation investment or for transport only. No citation for the 70% or 23%. Geographic scope is unclear.	Taken into account, Thank you very much for your comment. This section has been edited substantially. With regard to this sentence, please see the gap section (15.5.2). The chapter discusses there the public/private split with the note of full cost accounting of CPI instead of incr. cost counting: "Total private flows for EVs included in CPI numbers amount to 41bn USD in 2018 (Buchner et al. 2019), representing more than 80% of private sector finance into the transport sector around one third of total, public and private, funding to the transport sector in 2018. This likely results in an underestimation of the financing gap". Hope this is clearifying your response. .	Government of United States of America	U.S. Department of State	United States of America
58845	37	27	37	27	Do not use "funding" as a synonym for private sector investment.	Taken into account. Wording has been adjusted. See also section on definitions and terms	Government of United States of America	U.S. Department of State	United States of America
58847	37	29	37	29	"Additional annual investment needs until 2030 add up to USD 300-350" needs a reference.	Taken into account. Needs section has been reworked	Government of United States of America	U.S. Department of State	United States of America
58849	37	29	37	29	From what starting year until 2030? Is this an unbiased source or an interest group?	Taken into account, the starting year in this reference is 2018. The Food and Land Use Coalition is a group of experts and people from various areas, countries, and institutions. So, maybe we can argue it is an unbiased one.	Government of United States of America	U.S. Department of State	United States of America
58851	37	31	37	31	Unclear what the $90-115 billion includes.	Taken into account. Needs section has been reworked	Government of United States of America	U.S. Department of State	United States of America
58853	37	36	37	38	Unclear what is in these numbers and that there is no overlap with other numbers provided.	Noted	Government of United States of America	U.S. Department of State	United States of America
58855	37	40	38	3	The 'New York Forest declaration' section is unclear. Why discuss Bonn Challenge?	Accepted. Mehodology has been changed	Government of United States of America	U.S. Department of State	United States of America
58857	37	43	37	43	Economic opportunity costs include imputed costs and are not equal to demand for financing.	Taken into account. Needs section has been reworked	Government of United States of America	U.S. Department of State	United States of America
58859	37	44	37	44	$5-$60 billion is a large range and unclear what was included.	Taken into account. Needs section has been reworked	Government of United States of America	U.S. Department of State	United States of America
58861	37	45	37	45	Need to explain what is in the NYFD.	Accepted. Mehodology has been changed	Government of United States of America	U.S. Department of State	United States of America
58863	37	46	37	46	837-1,208 billion from what starting year until 2030? Unclear what is in these numbers and that there is no overlap with other numbers provided.	Taken into account. Needs section has been reworked	Government of United States of America	U.S. Department of State	United States of America
58865	37	49	37	49	How much were the "sufficient pledges" and sufficient for what?	Taken into account. Needs section has been reworked	Government of United States of America	U.S. Department of State	United States of America
58867	38	1	38	1	Just above 26-44 million hectares until 2019 refers to what?	Accepted. Mehodology has been changed	Government of United States of America	U.S. Department of State	United States of America
277	38	4	39	6	Needs to be clear refewrence to CH17 WG2, for calrity and consitency, also I would rais ethe point that resilience is seen by most in the private sector as the prefered term to adaptation. And that there is a difference between resilience and disaster response	agree to need for consistency across chaps. Not clear to me that all private sector prefer resilence over adaptation and relevance to the section??	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
17919	38	4	38	24	In discussing needs for adaptation financing, the focus is entirely on wealthier countries. There should be mention made of the need for financing particularly in the most vulnerable regions, especially SIDS and LDCs	The Developing countries text from FOD was meant to be maintained this text which was responses reveiwers comment to the FODwas cut and will be re-inserted.thank you	Robert Brecha	Climate Analytics	Germany
43767	38	4	39	6	This section is highly biased towards wealthy nations and lacks an adequate discussion of adaptation financing needs for developing countries. Please revise! Please also ensure that developing countries' perspective is sufficiently covered in the following paragraph on resilience and disaster response needs.	The Developing countries text from FOD was meant to be maintained this text which was responses reveiwers comment to the FODwas cut and will be re-inserted.thank you	Government of Jamaica	Meteorological Service Division	Jamaica
72581	38	4	38	24	As stated in comment on 25 19-23 above, one approach might be to affirmatively focus climate finance resources on cross-scutting mitigation and resilience opportunities, especially in land, soil, agriculture etc issues, especially in Sub Saharan Africa.	a consideration.	Karan Capoor	World Bank	United States of America
58869	38	7	38	7	140 to 300 billion USD yr-1 by 2030 and 280 to 500 billion includes what and how was it estimated? Since what starting year?	it is annually for both sets of number	Government of United States of America	U.S. Department of State	United States of America
70863	38	7	38	7	Footnote 2 - 'Research by argues that made to disaggregate the EU funding for mitigation and adaptation' - to review. Missing words.	deleted	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
23587	38	8	38	8	Regarding the reference to the UNEP report, would it be possible to include the more recent results from UNEP Gap report published in january 2021?	UNEP AGR 2020 cites the same numbers as was in UNEP 2016 and 2018 which are those stated in the text. AGR 2018 p.23 notes that a study of 50 NDCs of non-annex 1 countries showed indicative adaptation financing needs of $500 billion and an average of $50 billiopn per year. (40% of this is for India alone)	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28011	38	16	38	16	Replace "coves" with "covers".	done	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
58871	38	19	38	19	Change "will be" to "are projected"	done	Government of United States of America	U.S. Department of State	United States of America
58873	38	21	38	21	Target of 20% of what?	20% of the EU budget on climate action	Government of United States of America	U.S. Department of State	United States of America
58875	38	26	38	26	Look for more recent, scientific citation.	ok. Some references added but please note rest of para contains numerous recent references	Government of United States of America	U.S. Department of State	United States of America
58877	38	29	38	29	Unclear what the 1,313 billion USD2017 refers to.	all economic losses cited here in are adjusted at 2017 USD	Government of United States of America	U.S. Department of State	United States of America
58879	38	29	38	29	The two footnotes indicate that the numbers in the text are problematic. This should be noted in the text. These footnotes should be shortened.	under considerations	Government of United States of America	U.S. Department of State	United States of America
58881	39	2	39	2	Add "disaster" before "losses"	done	Government of United States of America	U.S. Department of State	United States of America
58883	39	4	39	4	Replace "over the last twenty years" with actual years.	1998-2017 added	Government of United States of America	U.S. Department of State	United States of America
58885	39	4	39	4	Need to explain what was in the "real cost to the global economy" and the definition and duration of impoverished.	economic losses as used in the report is the amount of damage to property,crop and livestock in USD value at the moment of event. All data adjusted to USD 2017 baed on US CPI 2010=100. WB 2018. text revised to include GDP references.	Government of United States of America	U.S. Department of State	United States of America
8279	39	7	39	30	The report strongly focus on the need for developed countries to direct funds to developing countries, but this is the first mentioning of how developing countries could behave in ordet to access additional funds. What strategies in developing countries to access investments has been successful up until now? Are their cases when the NDC has been a successful mean for developed countries to better understand what green investments to make in developing countries? What could we learn from this in order to give advises to developing countries? This section would be a great opportunity to raise these questions.	with regard to NDCs: a good point but this question is not raised in the literature and it is not in the purview of IPCC to go outside the literature. Countries are still in the process of revising NDCs. With regard to adaptation there are certainly actions that developing countries are taking	Frida Zahlander	DanChurchAid	Denmark
58887	39	7	39	7	Financing for mitigation should be discussed in a separate subsection from financing for adaptation.	A consideration will separate the adaptation component of NDC under the Adaptation financing needs section and leave mitigation here	Government of United States of America	U.S. Department of State	United States of America
58889	39	10	39	10	Need to discuss how Zhang and Pan estimated these numbers. Avoid using "calculated" instead of "estimated" or "projected" as it gives an impression of scientific accuracy.	point about estimation taken. Space does not allow for a comprehensive overview of Zhang and Pan; any available critique or evaluation of their paper will be flagged	Government of United States of America	U.S. Department of State	United States of America
23589	39	12	39	13	The statement "Given that conditionality is not well defined across NDCs and cost estimate 13 assumption varying heavily, the calculation of aggregated cost appears questionable (Pauw et al. 2020)." is a relevant result for policy makers, and could be better reflected in SPM.	Considered	Government of France	Ministère de la Transition écologique et solidaire	France
58891	39	13	39	13	Did Pauw estimate the size of the overestimation by Zhang and Pan?	There is no reference ot Zhang and Pan in the article. But Shimizu 2016 had similar analysis to zhang on the broad contours of the financial components in INDCs. See also Gao et al 2019	Government of United States of America	U.S. Department of State	United States of America
46385	39	15	39	18	It is appreciated that information on finance needs addressed in NDCs is laid out. Kindly provide assessment and data to the validity of the information provided regarding the amount needed for unconditional (1.2 trillion) and conditional NDCs in finance needs (500 bn). NDCs are put forward by countries and methodologies may differ largely, potentially misleading the results when summed up.	source for numbers cited. IPCC can not provide assessment;can only report on extant literature. But numbers can be better qualified and sourced that will be done. Appreciate the comments.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
58893	39	15	39	15	Did the IRENA estimates published in 2017 account for declining renewable energy costs over time?	not sure.	Government of United States of America	U.S. Department of State	United States of America
58895	39	16	39	16	Wording like "will have to be mobilised" should be replaced with "were projected to be needed"	where it is a quote it will be maintained as is when parapharase the suggstiong will be taken. In this case the latter is acceptable.	Government of United States of America	U.S. Department of State	United States of America
58897	39	17	39	17	"A further 500 billion USD will be required" is overly deterministic and imprecise and may be a political rather than scientific estimate. If it is the total contingent financing requested in NDCs state it that way. Does this refer to non-OECD countries?	deleted	Government of United States of America	U.S. Department of State	United States of America
63417	39	17	39	20	The majority of NDCs do not specify how the estimated costs are calculated. Due to the lack of information methods used in calculating financial needs and the use of varying methodologies by Parties, it is not possible to simply add up these figures due to the risk of double counting. We would recommend the of aggregate figures due to challenges in verifying their accuracy.	When there are specific details around the number as specified in the literature;they may be used	Government of Canada	Environment and Climate Change Canada	Canada
58899	39	19	39	19	Change "financial data" to "financing cost estimates"	ok. Some references added but please note rest of para contains numerous recent references	Government of United States of America	U.S. Department of State	United States of America
58901	39	22	39	23	Use the plurals -- components, plans (NAPs)	thank you	Government of United States of America	U.S. Department of State	United States of America
18561	39	23	39	28	The sentence beginning `While estimate . . . ' is particularly unclear and seems to include several typos, missed words, incomplete brackets etc.	Good observation corrections made	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58903	39	28	39	28	Use bond issues (or issuances)	done	Government of United States of America	U.S. Department of State	United States of America
8273	39	31	39	39	How successful has the GCF projects been in terms of mitigating emissions? Please raise benefits and disadvantages with the fund and how we could improve the pipelines of financial flow into green investments. The chapter is mainly focusing on the needs for more finance, and delivers poorly on implementation guidelines and lessons learned.	under considerations.not sure that is in scope. I have not seen much in the academic or practice literature on this point. Beyond GCF owns' Indepent eval units work.	Frida Zahlander	DanChurchAid	Denmark
46387	39	31	40	2	While it makes sense to take a look at general opportunities from investment pipelines such as IFC and GCF, it does not help in determining financial needs and seems to depict a snapshot of seemingly randomly selected organizations. Please revise.	to be considered	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
58905	39	31	39	31	"Current pipelines and expected investment opportunities naturally": Remove 'naturally'.	done	Government of United States of America	U.S. Department of State	United States of America
58907	39	35	39	35	50% of what specific portfolio?	of the total investment portfolio	Government of United States of America	U.S. Department of State	United States of America
58909	39	36	39	36	"estimated" not "derives"	done	Government of United States of America	U.S. Department of State	United States of America
58911	39	38	39	38	Green buildings is not a sector. Avoid misuse of this economic term.	deleted 'green' table shows building as a sector	Government of United States of America	U.S. Department of State	United States of America
77873	39	39	39	39	Another larger historical pipeline is the UNFCCC Clean Development Mechanism pipeline, which attracted over 8000 GHG reduction projects across all sectors of Asia, Africa, and Latin America, and tracked the investment dollars attracted as well as verified GHG reductions output from the operating portfolio fo the overall pipeline (https://cdm.unfccc.int/Projects)	appreciate the reference	Alex Rau	Climate Wedge LLC	United States of America
58913	40	1	40	1	Pipeline based on proposals submitted or approved? Constrained by available funding or wish list?	sentence deleted	Government of United States of America	U.S. Department of State	United States of America
70865	40	6	41	2	This paragraph is kind of at the heart stone of the analysis of matching supply and demand of capital, and I would have expected it before the start of the description of demand and supply as it very rightly points out at some common mistakes by presenting the problem as an "amount of finance" problem without referring to the underlying causes of the lack of supply (which is an unfavourable risk-return profile for various types of investments plus some other elements like split incentives). This paragraph is taking the right focus (e.g. "The scale-up of commercial finance will be heavily dependent on the relative attractiveness of climate investments compared to other investment opportunities" but it comes late in the chapter and the whole chapter would profit if such fundamentals are being explained at the beginning (e.g. rename the background section to definitions and backgrounds)	Taken into account. We hope that the way we have reworked the section as well as the stronger background section highlights this issue	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
86465	40	8	40	8	Missing verb "is". "Finance gap usually discussed" should read: "Finance gap is usually discussed".	Taken into account. Section has been reworked	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
58915	40	9	40	9	"Demand side challenge" suggests there is not demand for financing. The energy transition is accelerating with RE prices falling.	Accepted. Wording has been changed	Government of United States of America	U.S. Department of State	United States of America
58917	40	10	40	10	A single, relatively old 2013 reference does not make this case.	Accepted. Wording has been changed	Government of United States of America	U.S. Department of State	United States of America
79011	40	14	40	16	"This [will] result in a significant gap in future if funding cannot be scaled up substantially which is discussed below as 'Potential future financing gaps based on current flows." There is no reason to be cautios with this conclusion.	Accepted. Wording has been changed	Young-jin Choi	Phineo gAG	Germany
58919	40	19	40	19	"The following quantitative analysis can and does not differentiate …": Remove 'can and'.	Accepted. Wording has been changed	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
79013	40	21	40	23	"Assuming investment needs derived from integrated assessment models as presented above represent the efficient allocations, any undersupply of finance would represent inefficiency in the sense of broader economic literature" Arguably this is more than an "inefficiency": an unprecedented and ongoing market failure in plain sight (the economist Nicholas Stern called it "the greatest market failure in human history"). An indication for the scale of the "materiality gap" (the gap between what investors and companies deem financially material vs. what is material to human society) is provided by the social cost of carbon for which estimates range between 50-100 USD/ton CO2 emission (e.g. by Stern & Stigliz, https://www.nber.org/system/files/working_papers/w28472/w28472.pdf). The German equivalent to the EPA even estimates 200 EUR/ton, while theoretical estimates for the "ultimate cost" of carbon go as high as a mindblowing 100.000 USD/ton. (https://link.springer.com/article/10.1007/s10584-020-02785-4). Considering annual CO2e emissions are currently at about 50 billion tons, a 100 USD/ton social cost estimate would indicate a yearly amount of 5 trillion USD of intergenerational economic damages that are unaccounted for by current the financial materiality definition. In 2019, the IMF estimated subsidies for fossil fuels at 4.7 trn USD in 2015 (most of which refer to indirect, non-cash transfer subsidies that reflect socialized costs and damages due to air pollution and climate change). Another compelling study from 2018 estimated the "unpaid social cost of carbon" in the fossil fuel industry at USD 12.7 trn between 1995-2013, possibly up to as high as USD 115.5 trn. The authors refer to this amount as "legal looting", defined as "society's failure to charge fossil fuel firms for the damage that their activities cause represents an implied subsidy". In the context of the climate crisis, the materiality gap could as well be named the "carbon pricing gap". https://www.researchgate.net/publication/325180049_The_unpaid_social_cost_of_carbon_Introducing_a_framework_to_estimate_legal_looting_in_the_fossil_fuel_industry	Taken into account. Section has been reworked	Young-jin Choi	Phineo gAG	Germany
8803	40	29	40	29	An earlier additional paper that highlighted the role of financial market failures caused by asymmetric information on climate-related investment is Kempa and Moslener (2017), which should be added to the sentence. Full reference: Kempa, K. and Moslener, U. (2017), "Climate Policy with the Chequebook: Economic Considerations on Climate Investment Support", Economics of Energy & Environmental Policy 6(1): 111-129. https://doi.org/10.5547/2160-5890.6.1.kkem	Taken into account. Thanks for this comment. Literature is already balanced.	Karol Kempa	Frankfurt School of Finance & Management	Germany
58921	40	33	40	33	Elaborate on "... + SME financing tickets and the missing middle ...". In general, this paragraph needs to define terms and improve clarity.	Taken into account. Wording has been adjusted.	Government of United States of America	U.S. Department of State	United States of America
79015	40	39	40	40	"The scale-up of commercial finance will be heavily dependent on the relative attractiveness of climate investments compared to other investment opportunities." This is a key sentence for the policy summary .	Accepted.	Young-jin Choi	Phineo gAG	Germany
58923	40	44	41	2	"Robust long-term pathways to create such ... do rarely exist ..." This statement is not adequately supported.	The literature is peer reviewed and has been cited more than 100 times. In addition. There is no confidence language used.	Government of United States of America	U.S. Department of State	United States of America
28919	40	55	40	55	Does the ECB policy of quantitative easing impact environmental policy objectives? Journal of Economic Policy Reform doi.org/10.1080/17487870.2020.1855176: https://www.tandfonline.com/doi/abs/10.1080/17487870.2020.1855176?journalCode=gpre20	Taken into account. Can not identify the reference with line 55. Only 47 lines are in the SOD. In another section (15.6.2) it is mentioned, that quantiative easing did not target well low-carbon sectors, which has been heavility criticiese (Jaeger et al. 2020).	Nathalie Hilmi	Centre Scientifique de Monaco	France
20407	41	1	41	1	Figure 15.9 is hard to interpret and should be clarified. Please reconsider if the pie chart (with two layers) is the best way to visualize the data. The figure should have a legends or other annotation that explains the different parts of the figure (particularly the two layers on the left). "Mitigation needs" and "flows" are ambiguous, please state clearly what these numbers mean.	Accepted. Figure has been redone	Tommi Ekholm	Finnish Meteorological Institute	Finland
58925	41	1	41	2	"rarely exist" is not true for renewable energy, agroforestry plantations, and other investments with profitable business models. It's more difficult for natural forest restoration, environmental services, and adaptation. It's possible for adaptation and disaster risk reduction with corporate social responsibility requirements, as in India. See: https://pdf.usaid.gov/pdf_docs/PA00X8F4.pdf. Certainly possible to support natural forest restoration with private finance from carbon offset trading in the voluntary markets, private investment funds that invest in voluntary carbon offsets (e.g., Althelia/Mirova, Livelihoods Ventures Funds, Climate Investor Funds, Tropical Landscapes Finance Facility, Starbucks Social Development Bond, Cloud Forest Blue Energy, CORSIA, California Tropical Forest Standard).	Noted	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
20417	41	3	47	16	Section 15.5.2. is rather confusingly written. The text should be clarified and condensed. The sentences are long and convoluted. Exapmples: "Total funding for..." (p41, l9), "The renewable energy..." (p41, l18), "The intensive capital expenditure… " (p42, l21), "The analysis of gaps..." (p42, l41).	Taken into account. Thank you very much for this comment. Large parts of this section are rewritten.	Tommi Ekholm	Finnish Meteorological Institute	Finland
20419	41	3	47	16	There are not that many references (to peer-reviewed research in particular) to back the arguments in Section 15.5.2.	Taken into account. Thank you very much for this comment. Where possible, peer-reviewed lit. Has been added..	Tommi Ekholm	Finnish Meteorological Institute	Finland
23591	41	4	41	8	This caveat should be reflected in executive summaries	Taken into account. Thank you very much for this comment. The chapter extended the discussion between IAMs and IRENA/IEA and other sectorial studies are explained in detail in the gap section. (No need to flag this in the ES).	Government of France	Ministère de la Transition écologique et solidaire	France
70867	41	4	44	41	The treatment of gaps for regions and countries is well described, but the sectors section seems to be rather restricted to renewable energy. What is missing is that in sectors like industry there is still a considerable amount of investment to make to make technologies market ready, which would require different types of capital compared to renewable energy	Taken into account. Thank you very much for this comment.There is a discussion on energy efficiency, incl. industry, and buildings. AFOLU, Transport, and Adpation measures 15.4. The investment gap figure shows also a more balanced view between sectors..	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
52941	41	9	41	11	Funding adaptaion action can also generate a mitigations co benefits	Noted..	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
53543	41	9	41	11	Please indicate source, especially for the "five times"	Accepted. An overview table on needs has been added (incl. references)	Government of Switzerland	Swiss Federal Office for the Environment Federal Department of the Environment, Transport, Energy and Communications DETEC Federal Office for the Environment FOEN International Affairs Division	Switzerland
70869	41	9	41	11	Please indicate source, especially for the "five times"	Accepted. An overview table on needs has been added (incl. references)	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
82957	41	9	41	9	needs for what level of ambition	Accepted. Wording has been added	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
58927	41	11	41	11	This analysi excludes hydro. This should be stated. The cost of electrifying traansportation should be called out.	Accepted. Hydro is included in RE, but not shown as a separate category because of its size	Government of United States of America	U.S. Department of State	United States of America
79017	41	11	41	13	"However, financing needs in terms of required investments have any little explanatory power in terms of the magnitude of the challenge to mobilise funding." I assume this should mean "only"	Noted. Thanks for your comment. In the process of finalizing the section, this sentence has been removed..	Young-jin Choi	Phineo gAG	Germany
19993	41	18	41	21	This statement is not structured properly. It is very dificult to follow the main argument being advanced here. The statement requires rephrasing. The same grammatical ineptitude flows more conspicously from page 41 to 43 of the document.	Taken into account. Section has been reworked	Rafiu Adewale Aregbeshola	University of South Africa	South Africa
15321	41	23	42	1	In Figure 15.9, the right panel shows the classification of different economies, classifying BRICS countries (Brazil, Russia, India, China, South Africa) as emerging economies, independent of developed and developing countries, and indicates that IPCC country classification criteria is seen in Annex B; however, the SPM does not contain an Annex B section on IPCC country classification criteria. It is suggested that the report adopt the criteria on the classification of countries in the previous IPCC assessment reports or in the United Nations Framework Convention on Climate Change (UNFCCC) by adopting the dichotomy between developed and developing countries, deleting the category of emerging economies, and including BRICS countries among developing ones.	Accepted. Figure has been changed	Government of China	China Meteorological Administration	China
19995	41	23	41	23	Figure 15.9 is not legible. It is importnt to improve the quality and legibility of the Figure	Accepted.	Rafiu Adewale Aregbeshola	University of South Africa	South Africa
31207	41	23			Figure 15-9 including its caption are difficult to understand. What is its main message? How was it derived?	Accepted. Figure has been changed	Jochen Harnisch	KfW	Germany
58929	41	23	41	23	Why does Figure 15.9 not cover heavy industry and manufacturing?	Taken into account. The needs assessment includes available data on industrial EE	Government of United States of America	U.S. Department of State	United States of America
82959	41	23	41	23	Regional classification in Figure needs thought.	Accepted. Figure has been changed	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86983	41	23	41	23	Fig 15.9 The reference to "emerging" - means different things to different stakeholders: 1. IFC uses the term "emerging markets" to refer to "developing country universe" - example literature https://www.dealstreetasia.com/stories/ifc-development-investment-223872/ 2. IFC Cities publications - refers to regions across the entire "developing country universe" as "emerging" https://olc.worldbank.org/system/files/Part%202_Climate%20Investment%20Opportunities%20in%20Cities-2.pdf 3. In Fig 15.9 we are using the word "emerging" to refer to BRICS/Brazil, Russia, India, China and South Africa - some investment banks and asset managers use "emerging" in this context but not everyone across financial services and capital markets use that term to mean "BRICS" 4. A number of sections across Chapter 15 have also made reference to "emerging" - we will need to have clarity in the final draft before publication?	Accepted. Figure has been changed	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
23593	41		41		Figure 15.9 : As for Figure SPM12, given the context and goal dependency of the assessment of sectoral needs and flows detailed in this figure, it would be relevant to include more than one source for each sector and visualize a range.	Accepted. Needs assessment has been expanded	Government of France	Ministère de la Transition écologique et solidaire	France
51627	42	8	42	11	The chapter writes about regulation mostly from the perspective of investors and the need for certainty and the risk of capture and rent seeking (page 55). But attention is needed to public sector capacity to establish and regulate private contracts in a transparent manner. Capacity for this is lacking in many developing countries. See https://openknowledge.worldbank.org/bitstream/handle/10986/29605/PIPPP_2018.pdf?sequence=1&isAllowed=y	Accepted. Please refer to the section on institutional capacity	Kate Bayliss	SOAS, University of London	United Kingdom (of Great Britain and Northern Ireland)
82179	42	8	42	20	The idea that the existence of risk mitigation instruments and well-design contracts in developing countries will promote private sector investments in the electricity sector ignores the obvious elephant in the room - political risk due to non accountable political structures and just outright lack of judicial independence if not contract reversals.	Taken into account. Wording has been added in the gap section but also the background section	Smile Dube	California State University, Sacramento	United States of America
82185	42	8	42	20	The idea that the existence of risk mitigation instruments and well-design contracts in developing countries will promote private sector investments in the electricity sector ignores the obvious elephant in the room - political risk due to non accountable	Taken into account. Wording has been added in the gap section but also the background section	Smile Dube	California State University, Sacramento	United States of America
58931	42	17	44	17	Spell out acronyms at first use: Development finance institutions (DFIs) and multilateral development banks (MDBs).	Taken into account. For the final version, acronyms will be spelled out accordings. .	Government of United States of America	U.S. Department of State	United States of America
58933	42	21	42	21	Wind and solar are the cheapest MWh to purchase in many regions of the world.	Taken into account. This aspect is discussed	Government of United States of America	U.S. Department of State	United States of America
58935	42	21	42	29	Detail is tangential to this chapter. Use "capital-intensive" instead of "intensive capital".	Taken into account. Thanks for this comment. Wording has been adjusted. Sentenc has been consolidated in the process of finalizing the final draft.	Government of United States of America	U.S. Department of State	United States of America
58937	43	1	43	1	Rephrase as: "… investments in transmission, storage, and demand and generation flexibility …"	Taken into account. Thanks for this comment. Wording has been adjusted. Sentenc has been consolidated in the process of finalizing the final draft.	Government of United States of America	U.S. Department of State	United States of America
58939	43	1	43	1	Does not recognize importance of distributed energy resources, smart grid technologies, minigrids, microgrids, and utility-scale battery storage.	Taken into account. Thanks for this comment. Sentence has been removed in the process of finalizing the final draft. See section 15.6.8.1 on Service-based business models in the energy and transport sectors for Eaas and Aggregators discussion.	Government of United States of America	U.S. Department of State	United States of America
58941	43	3	43	15	This would be a good area to discuss perfomance contraction, ESCOs, etc.	Taken into account. Thanks for this comment. ESCOs are discussed in the section 15.4.1 and 15.6.2.1. in detail which fits better in the narrative of the chapter.	Government of United States of America	U.S. Department of State	United States of America
79019	43	5	43	6	"Sources of funding for energy efficiency projects could comprises are extremely wide with a strong role of businesses, governments and households." This sentence is difficult to understand	Taken into account. Thanks for this comment. Sentence has been removed and content is accordingly integrated in the section.	Young-jin Choi	Phineo gAG	Germany
82419	43	5		6	not clear; sentence requires adjustment	Taken into account. Thanks for this comment. Sentence has been removed and content is accordingly integrated in the section.	Hugues CHENET	University College London	France
72329	43	6	43	7	For households energy efficiency, there is an increasing interest for energy efficiency mortgages, on-bill financing, with the financing attached to the energy bill and on-tax financing, with financing attached to the property tax (this is also known as PACE financing (Property Assessed Clean Energy financing (and it is working mainly in the US). There is not much literature on this financing mechanisms, cite here again: Bertoldi, P, Economidou, M, Palermo, V, Boza-Kiss, B, Todeschi, V. How to finance energy renovation of residential buildings: Review of current and emerging financing instruments in the EU. WIREs Energy Environ. 2021; 10:e384. https://doi.org/10.1002/wene.384 and Donal Brown, Steve Sorrell, Paula Kivimaa, Worth the risk? An evaluation of alternative finance mechanisms for residential retrofit, Energy Policy, Volume 128, 2019, Pages 418-430. You could point to the reader to chapter 9.9.4.	Noted. Thanks for your comment. Added Bertoldi et al. 2021. in the enabling environemt section. Discussion household level in 15.6.8.1 for EaaS at HH-level, where smart meters using real-time data are used to predict peak demand levels and optimise electricity dispatch (Chasin et al. 2020; Government of UK 2016; Smart Energy International 2018)	bertoldi paolo	european commission	Italy
77875	43	6	43	15	As referenced in line 60 above, securitization of energy efficiency assets could provide to be a pathway to scaling investments in EE	Noted	Alex Rau	Climate Wedge LLC	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58943	43	7	43	9	Why is there a sentence on transport here? Split into an energy efficiency paragraph and a transporation paragraph, with updated reference on capital markets (line 15).	Taken into account. Thanks for this comment. This paragraph has been completly rewritten. .	Government of United States of America	U.S. Department of State	United States of America
58945	43	10	43	11	No support is provided for this assertion: "This inconsistency in methodologies at the level of needs versus current flows with regard to end user investments leads to an overstatement of current flows and a lower gap than actually given."	Accepted. Thanks for this comment. The paragraph has been revised and this sentence has been removed: "This inconsistency in methodologies at the level of needs versus current flows with regard to end user investments leads to an overstatement of current flows and a lower gap than actually given. However, the dynamics in EE spending at household levels provide some confidence that future financing needs can be addressed well.".	Government of United States of America	U.S. Department of State	United States of America
82187	43	16	43	28	I have no clue what this paragraph is meant to deliver. I would have thought the focus would be on countries that lie along the Equator. There again, deforestation abatement has failed dismally as Brazil, DRC, Equitoral Guinea, Sri Lanka etc cannot afford to be solely concerned with deforestation and REDD+ when they face increasing population pressures and the need to clear more land for agriculture. Unless there is a clear financing model where benefits far exceed costs for these countries, the poor will clear the forests.	Accepted. Thanks for this comment. The paragraph has been revised, incl. the point, that a stronger focus on deforestation-free value chain (stronger reflection in taxonomies and financial sector investment decision processes) are necessary to ensure an alignment of financial flows with the LTGG..	Smile Dube	California State University, Sacramento	United States of America
79021	43	22	43	25	"Taking into account the specifics of land-based mitigation (in particular long investment horizons, strong dependency on monetisation of mitigation effects, strong public sector involvement) a significant scale-up of commercial funding to the sector can hardly be expected (Clark et al. 2018)." Indeed, not unless stronger climate policies come into place. This is not a hopeless case but underscores the necessity of strong government intervention, such as carbon pricing.	Accepted. Clarified	Young-jin Choi	Phineo gAG	Germany
82421	43	25		27	agriculture is also a sector that is no much addressed directly by commercial finance / capital markets: much of the capitalistic link is through the agro-food sector, but not direclty on land, as there are many "small" size farms being independent, connected to big corporations as their suppliers. In other words, agriculture is difficult to "grasp" (i.e. to influence) from a financial /capital market perspective.	Taken into account. Still, capital markets play a huge role across the food value chain and can contribute to the required transition	Hugues CHENET	University College London	France
28911	43	35	43	40	NDC have been recently updated for COP26	Accepted. Thanks for this comment. Sentence changed to: "600 billion USD of annual governmental support for agriculture in the OECD database contributes only modestly to the related objectives of boosting crop yields and just transition (Searchinger et al. 2020).".	Nathalie Hilmi	Centre Scientifique de Monaco	France
58947	43	35	43	35	This is a subjective and unquantifiable phrase: "mitigating climate change in a just way".	Taken into account. Wording has been slightly changed here, but more importantly more content on just transition added in the background section	Government of United States of America	U.S. Department of State	United States of America
8805	43	41	43	41	Consider rewording the begining if the sentence "The analysis if gaps type of economy […]".	Rejected. The meaning is: The analysis of gaps by type of economy...	Karol Kempa	Frankfurt School of Finance & Management	Germany
53545	43	41	43	43	Explain on what elements this conclusion is based or indicate source	Accepted. Needs overview table has been added to the needs section, footnotes have been improved	Government of Switzerland	Swiss Federal Office for the Environment Federal Department of the Environment, Transport, Energy and Communications DETEC Federal Office for the Environment FOEN International Affairs Division	Switzerland
58949	43	41	43	43	Need citations for these percentages.	Accepted. Needs overview table has been added to the needs section, footnotes have been improved	Government of United States of America	U.S. Department of State	United States of America
70871	43	41	43	43	Explain on what elements this conclusion is based or indicate source	Accepted. Needs overview table has been added to the needs section, footnotes have been improved	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82425	43	41	45	24	all this discussion should mention the astonishing hole in the net of current "sustainable finance" narratives and policy frameworks (cf. my comment N°7,17 above): while the financing priority/gap is higher in developing countries, these regions are literaly absent as targets, especially from developed countries' frameworks. A comparison between the content of the EU sustainable finance action plan and its Chinese 'equivalent' is proposed by Chenet & Zamarioli (in FR: WP available here Chenet, H., Zamarioli, L., 2021. Les sous-jacents théoriques de la « finance durable » au défi des objectifs climatiques (No. 01/2021), PoCFiN Working Paper. Paris. https://pocfin.kedge.edu/content/download/135604/1837502, submitted paper under review; in ENG in a broader paper here: Chenet, H., Zamarioli, L., Kretschmer, B., Narvaez, R., 2019. From transformational climate finance to transforming the financial system for climate. https://www.cop21ripples.eu/wp-content/uploads/2019/09/20190830_COP21-RIPPLES_D4-3a_Transforming-the-Financial-System.pdf) " it would be key to highlight that the vast majority of North/rich capital market flows have only limited (positive) impact on global South/poor countries... And actually the opposite could be true as most polluting infrastructures are in poor countries, only final goods beign imported to rich countries. ==> There is no mention of current """"sustainable finance"""" frameworks' blind side: in particular it is surprising that sustainable finance policy frameworks being currently emphasized by policy makers and governments (in particular the European sustainable finance action plan) give no attention to investment/financing towards/in developing countries, which are the most needed ones. The Chinese plan for greening the financial system is actually mentioning this, esp. through the Belt and Road initiative, but broadly speaking the efforts and initiatives to make the financial system more sustainable, while	Taken into account. More background has been added here and in the background section	Hugues CHENET	University College London	France
28913	43	42	43	42	Finance, financial or financing	Accepted. Wording has ben adjusted	Nathalie Hilmi	Centre Scientifique de Monaco	France
58951	43	44	43	44	Term is "fiscal space", not "headspace"	Accepted. Noted with thanks	Government of United States of America	U.S. Department of State	United States of America
84771	43	45	43	45	country rating' - does this refer to sovereign credit rating?	Accepted. Noted with thanks	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
70873	44	1	44	1	EU-28 - to note Brexit.	Accepted. Thanks for your comment.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
86921	44	1	44	12	15.5.2. Gaps identified with regard to sectors and regions "Regionally, the current focus of the global climate investment needs, policies and opportunities tends to be on the big four (China, USA, EU-28 and India) and the G-20 generally (UNEP 2019a), but attention must accelerate on low-income Africa. This large continent currently contributes very little to global emissions, but its rapidly rising energy demands and renewable energy potential versus its growing reliance on fossil fuels and 'cheap' biomass (especially charcoal use and deforestation) amid fast-rising urbanisation makes it imperative that institutional investors and policy-makers recognise the very large 'leap-frog' potential for the renewable energy transition as well as risks of lock-in effects in infrastructure more general in Africa that is critical to hold the global temperatures rise to well below 2°C in the longer-term (2020–2050). Overlooking this transition opportunity, rivalling China, India, US and Europe, would be costly. Policies centred around the accelerated development of local capital markets for energy transitions - with support from external grants, supra-national guarantees and recognition of carbon remediation assets - are crucial options here, as in other low-income countries and regional settings." This analysis was originally situated in the development of local capital market section. For the final draft we should review putting this back to development of local capital markets section as it provides the situational context to why this policy option is an important one in the developing country universe (not just in Africa and LDCs as amended by the editing process). In terms of gaps and investment needs - the current section has a wide selection of data sets to illustrate these aspects. This paragraph helps the reader connect the rationale for development of local capital markets?	Accepted.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58953	44	2	44	9	Bad run-on sentence that overstates contribution of Africa to GHG emissions. It is the other MICs and UICs in South and East Asia (apart from China and India) that matter far more than Africa for the potential to make the greatest progress toward the renewable energy transition.	Taken into account. The Text has been revised. Focus on "developing countries" in general are added to the paragraph..	Government of United States of America	U.S. Department of State	United States of America
79023	44	2	44	8	I recommend to refer to the OECD report "Aligning Development Co-operation and Climate Action" http://www.oecd.org/dac/aligning-development-co-operation-and-climate-action-5099ad91-en.htm	Taken into account	Young-jin Choi	Phineo gAG	Germany
58955	44	13	44	14	These numbers may no longer be true: "Over 80% of climate finance is reported to originate and stay within borders, and even higher for private climate flows (over 90%) (Boissinot et al., 2016)." Find more recent literature.	Rejected. These numbers remain perfectly correct, if not underestimated (DDG).	Government of United States of America	U.S. Department of State	United States of America
74275	44	13	44	41	This section should be amended to recognize that one of the impediments to providing financing for third world power development are existing policies of the World Bank and other financial institutions that descriminate against nuclear power in the financing of new generation. https://www.world-nuclear.org/information-library/economic-aspects/financing-nuclear-energy.aspx	Taken into account.	Jeffrey Merrifield	Pillsbury Law Firm	United States of America
82423	44	13		41	all this part can refer to the discussion section in Ameli et al 2021 (already in the ref list)	Noted.	Hugues CHENET	University College London	France
52905	44	16	44	16	The sentence seems incomplete: …, as well as market failures "due to information asymmetry"	Noted. Thanks for this comment. Para has been adjusted accordingly to: There are multiple reasons for such 'home bias' in finance - national policy support, differences in regulatory standards, exchange rate, political and governance risks, as well as information market failures. .	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
53547	44	33	44	34	Please use a more balanced wording: "The financial and economic circumstances are more challenging in many developing countries (…)"	Noted with thanks. Wording will be adjusted in the final draft	Government of Switzerland	Swiss Federal Office for the Environment Federal Department of the Environment, Transport, Energy and Communications DETEC Federal Office for the Environment FOEN International Affairs Division	Switzerland
70875	44	33	44	34	It is suggested to use less absolute wording: "The financial and economic circumstances are more challenging in many developing countries (…)"	Noted with thanks. Wording will be adjusted in the final draft	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
86923	44	34	44	41	" The dilemma, however, is that the fastest 35 rates of the expected increase in future carbon emissions are in developing countries. The biggest 36 challenge of climate finance globally is thus likely to be the constraints to climate financing because of 37 the opportunity costs and relative under-development of capital markets [suggest inserting cross-referencing link section 15.6.8 development of local capital markets] and financing constraints (and 38 costs) at home in developing countries, and the relative availability or absence of adequate financing 39 policy support internationally from developed countries. The Paris Agreement and commitment by 40 developed countries to support the climate financing needs of developing countries thus continue to 41 matter a great deal"	No response required.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
53549	44	35	44	41	Please use a more balanced wording and not create the impression that support by developed countries can solve all mentioned contraints in developing countries, thus to replace lines 35-41 by the following: "A major challenge of climate finance globally are thus the opportunity costs and relative under-development of capital markets, financing constraints and costs in developing countries. Thus, the Paris Agreement and the commitment by developed countries to support the climate financing needs of developing countries continue to matter very much."	Accepted. Thanks for this valuable comment. "The biggest challenge of climate finance globally is thus likely to be the constraints to climate financing because of the opportunity costs and relative under-development of capital markets and financing constraints (and costs) at home in developing countries, and the relative availability or absence of adequate financing policy support internationally from developed countries. The Paris Agreement and commitment by developed countries to support the climate financing needs of developing countries thus continue to matter a great deal" with this: "A major challenge of climate finance globally are thus the opportunity costs and relative under-development of capital markets, financing constraints and costs in developing countries. Thus, the Paris Agreement and the commitment by developed countries to support the climate financing needs of developing countries continue to matter very much.".	Government of Switzerland	Swiss Federal Office for the Environment Federal Department of the Environment, Transport, Energy and Communications DETEC Federal Office for the Environment FOEN International Affairs Division	Switzerland

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
70877	44	35	44	41	It is suggested to use less absolute wording and not create the impression that support by developed countries can solve all mentioned contraints in developing countries, thus to replace lines 35-41 by something like the following: "A major challenge of climate finance globally are thus the opportunity costs and relative under-development of capital markets and financing constraints (and costs) at home in developing countries. Thus, the Paris Agreement and commitment by developed countries to support the climate financing needs of developing countries thus continue to matter a great deal."	Taken into account.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
19997	44	42	45	24	The components of soft costs/institutional capacity focusses more on the regulatory aspect of clean energy. Efforts should be taken to consider the importance of various kinds of renewable energies, of which solar technology will work far better for Africa due to the continent's peculiar weather and artmospheric conditions.	Taken into account. We feel that he current wording captures the full width of the discussion	Rafiu Adewale Aregbeshola	University of South Africa	South Africa
58957	45	1	45	2	If illustrative and nontransferable, what is the value of including these numbers?	Rejected. We feel that this example can provide valuable hints to financing needs which need to be considered	Government of United States of America	U.S. Department of State	United States of America
70879	45	1	45	21	These paragraphs almost double and the information should be harmonized in one paragraph.	Noted. .	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
46389	45	8	45	24	Focus on the capacity building needs, their impact on climate finance flows and the importance of building capacity is appreciated. Examples of stronger capacity building exercise and positive effects would also be helpful.	Rejected. We feel that such examples including the impact of capacity building would be better hosted by chapter 14	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
48705	45	25	45	31	I completely understand that authors have devoted a separate section on the concept of carbon stranded assets, but I think it would be good to add more explanation about how coal power plants are a major source of committed emissions and are exposed to risk of becoming stranded assets.	Rejected. The paragraph has been removed from this section and incorporated in the section on physical risk. Please also see chapter 3 and chapter 4 for emission sources. Please refer to chapter 3?/4?	Yeong Jae Kim	RFF-CMCC European Institute on Economics and the Environment	Italy
28013	45	28	45	29	Delete "Delaying action on accelerating the energy transition will almost double the amount of stranded assets in fossil-fuel supply infrastructure".	Accepted. Sentence removed. Thanks for your comment.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
58959	45	28	45	31	Doubling is not accurate based on the numbers that follow.	Accepted. Wording changed. Thanks for your comment.	Government of United States of America	U.S. Department of State	United States of America
79025	45	28	45	31	"Delaying action on accelerating the energy transition will almost double the amount of stranded assets in fossil-fuel supply infrastructure (Tong et al. 2019). Already USD 11.8 trillion in assets will need to be stranded by 2050 for 2°C world. Moreover, further delaying action for another 10 years would result in an additional 7.7 trillion USD in stranded assets by 2050." I'm wondering whether these losses are considered part of mitigation costs - they shouldn't. After all, these are self-inflicted losses that were uncalled for, owing to bad decision making and reckless greed. These costs should neither hold back future mitigation efforts nor should they be "socialized".	Taken into account. Paragraph has been rewritten..	Young-jin Choi	Phineo gAG	Germany
9735	45	29	45	31	Please cite references to support this assessment and projections of stranded assets.	Taken into consideration. Thank you for your comment. This paragraph on "Lock-in effects" has been dissolved. Parts of it are placed in section 15.6.1. see the sentence: "In this context, a delayed deployment of climate funding and consequently limited alignment of investment activity with the Paris Agreement tend to strengthen carbon and thus to increase the magnitude of stranded assets.".	Mustafa Babiker	Saudi Aramco	Saudi Arabia
58961	45	29	45	31	Need reference for this statement: "Already USD 11.8 trillion in assets will need to be stranded by 2050 for a 2°C world. Moreover, further delaying action for another 10 years would result in an additional 7.7 trillion USD in stranded assets by 2050."	Taken into account. Thanks for your comment. In the process of consolidating the section, this sentence has been removed..	Government of United States of America	U.S. Department of State	United States of America
279	45	32	47	8	Cross reference with CH17 WG2 for overlaps and consistency	Noted	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
47187	45	32	47	8	Resilience financing is difficult to access for SIDS, and climate change risks make this even more challenging.	quite right will make text to reflect that issue	Stuart Minchin	The Pacific Community	Australia
79027	45	32	47	8	It is worth noting that adaptation can only be a short-/midterm fix that will eventuall become futile when mitigation does not succeed and future adaptation needs accumulate continuously rahter than being reduced- this represents an enormous risk (an "adaptation trap")	yes, indeed	Young-jin Choi	Phineo gAG	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
53551	45	38	45	39	3% - indicate source	UNFCCC 2019 but sentence reworded to be more accurate.only 3% of funding from multilateral climate funds supported adaptation, where as 84%of Development Finance institutions supported adaptation, and 13% of other government sources . UNFCCC, 2010, para 20, p.10. This is credited to UNEP-DTU presentation at TEM-Am 25 June 2019. UNFCCC 2019 but sentence reworded to be more accurate.only 3% of funding from multilateral climate funds supported adaptation, where as 84%of Development Finance institutions supported adaptation, and 13% of other government sources . UNFCCC, 2010, para 20, p.10. This is credited to UNEP-DTU presentation at TEM-Am 25 June 2019.	Government of Switzerland	Swiss Federal Office for the Environment Federal Department of the Environment, Transport, Energy and Communications DETEC Federal Office for the Environment FOEN International Affairs Division	Switzerland
58963	45	38	45	40	Percentages from 2015-2016 are no longer useful.	But from the literature it seems that this period offers the best comparison across funds; seeking more updated comparative figures	Government of United States of America	U.S. Department of State	United States of America
70881	45	38	45	39	3% - indicate source	UNFCCC 2019 but sentence reworded to be more accurate.only 3% of funding from multilateral climate funds supported adaptation, where as 84%of Development Finance institutions supported adaptation, and 13% of other government sources . UNFCCC, 2010, para 20, p.10. This is credited to UNEP-DTU presentation at TEM-Am 25 June 2019. UNFCCC 2019 but sentence reworded to be more accurate.only 3% of funding from multilateral climate funds supported adaptation, where as 84%of Development Finance institutions supported adaptation, and 13% of other government sources . UNFCCC, 2010, para 20, p.10. This is credited to UNEP-DTU presentation at TEM-Am 25 June 2019.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
18563	45	41	45	43	the sentence `To date, the private sector . . . and incentives by governments ' is repeated word for word on page 46 lines 14 to 16. Further phrases from this same paragraph (top of page 46) are also repeated in lines 17 to 21 on page 46.	yes got that.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58965	45	41	45	42	Overgeneralization to say that there has been no private sector involvement in NAP planning. Not the case for NAP planning supported by USAID.	The argument is not that thre is none but that it is limited	Government of United States of America	U.S. Department of State	United States of America
50195	45				I suggest to add and discuss the possibility to use more sophisticated investment models such as real option modeling to handle more complex investment decisions under uncertainty (Engelen and Cassimon, 2018). Such models allow to incorporate multiple sources of uncertainty in the decision-making process (Cassimon, De Backer, Engelen, Van Wouwe and Yordanov, 2011a; Cassimon, Engelen and Yordanov, 2011b) and are therefore better suited to analyze climate transition scenarios (Sanders, Fuss, and Engelen, 2013). For instance, Li, Kool, and Engelen (2020) use real option modeling to analyze the investments in a hydrogen economy, while Engelen, Kool, & Li (2016) find that more governmental support for a hydrogen economy is necessary. Li, Y.; Kool, C.; Engelen, P.J. (2020), "Analyzing the Business Case for Hydrogen-Fuel Infrastructure Investments with Endogenous Demand in The Netherlands: A Real Options Approach". Sustainability 2020, 12, 5424. Engelen PJ., Cassimon D. (2018) Real Options. In: Marciano A., Ramello G. (eds) Encyclopedia of Law and Economics. Springer, New York, NY, ISBN 978-1-4614-7883-6, DOI: https://doi.org/10.1007/978-1-4614-7883-6. Engelen, P. J., C. Kool, & Y. Li (2016). A Barrier Options Approach to Modeling Project Failure: The Case of Hydrogen Fuel Infrastructure. Resource and Energy Economics, vol.43, 33-56. Sanders, M., Fuss, S. and Engelen, P.J. (2013), "Mobilizing Private Funds for Carbon Capture and Storage: An exploratory field study in the Netherlands", International Journal of Greenhouse Gas Control, vol.19, 595-605. Cassimon, D., M. De Backer, P.J. Engelen, M. Van Wouwe and V. Yordanov (2011a), "Incorporating Technical Risk into a Compound Option Model to Value a Pharma R&D Licensing Opportunity", Research Policy, vol.40, 1200-1216. Cassimon, D., P.J. Engelen and V. Yordanov (2011b), "Compound Real Option Valuation with Phase-Specific Volatility: a Multi-phase Mobile Payments Case Study", Technovation, vol.31, 240-255.	Noted	Peter-Jan Engelen	University of Antwerp	Belgium
63419	46	1	46	3	How about sustainable bonds or loans? A lot of developed and developing countries are in midst of using transition technologies that do not fit within the scope of green bonds.	Noted (other types of bond labels including sustainable and transition bonds are briefly noted in section 15.6.6.).	Government of Canada	Environment and Climate Change Canada	Canada

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86927	46	1	46	9	"Innovative private financing mechanisms such as green bonds 2 (Innovative Financing Initiative 2014; World Bank and PPIAF 2015; Hurley and Voituriez 2016; 3 UNFCCC 2019b); blue bonds (or water bonds), (Holmes et al. 2014; Hurley and Voituriez 2016); 4 impact investing funds (Global Impact Investing Network); guarantees (Hurley and Voituriez 2016) 5 and risk financing facilities (African Risk Capacity 2016) may also be important for the implementation 6 of adaptation actions. However, despite this optimism, the reality is that private financing account for 7 very small percentage of adaptation financing. For example, adaptation financing is only about 2% of 8 the share of green bond financing raised up to June 2019 (UNFCCC 2019b). Whereas it is about 10% 9 of sovereign green bonds raised" In this section we make reference to a variety of bonds: blue bonds, green bonds, catastrophe bonds which all require technical assistance facilities. There is no single panacea solution as acknowledged in our "SPM E message on strengthening local responses". We should consider cross referencing to bond market development under section 15.6.7 to help the reader connect with the narrative? For example SIDs nation Fiji issued a sovereign green bond with some tranches listed on London Stock Exchange and other tranches privately placed as local currency bonds with local institutional investors and building the yield curve in the process. The Seychelles bluebond was privately placed - with both sovereigns receiving technical assistance to structure the bonds. Some analysist argue that the cost of borrowing could have been improved further for both sovereigns with supportive guarantees. As part of tapping diverse sources of capital - Fiji recently accessed the Global Fund for Coral Reefs	No response required.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
82195	46	10	46	44	The idea of green bond finance is attractive if and only if the proceeds are directed to financing of resilience and disaster protection schemes. However, for low-income countries (LICs) with many poor people living below the poverty line (different for each country), it is not clear that bond finance is a viable option. The servicing of such bonds would take a substantial portion of that country's export revenues. If the holders of these green bonds are domestic residents, the default rate would be unsustainable.	Noted (the challenges for green bonds addressing adaptation and resilience is noted in section 15.6.6, and attracting international investors is noted in dCLM section).	Smile Dube	California State University, Sacramento	United States of America
47467	46	22	48	36	In many cases it is far from straightforward for SIDS to access resilience financing also because worsening climate change poses a greater risk for financing itself. Please revise and provide a more nuanced and comprehensive assessment in this regard.	The point is acknowledge and I think the final text recognized this.	Government of Saint Lucia	Department of Sustainable Development - Ministry of Education, Innovation, Gender Relations and Sustainable Developement	Saint Lucia
58967	46	22	46	36	Financing for the reliability and resilience of energy infrastructure is a huge topic. Consider moving this to a new section and dealing with it in more detail (bulk power system, distribution, BTM, and energy nexi, for example).	This is out of the scope of this section and addressed elsewhere in the chapter	Government of United States of America	U.S. Department of State	United States of America
50191	46		48		The difficulties and barriers to access resilience financing are not yet sufficiently acknowledged. Please provide a more comprehensive assessment that also takes into account SIDS and LDCs' perspective.	This point was also address with comments from another reviewer given the text space allowed	Anna Main	Ministry of Foreign Affairs and Trade	Samoa
81887	46		48		The difficulties and barriers to access resilience financing are not yet sufficiently acknowledged. Please provide a more comprehensive assessment that also takes into account SIDS and LDCs' perspective.	This comment is similar to the above and well noted	Francella Strickland	Ministry of Foreign Affairs and Trade	Samoa
46391	47	9	47	16	This section does not seem to be related to rest of chapter, access to finance is of course a crucial factor and should be looked at more comprehensively - if it is looked at - singling out one factor within this landscape - the GCF and past approval times seems not to be appropriate. Please revise.	The GCF is reference as it is the critical funds for multilateral financing. Approval times is not specifically reference in this section.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
58969	47	9	47	10	Replace "In the case of the GCF, the time period until deployment is two-stepped." with "The GCF approval process has two steps."	Taken into account. Paragraph has been deleted	Government of United States of America	U.S. Department of State	United States of America
58971	47	9	47	16	Consider removing paragraph.	Taken into account. The para has been removed. Thanks for your comment.	Government of United States of America	U.S. Department of State	United States of America
63421	47	9	47	16	Regarding challenges on co-financing projects in this paragraph, we recommend the report also highlighted the added value of co-financing, such as maximizing impact and greater complementarity with main multilateral funds in the climate finance architecture (Decision B.17/04), note that co-financing is highly recommended wherever feasible (Decisions B.13/36 and B.17/11) and that co-financing is part of the “efficiency and effectiveness” in the GCF investment framework.	Noted. However, the para has been deleted. The chapter highlights co-finance and private sector mobiliation in a couple of other sections. .	Government of Canada	Environment and Climate Change Canada	Canada
23595	47	10	47	12	We suggest that these results be compared with other providers of climate finance, including GEF, CIF, AF and MDBs.	Noted. The para has been removed given concerns from other experts. Thanks for your comment.	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
23597	47	13	47	15	The sentence "Considering, that co-financing projects are more complex in the financial architecture more time is needed for legal obligations." seems unclear, consider revising. Details on how cofinancing adds layers of complexity should be included.	Noted. The para has been removed given concerns from other experts. Thanks for your comment.	Government of France	Ministère de la Transition écologique et solidaire	France
31219	47	17	90	20	Sections 15.6.1 to 15.6.8 are very rich and diverse. As a result the reader easily gets lost, misses the key points and is not attracted to study all of 15.6. Because of its length and diversity 15.6. warrants restructuring. Could it be cut into 2 or 3 sections of related content? Some sections e.g. 15.6.2 go well beyond the scope of the subject and should be shortened or shifted to other sections of the chapter. It seems that the results of 15.6 are currently not well represented in the executive summary of the chapter and as a result in the TS and SPM. It's worth making the effort to more clearly destill key findings - going well beyond IPCC AR5 - out of all of the sections of 15.6.	Taken into account. The contents of 15.6. have been revised	Jochen Harnisch	KfW	Germany
46393	47	17	61	36	Chapter 15.6.2 is extremely valuable for decision making beyond classical climate policy. Especially the conclusions on market design and fiscal regulations. Therefore we strongly encourage to take over key conclusions for SPM. Suggestion one for takeover as SPM, based on text from page 15-54 line 24-41 (with abbreviations): "The Paris Agreement recognised for the first time the key role of aligning financial flows to climate targets. Key decisionmakers try to provide enabling environment for both public and private sectors to mobilise financial resources in order to tackle climate change. Four types of interventions have been discussed by financial regulators and central banks in dealing with climate-related risks: developing methodologies and tools for a better understanding of risks and their implications, better disclosure of investors' exposure to climate-related risks, explicit consideration of these risks in setting financial regulations, and consideration of these risks in central bank's policy toolkit. The government should nurture green finance development from an early stage by laying out the green credit rules and long-term price mechanisms, which could reduce green project risks. Thus, the role of government is crucial for creating an enabling environment for climate finance that includes policy reform to value environmental degradation, incentivise private investments, bridging finance gaps, and ensuring transparency. The public sector is capable of handling higher risks so more direct financing of green projects would be needed creating markets and leading the private sector."	Noted. Thank you for your comment	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
46395	47	17	61	36	Chapters 15.6.1 is extremely valuable for decision-making beyond classical climate policy. Especially the conclusions on market design and fiscal regulations. Therefore we strongly encourage to take over key conclusions for SPM. Suggestion one for takeover as SPM, based on text from page 15-48 line 24-36: "Since AR AR5 climate change has been explicitly recognised by financial supervisors as a source of financial risk that matters both for financial institutions and citizens' savings. Previously, climate change was mostly regarded in the finance community only as an ethical issue. Climate enters now as a factor in the assessment of financial institutions' risk (e.g. such as the European Central Bank or the European Banking Authority) and credit rating and, going forward, into stress-test exercises. This implies changes in incentives of the supervised financial actors, both public and private, and thus changes in the landscape of mitigation action by generating a new potential for climate finance flows. However, critical knowledge gaps remain."	Noted. Thank you for your comment	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
43313	47	19	47	21	The starting point of paragraph "15.6 Approaches to address financing gaps" takes a functional view of the financial sector functioning. It is not clear how the profit motive and market-based funtioning of financial markets are adequate to meet the financing of green transition.	Noted. Thank you for your comment. The contents are covered throughout the chapter, especially in the subsections of 15.6.	Daniele Tori in	The Open University Business School	United Kingdom (of Great Britain and Northern Ireland)
20441	47	23	47	23	Figure 15.10 is unclear and needs a lot of improvements to be understandable. What's on the y-axis? What's creating momentum for E (and what that actually means)? What do the green, red and grey columns and bars represent and how they are different from each other? What's the black horizontal line in the middle?	Noted. On the bottom, "Finance as (E)nabler and (F)ollower"	Tommi Ekholm	Finnish Meteorological Institute	Finland
31211	47	23			Figure 15-10 is overly complex and difficult to understand. It needs serious simplification.	Noted. Thank you for your comment. LAs decided to use this figure	Jochen Harnisch	KfW	Germany
48699	47		90		I know that the financing gap in early-stage start up energy companies is mentioned in chapter 16.4.3 "Low-emission innovation activity in the private sector", but it would be good to mention in this chapter as well to link between Chapters 15 and 16.	Taken into account. "Early stage/Venture Capital funding/Pilot project funding" section is included in 15.5. Section	Yeong Jae Kim	RFF-CMCC European Institute on Economics and the Environment	Italy
48701	47		90		After I went through the Chapter 16, I've realised that the role of finance in directing investment and technological change should be clearly addressed in chapter 15.6. But it is reported here and there in the chapter. A clear paragraph lacks.	Taken into account. The Section 15.6 has been revised	Yeong Jae Kim	RFF-CMCC European Institute on Economics and the Environment	Italy
67315	47		47		Figure 15.10: Visual abstract to address financing gaps in section 15.6: poor resolution of the figure makes it very difficult to read it. Some text on how to read and interpret it would be very useful.	Noted. Thank you for your comment. We decided to use this figure	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
79029	48	1	48	16	There is no mentioning of carbon pricing and public spending (e.g. with support from central banks). I urgently recommend this article by Adam Tooze: https://foreignpolicy.com/2019/07/20/why-central-banks-need-to-step-up-on-global-warming/	Taken into account. Thank you for your suggestion. However, it wasn't able to add the literature due to limited space	Young-jin Choi	Phineo gAG	Germany
81813	48	3			see above. Expansion of public spending capacity should be aimed for due to democratic mandate. This could include corporate taxation, taxation of high wealth and income as well as non-conventional monetary-fiscal coorperation, cf. Pietro Maffettone & Chiara Oldani (2020). COVID-19: A Make or Break Moment for Global Policy Making. Global Policy 11 (4): 501-507.	Accepted. The suggested literature is added	Elena Hofferberth	University of Leeds	Switzerland
81815	48	9	48	10	see above. Problems with private finance approach, cf. Yannis Dafermos , Daniela Gabor & Jo Michell (2021): The Wall Street Consensus in pandemic times: what does it mean for climate-aligned development?, Canadian Journal of Development Studies / Revue canadienne d'études du développement)	Accepted. The suggested literature is added	Elena Hofferberth	University of Leeds	Switzerland
283	48	17	0	0	Section 15.6.1 This is a fundemental section, the role of the private sector is essential in mobiising the required capital. The role of the TCFD can not be understated and should be elevated in the Chapter. The section on physical risk is somewhat cumbersome and should also be cross referenced with CH17 WG2. The section on Transition risk is currently undertstated.	Taken into account. The section has been revised, and TCFD, physical risk, and transition risk are well stated	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
19999	48	17	50	29	This section should relate climate risks to day-to-day activities of the people. Domestic investment into clean energy will be more meaningful if the effects are cascaded down to household levels. Take for instance, the threat posed by fuel shortages and increasing costs of fossil fuels in some developing countries would be enough a motivation to refocus attention towards cleaner energy, such as natural gas, solar technology and bio-systems. Currently, the problesm are too naggegated to the extent that individuals/households really do not ressonate with the real effects or dangers posed by carbon emission and other forms of pollution. While huge investments from established funding agencies may be momentopus, we cannot dispel the importance of micro-funding as well. This is why I suggested inclusive funding approach in the preceding paragraphs. It may be interesting to note that micro-funding/household participation would galvanise the adoption and deployment of cleaner energy more than macro-/mega-levels of intervention. The most important approach here, is to educate people at community and household levels on the potential risks associated with dirty energy and the benefits of embracing clean energy. This approach should not be too abstract, academic or templatic in nature. This suggestion also relates to the rest of the chapter and its heavy focus on institutional financiang rather than an a more robust inclusive approach.	The aspects of micro-finance are covered to some extent in Sec 15.6.2 and 15.6.4. In this section, we intentionally focus on the gaps at the level of institutional investors.	Rafiu Adewale Aregbeshola	University of South Africa	South Africa
43769	48	17	54	12	Again, the assessment is often very EU- and US-centred, while the perspective of developing countries is not adequately considered. Please revise.	Thanks for the comment. The section does not have a EU/US centric focus. It focuses on knowledge gaps at the level of institutional investors. We have made this clear now in the beginning: "This section discusses the main knowledge gaps, at the level of financial companies and financial supervisors, that are currently being addressed in the literature and those that remain outstanding."	Government of Jamaica	Meteorological Service Division	Jamaica
81817	48	17			One could also consider the financial sector as risk for climate action. Financial investment in fossil fuels and the threat of asset stranding are now an additional factor to be considered in the already big challenge of decarbonisation.	Taken into account. The section has been revised. Financial investments in fossil fuels and the threat of stranded assets are included.	Elena Hofferberth	University of Leeds	Switzerland
51265	48	19	48	36	The report does not sufficiently discuss capacity building and gaps in non-financial susbject matter expertise among sustainable finance and ESG practitioners as one of the key gaps that prevents more efficient reduction of greenwwashing, more granular sustainability reports, more and better ESG impact measurement, reporting, or verfiication (MRV). The issues around "competence greenwashing", meaning that scaling pressures from investors have let many ESG insitutions and ESG practitioners with little to no material ESG track records to overstate their levels of ESG expertise or personal/insitutional capacities at which they can process ESG investing-related matters. Reference: Schumacher, K. (2020). 'Competence greenwashing' could be the next risk for the ESG industry. Responsible Investor. Retrieved from https://www.responsible-investor.com/articles/competence-greenwashing-could-be-the-next-risk-for-the-esg-industry	Relevant. Add a sentence on capacity building and risk of competence greenwashing?	Schumacher Kim	Tokyo Institute of Technology	Japan
86929	48	23	48	23	Spelling error on diagram - should refer to catalytic not catalitic	The comment seems to refer to another section. There is no diagram at this page.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82427	48	27			instead of this version of the paper, a peer-reviewed version of the same paper + other important references can be proposed (here and at other places for references relevant to climate-related financial risks and central banks / financial regulators & supervisors): Svartzman, R., Bolton, P., Despres, M., Pereira Da Silva, L.A., Samama, F., 2020. Central banks, financial stability and policy coordination in the age of climate uncertainty: a three-layered analytical and operational framework. Clim. Policy 1–18. https://doi.org/10.1080/14693062.2020.1862743 Chenet, H., Ryan-Collins, J., van Lerven, F., 2021. Finance, climate-change and radical uncertainty: Towards a precautionary approach to financial policy. Ecol. Econ. 183, 106957. https://doi.org/10.1016/j.ecolecon.2021.106957 Thomä, J., Chenet, H., 2017. Transition risks and market failure: a theoretical discourse on why financial models and economic agents may misprice risk related to the transition to a low-carbon economy. J. Sustain. Financ. Invest. 7, 82–98. https://doi.org/10.1080/20430795.2016.1204847	Noted.	Hugues CHENET	University College London	France
82429	48	28			may reference Chenet, H. (2021) “Financial risk management and climate change”, book chapter in Financial Risk Management and Modeling, Springer (Risk, Systems and Decisions series), Ed. R. Benkraiem, I. Kalaitzoglou, C. Zopounidis, ISBN 978-3-030-66690-3, in press (working paper version: Chenet, H., 2019. Climate change and financial risk. http://ssrn.com/abstract=3407940)	Noted. Tthank you for your suggestion. The suggested literature is not included due to limited space	Hugues CHENET	University College London	France
79031	48	34	48	36	" However, critical knowledge gaps remain. In particular, the underestimation of climate-related financial risk by public and private financial actors implies a reallocation of capital inconsistent with the mitigation objectives. ." If central banks were seriously considering long-term financial risk, they would follow Adam Tooze's advice - they urgently need to play a more pro-active role in enabling public debt and aligning short-term risk-return ratios with long-term risk (i.e. address market failure). https://foreignpolicy.com/2019/07/20/why-central-banks-need-to-step-up-on-global-warming/	We discuss the role of financial supervisors in the section. We are not prescriptive though in our report.	Young-jin Choi	Phineo gAG	Germany
82435	48	37	49	2	here or just below (when comparing both physical and transition risks) it would be relevant to have a discussion or just a quote on time horizons discrepancy between the materiality of climate change impacts (and modelling time granularity) with the characteristic time dimension for the financial sector, in particular as it comes to valuation/pricing. cf. numbers and discussion in e.g. Chenet 2021 or Chenet 2019 Chenet, H. (2021) “Financial risk management and climate change”, book chapter in Financial Risk Management and Modeling, Springer (Risk, Systems and Decisions series), Ed. R. Benkraiem, I. Kalaitzoglou, C. Zopounidis, ISBN 978-3-030-66690-3, in press (working paper version: Chenet, H., 2019. Climate change and financial risk. http://ssrn.com/abstract=3407940) Chenet, H., 2019. Planetary Health and the Global Financial System. SSRN Electron. J. https://doi.org/10.2139/ssrn.3537673 cf. also the chapter on finance of the Dasgupta Report (2021) that quotes the above numbers and discussion on its section on time horizons for finance in relation to nature.	Noted	Hugues CHENET	University College London	France
82433	48		54		reference suggestion: Chenet, Ryan-Collins, van Lerven (2021) . Finance, climate-change and radical uncertainty: Towards a precautionary approach to financial policy. Ecological Economics. https://doi.org/10.1016/j.ecolecon.2021.106957 can be referenced in numerous subsections acrross this whole section 15.6.1	Noted	Hugues CHENET	University College London	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82197	49	10	49	39	The notion of stranded assets assumes that a country is ready and able to invest in newer technologies that are the focus of investors who are sensitive to reasonable rates of return with less risk. This assumption is plausible for developed countries but totally unreasonable in the case of developing countries. For example, a functioning power station that burns coal to supply adequate electricity is unlikely to be mothballed in favor of a low-carbon alternative that might not produce as much electricity within a short space of time to prevent power shortages. In other words, what is a carbon-stranded asset in a developed economy might just be fine despite the emissions of carbons. In other words, climate finance by the private sector/investors in developed economies does not travel well into developing economies.	Addressed. In our understanding, the notion of stranded asset captures the loss in value of fossil related assets, conditional to respecting a certain carbon budget. The interest of such a notion is to allow to fix ideas and put numbers on the problem. The estimates of stranded assets are not predictions of what will happen and do not consider the feasibility. In this subsection, we review the literature on stranded assets. We have revised the passage, by reversing the order of the sentences and by making very clear the conditionality: "In other words, assuming that the carbon budget is respected, only part of the fossil fuels currently valued (either extracted or waiting for extraction and accounted as assets on companies' balance sheets) can yield economic return. In relative terms, under a 2°C target, stranded assets of fossil-fuel companies have been estimated at 82% of global coal reserves, 49% of global gas reserves and 33% of global oil reserves (McGlade and Ekins 2015). Note that these figures are not predictions of losses and they do not consider the readiness or feasibility of switching from fossil to renewable sources, which may vary across countries and development levels. "We also put a conditional tense in the next sentence.	Smile Dube	California State University, Sacramento	United States of America
67321	49	11	49	11	Fix reference: Sussams, L., and J. L. B.-S. Leaton, 2017: Expect the Unexpected: The Disruptive Power of Low-carbon Technology. Carbon Tracker,.	Accepted. To implement for Michael.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
28015	49	13	49	14	Delete "The term carbon stranded assets refers to fossil-fuel-related assets (fuel or equipment) that become unproductive".	Rejected. We only report the definition of the term in the literature. We cannot change this.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
67327	49	26	49	29	Passage: "Note also that, in order to be relevant for financial risk, the disorderly transition does not need to be a catastrophic scenario in terms of the fabric of markets. It also does not automatically entail systemic risk, as discussed further down.": probably you mean to say the following: "Note also that, in order to be relevant for financial risk, the disorderly transition does not need to be a catastrophic scenario in terms of markets' fabric nor it needs to entail systemic risk, which is discussed further down."	Accepted and implemented.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
82431	49	30		31	beyond "how to assess" the exposure, it is important to focus on the underlying question "is it possible to assess" the level of financial risk, as it is this type of information that FIs (and their supervisors) are looking for, beyond exposure. Cf detailed demonstration in Chenet, Ryan-Collins, van Lerven (2021) . https://doi.org/10.1016/j.ecolecon.2021.106957	Taken into account. Thank you for your suggestion. The literature is included.	Hugues CHENET	University College London	France
17921	49	40	50	17	Once again, in discussing the Assessment of Physical Risk, the focus is on wealthier countries, in particular Europe and the US. Those countries at high risk and with fewer resources are not mentioned, possibly because of a focus on insured risks and high-dollar events, both of which slant towards wealthier countries.	Accepted.	Robert Brecha	Climate Analytics	Germany
82961	49	40	50	28	Isnt this WG II material - no obvious mitigation content.	It is correct that WGII reviews results on macroeconomic losses in terms of GDP and losses for the insurance sector (public and private). It does not deal with the financial losses that can materialise on the balance sheet of the financial sector (in particular non-insurance), which is instead the focus here. We have revised the title of the subsection to clarify the focus , we have made reference to WGII and we have refocused the subsection accordingly.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
67331	49	42	49	44	Europe-> European: "Economic losses from weather and climate-related extreme events in the Europe Economic Area over the period 1980–2017..."	Accepted and implemented.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
67329	49		49		Fix footnote: Footnote 6 contains the word "FOOTNOTE"	Seems already corrected.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
79033	50	4	50	6	"In the US, economic damage of climate change impacts was estimated at approximately 1.2% of GDP per increase of 1°C warming on average (Hsiang et al. 2017)." This is an apparent underestimation. How should a 4 degrees C warming world with all ist geopolitical risks and in the long-term be limited to a more than optimistic 3.6 - 4.8% GDP loss? It appears that the damage function applied in economics continues to be fundamentally flawed. https://profstevekeen.medium.com/economic-failures-of-the-ipcc-process-e1fd6060092e	The comment is valid. The results are sensitive to the damage function which is problematic for various reasons. We should acknowledge this.	Young-jin Choi	Phineo gAG	Germany
79035	50	11	50	13	"Further assessments of physical risk for financial assets, accounting also for the propagation of losses through financial networks, estimate global GDP losses at 7.1% (1.13%) in 2080, without adaptation (with adaptation)." The 1.13% figure could be misleading. Should policy makers conclude out of this piece of information that it would be more cost-efficient to adapt than to mitigate? And is there not thought of what will happen beyond 2080?	The comment is valid. We acknowledge the limitation.	Young-jin Choi	Phineo gAG	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
79037	50	11	50	13	"In relative terms, stranded assets of fossil-fuel companies amount to 82% of global coal reserves, 49% of global gas reserves and 33% of global oil reserves (McGlade and Ekins 2015)" What kind of carbon budget does this relate to? I assume 2 degrees C but this should be mentioned.	The comment is valid. We now specify the carbon budget these numbers refer to.	Young-jin Choi	Phineo gAG	Germany
82437	50	11		13	it is important to highlight the (unavoidable but highly irrealistic) assumptions for such (very) long-term calculations … it is indeed difficult to imagine what the economy and financial system will look like in 2080, but oppositely it is about certain that both will look quite different from the current ones. One can certainly affirm that the only sure thing is that they will be different. Therefore, calculating numbers on the basis of impossible things need to be nuanced in terms of meaning and purview. It is not just a question of "without adaptation", it's also an issue of having a static economic-financial system for 60yrs. The ceteris paribus assumption must at least be discussed. cf discussion for stress tests and long-term modelling of climate-related financial risks in general in Chenet et al. 2021 https://doi.org/10.1016/j.ecolecon.2021.106957	Taken into account. Thank you for your suggestion. We explained the Central banks' interests on the impact of climate risks on financial stability and the risk assessments in enabling environment section. Due to limited space, the detailed discussions in the stress tests and long-term modelling are not included	Hugues CHENET	University College London	France
58973	50	15	50	15	Change "impact on" to "reduce"	Accepted. Accepted and implemented.	Government of United States of America	U.S. Department of State	United States of America
70883	50	18	50	21	Greatest economic impact compared to what?\	Accepted. Accepted and implemented. We revised the sentence.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
77877	50	18	50	29	Indeed in certain parts of the US it is no longer possible to get insurance against physical climate risks, including parts of California where property insurance no longer covers fire risks, or parts of the south where private flood insurance is no longer offered and federal/government flood insurance is the only option, transfering physical risk to the public.	Thanks for the comment confirming the statement.	Alex Rau	Climate Wedge LLC	United States of America
28017	50	31	51	26	This section on 'carbon stranded assets' is fully biased against the fossil fuels industry. It should be revised substantially or deleted.	Taken into account. Addressed. The passage has been rewritten by describing the notion as a conditional estimate and not a prediction.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
58975	50	31	50	38	Consider co-locating discussion of carbon-stranded assess in a callout box, all in one location.	The subsection on stranded asset has been revised based on various comments. We considered the suggestion to make a separate box, but we needed to have some elements in the flow of the conversation on transition risk. So eventually there would be a repetition between the box and the text.	Government of United States of America	U.S. Department of State	United States of America
82199	50	31	50	48	The 'unburnable carbon' problem is real as a global issue since there is 1.5C to 2C target. While these targets require an assessment of the losses that have to be accounted for, fossil fuel energy sources that are unburned in particular regions will necessarily result in missed targets. However, not all developing countries put too much weight on this issue even if they are signatories to the Paris Accord. In other words, for developing countries to appreciate these concepts, they would need to be equally situated with developed countries - a truly impossible task.	Addressed above.	Smile Dube	California State University, Sacramento	United States of America
85319	50	33	50	35	In light of the previous sentence, one gets the impression that the stranded assets estimated here apply to both 1.5°C and 2°C, but in light of the findings in chapter 6 (page 115, rows 9-11), this is not the case. They seem to be stranded asset related to 2°C limit (with unspecified certainty). Please clarify. Would it be possible to have an estimation for stranded assets in the context of 1.5°C limit?	Taken into account. Addressed. We have specified that the estimates are conditional to 2C target. We could not find estimates under 1.5C.	Kaisa Kosonen	Greenpeace	Finland
10223	50	39	50	40	"Global estimates of potential stranded fossil fuel assets amount to at least 1 trillion" - 1 trillion USD?	Accepted. Accepted and implemented.	Gary Kendall	Nedbank	South Africa
79039	50	39	50	42	"Global estimates of potential stranded fossil fuel assets amount to at least 1 trillion, based on ongoing low-carbon technology trends and in the absence of climate policies (cumulated to 2035 with 10% discount rate applied; 8 trillion USD without discounting (Mercure et al. 2018a)" Where in the world is a bizarre 10% disount rate even remotely realistic?	Taken into account. Addressed. The sentence has been rewritten to highlight the range of the estimates obtained as a function of the discount rate in the range 0 - 10%. This ranges covers the views of economists on the appropriate discount rate to be applied (1% or less accroding to the Stern-Stiglitz report, 5-7% according to classic Nordhaus exercises).	Young-jin Choi	Phineo gAG	Germany
58977	50	41	50	41	Delete "8 trillion USD without discounting"	Taken into account. Addressed. The sentence has been rewritten to highlight the range of the estimates obtained as a function of the discount rate in the range 0 - 10%. This ranges covers the views of economists on the appropriate discount rate to be applied (1% or less accroding to the Stern-Stiglitz report, 5-7% according to classic Nordhaus exercises).	Government of United States of America	U.S. Department of State	United States of America
82963	50	42	50	42	An unusual probability level!	Taken into account. Addressed. 75% is not a likelihood level used in AR6, but we checked: the publication indeed uses a scenario with 75% likelihood. So the statement is correct.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
70109	51	4			Fix citation: van der Ploeg and Rezai (2020) already in the references	Accepted. Corrected	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82439	51	5		9	here it's more a question of sub(sub)sectors than mere "classification of sectors", as the granularity of information has to be very precise for each specific economic activity. Moreover, the sector vision is probably not enough, as e.g. the local singularities/dependencies are very important, related to the value chain, as mentioned below. Even if a classification is comparable across jurisdictions as mentioned, it doesn't say whether the links and dependencies across sectors would be the same (e.g. in a region a specific infrastructure such as gas pipelines may be at risk with the rest of the fossil fuel sector, whereas in another it can be easily used for alternative biogas or else actually as an alternative and have therefore an opposite exposure to transition risk)	Noted. Thank you for your comment	Hugues CHENET	University College London	France
82441	51	9		18	interesting focus to this specific approach but most of the rest of the chapter is very broad and doesn't detail specific approaches/tools/databases etc. ==> wouldn't it be more relevant in a separate box?	Noted. Thank you for your comment, but there is limited space to include details	Hugues CHENET	University College London	France
67345	51	12	52	14	Moreover, models need to account for compound risk, i.e. the interaction of climate physical and/or transition risk with other sources of risk such as pandemics, as the COVID-19. Suggested citation: 1.Battiston, S., Billio, M., and Monasterolo, I. (2020). Pandemics, climate and public finance: how to strengthen socio-economic resilience across policy domains. In: A New World Post COVID-19 Lessons for Business, the Finance Industry and Policy Makers, edited by Monica Billio and Simone Varotto, Edizioni Ca' Foscari, pag. 259-268. ISBN [ebook] 978-88-6969-442-4 | ISBN [print] 978-88-6969-443-1.	This subsection focuses on transition risk. Maybe this comment can be addressed in another subsection.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
58979	51	13	51	13	ISIC codes are 6, not 4, digits at most granular.	The reviewer is probably referring to NAICS which replaces SIC in the US in 1997. This is different from ISIC which is the *international* standard and which provides 4 digits codes, see official ISIC Rev4 guideline : "The classification is then organized into successively more detailed categories, which are numerically coded: two-digit divisions; three-digit groups; and, at the greatest level of detail, four-digit classes." https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf	Government of United States of America	U.S. Department of State	United States of America
67333	51	13	51	15	Fix sentence: "fossil-fuel (i.e. all activities whose revenues depends mostly and directly on fossil-fuel, including concession of reserves and operating industrial plants for extraction and refinement)" : according to the definition in the reference you probably meant to say "fossil-fuel (i.e. all activities whose revenues depends directly or indirectly on fossil-fuel)"	Accepted and implemented. The sentences means to say that the mapping happens at the level 4, even if ISIC has 6 digits.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
67335	51	17			remove parenthesis after "plants"	Accepted	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
86467	51	17	51	17	There is one parenthesis too many, after the word "plants"	Accepted and implemented.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
67337	51	23			It seems you miss a public: through "public" costs for assisting the financial sector	Noted. Thank you for your comment	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
67339	51	29			central -> central banks	Accepted. Revised	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
77879	51	29	51	29	"central" --> "central governments"	Accepted and implemented	Alex Rau	Climate Wedge LLC	United States of America
82443	51	29		29	central "banks" (missing word)	Accepted. Revised	Hugues CHENET	University College London	France
86469	51	29	51	29	Missing subject in the sentence: "concern that central would have to act as "climate rescuers of last resort"" ... I believe you mean "concern that central BANKS would have to act as "climate rescuers of last resort""	Accepted and implemented.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
70885	51	37	51	41	I agree very much with this obsevation made here. Perhaps the argument would be made stronger if it would be noted that IAMs do not include feedback loops to capital markets, so that risk (e.g. rising interest rates) are not properly reflected in such models.	The comment seems to refer to page 52.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
43303	51	44	51	46	"This means that the perception of the risk changes the risk itself, unlike most contexts of financial risk." Financial risk is indeed endogenous by definition, as it arises from the financial (hence productive) decisions of firms.	The endogeneity here is meant on the side of the investor. Usually, investors action do not change the risk of the asset in which they invests, unless there is some systematic choice. That's how most finance models work. Risk is computed from a distribution of outcomes that are exogenous (once the investment is made of course). We revised the sentence to clarify that the endogeneity is with respect to the investment decision. Further, we added a sentence to acknolwedge that there are context in which there endogeneity: banks runs and bubbles.	Daniele Tori in	The Open University Business School	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82203	51	44	49	51	The endogeneity of risk has long been assumed (although estimating actaul risk is not without problems) as long as the time frame frame is long enough. The idea that transition risk is endogenous is not that much revealing even in developed economies. In developin countries, transition risks or reversable transition risks attach to both financial assets and political outcomes. In unstable political societies, transition risks will be heavily impacted by ethnic politics where civil society might not have the political space. Examples are Mynmar, Ethiopia, Senegal, Uganda, Venezuela, and other *** stan countries. It would be extremely naive to suggest that such countries bother about carbon-stranded assets.	By endogeneity it is meant here specifically the fact that the perception and assessment of risk modifies the risk itself. While some level of endogeneity exist in financial risk in general, this is particularly evident in climate transition risk and even if some actors may know this, it remains a challenge to assess the risk under such conditions. Indeed, this was highlighted in the scientific literature only very recently.	Smile Dube	California State University, Sacramento	United States of America
67341	51	46			context-> other contexts	Noted. use 'most contexts'	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
82445	52	3			"..can depend on policy action" .. Could reference Chenet et al 2021 https://doi.org/10.1016/j.ecolecon.2021.106957	Noted. Thank you for your suggestion. It is not included in the chapter due to limited space	Hugues CHENET	University College London	France
58981	52	5	52	5	Explanation needed for the fat-tailed nature of physical risk.	Addressed. The passage has been rewritten.	Government of United States of America	U.S. Department of State	United States of America
82447	52	5			can reference Thomä&Chenet 2017	Noted. Thank you for your suggestion. It is not included in the chapter due to limited space	Hugues CHENET	University College London	France
86471	52	8	52	10	It could be very useful to mention and address the most important critiques Integrated Assessment Models (IAMs) in existing literature, such as Robert Pyndick's on the use and abuse of IAMs, especially with respect to the numerical and qualitative assumptions (discussed here) that serve as input to inform IAMs, and damage functions in particular. While it would be useful to provide a mention to that here, it would be very useful that somewhere in the Report the WG3 would devote a section to discuss the use of IAMs within AR6 and within the work of WG3 on mitigation scenarios and pathways, and how it addressed potential pitfalls and misuse of IAMs.	Valid point. However, IAM used to carry out cost-benefit analysis should not be confused with the IAM used to determine leas-cost pathway. The latter do no use a damage function. We have elaborate now more in detail on issues with IAM and scenarios in the Subsection Challenges for climate transition scenarios.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
67343	52	11			the possible -> and the possible	Noted.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
82449	52	14			again, this opens the crucial question of theoretical possibility to build and run such models, as discussed in Chenet et al 2021 https://doi.org/10.1016/j.ecolecon.2021.106957	Noted. Thank you for your suggestion. It is not included in the chapter due to limited space	Hugues CHENET	University College London	France
17925	52	15	52	46	In this Chapter, and particularly in this section, some of the shortcomings of IAMs are pointed out; these are crucial on two levels. First, the scenarios discussed throughout the report are very often based on IAMs, which in turn usually assume a very simplified view of an already optimal economic system to which climate change mitigation measures are negative perturbations. That this is not the case as a starting point should lead to caution in over-interpreting the scenario results. This uncertainty and the potential shortcomings should be given more prominence in the SPM. Some of these issues are addressed in Box 15.7, but need more prominence.	Valid point. We have elaborated a bit more in detail on limitations of IAM scenarios.	Robert Brecha	Climate Analytics	Germany
17927	52	15	52	46	In this Chapter, and particularly in this section, some of the shortcomings of IAMs are pointed out; these are crucial on two levels. Second, the scenarios discussed throughout the report are very often based on IAMs that do not even consider a financial sector to be part of the system, or the assumption is that finance frictionlessly allows capital to flow where needed for the optimal system configuration. Since this is not the case, this potential shortcoming should be given more prominence in the SPM. Some of these issues are addressed in Box 15.7, but need more prominence.	This comment is probably a copy of the previous one.	Robert Brecha	Climate Analytics	Germany
82451	52	17			better referencing both Svartzman et al 2020 https://doi.org/10.1080/14693062.2020.1862743 and Chenet et al 2021 https://doi.org/10.1016/j.ecolecon.2021.106957	Noted. Thank you for your suggestion. It is not included in the chapter due to limited space	Hugues CHENET	University College London	France
82453	52	24			"allows to conduct stress test" … It is indispensable that the fundamental limitations of financial climate stress tests are discussed. Cf. Chenet et al 2021 https://doi.org/10.1016/j.ecolecon.2021.106957	Noted. Thank you for your suggestion. It is not included in the chapter due to limited space	Hugues CHENET	University College London	France
23599	52	32	52	32	For the statement "to a systematic underestimation of risk." we recommand to add the following reference : Aglietta, Michel, and Étienne Espagne. Climate and finance systemic risks, more than an analogy?: the climate fragility hypothesis. CEPII Working Paper series, Centre d'etudes prospectives et d'informations internationales, 2016.	The proposed reference seems not yet published. We give priority to publications in scientific journals.	Government of France	Ministère de la Transition écologique et solidaire	France
58983	52	32	52	32	This phrase is circular: "Scenarios of transition risk that are too mild could lead to a systematic underestimation of risk."	Accepted and implemented.	Government of United States of America	U.S. Department of State	United States of America
67347	52	34			Sensitive on -> sensitive to	Editorial. Thank you for your comment	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
10867	52	37	52	41	figure 15.7 on p32 suggests that IAM provide estimates of the capital costs for investments in renewable energy sources which are too large. Is this relevan for the present discussion?	This issue could add up to those discussed here, but we are not sure how to link it in the discussion.	Philippe Waldteufel	CNRS	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82455	52	37		41	this is actually mentioned quite bluntly in the Allen et al 2020 paper aforementioned: "since [scenario-based approaches] need to be quantified in order to be relevant to the targeted community (i.e. central banks and financial institutions), they then often rely on the very same models that they were supposed to provide an alternative approach to. All the extensive literature on climate-economy modelling limitations and sensibility to parameterization and calibration therefore applies as caveat to our results." ==> cf discussion in Chenet et al. 2021 https://doi.org/10.1016/j.ecolecon.2021.106957	Noted. Thank you for your comment. Due to limited space, it wasn't able to include detailed explanation and the suggested literature	Hugues CHENET	University College London	France
79047	53	1	53	17	So this is the discussion of macroeconomic risk. That a rapid transition would "risk" a contraction of fossil fuel demand. What about the systemic macroeconomic risk of keeping fossil fuel demand stable or reducing it too slowly? I wonder if the paragrapth is meant to encourage policy makers to protect fossil fuel consumption (and ruin our planet). Unless heavily deepened an broadened, I urgently recommend to scrap the whole paragraph.	We thank the reviewer for the comment. We have revised the paragraph to clarify its message: under certain scenarios, fossil assets are at significant risk and this is plausible because of analogies with technological transition.	Young-jin Choi	Phineo gAG	Germany
81819	53	2			Proposals for 'growth independence' should be taken on board to reduce adverse effects, cf. Petschow et al. 2020. Social well-being within planetary boundaries The precautionary post-growth approach. German Federal Environment Agency.	Noted. Thank you for your comment. Due to limited space, it wasn't able to include your suggestion and the suggested literature	Elena Hofferberth	University of Leeds	Switzerland
79041	53	5	53	6	" A review of the economic mechanisms involved in the accumulation of systemic risk associated to declining industries, with focus on fossil fuels, is given by (Semieniuk et al. 2020). " I see no discusison of the risk of a potential collapse of the global economy and/or global security (includng the risk of armed conflicts between nuclear powers over critical resources)	We have now rewritten the whole paragraph to reflect the risk of of the various scenarios inlcuding a failure of mitigation. A discussion of the risk of nuclear conflicts is out of scope here.	Young-jin Choi	Phineo gAG	Germany
79043	53	7	53	9	"A rapid diffusion of electric vehicles (and other alternative vehicle types), poses an important risk of as it could lead to oil demand peaking before 2050 (Mercure et al., 2018; Lam, Mercure and Pollitt, 2020)" This is exactly what preventing a catastrophe requires.How can this be even framed as something that is to be avoided?!	Addressed. This report is non prescriptive. The paragraph does not intend to present the diffusion of electric vehicles as something to avoid. We have revised the paragraph to clarify its meaning of a "if then" statement.	Young-jin Choi	Phineo gAG	Germany
67349	53	8			Risk of as -> risk of stranded assets	Noted. Thank you for your comment.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
82457	53	8			word missing/ to delete :"important risk of as it"	Noted. Thank you for your comment.	Hugues CHENET	University College London	France
58985	53	11	53	11	Replace "solar photovoltaic" with "photovoltaics"	Accepted and implemented.	Government of United States of America	U.S. Department of State	United States of America
58987	53	11	53	12	Explain why ESG are insufficient.	This comment seems to refer to page 54. Addressed.	Government of United States of America	U.S. Department of State	United States of America
79045	53	11	53	12	"A rapid diffusion of solar photovoltaic could displace electricity generation based predominantly on coal and gas (Sussams and Leaton 2017)." This can't be seriously considered a "risk"?! For whom, the small group of profiteers? What about the risks for humankind of NOT rapidly displacing coal and gas...	Addressed. This report is non prescriptive. The paragraph does not intend to present the diffusion of electric vehicles as something to avoid. We have revised the paragraph to clarify its meaning of a "if then" statement.	Young-jin Choi	Phineo gAG	Germany
28019	53	18	53	24	This section on 'International dimension of climate risk' is subjective and should be revised substantially or deleted.	Addressed. The subsection on International dimension has been removed.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
52927	53	18	53	28	International Dimension of Climate Risk showcases risk on fossil fuel exporting countries. This should be highlighted in SPM.	The subsection on International dimension has been removed upon request of several reviewers.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
70887	53	18	53	28	The arguments are true, but at the same time the lower fossil fuel exports may also become a benefit as many fossil fuel exporters suffer from the "resource curse". So actually lowering their share of fossil fuel exports could be beneficial in the long-run. This argument is missing here.....	The subsection on International dimension has been removed upon request of several reviewers.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
79049	53	18	53	28	I can't believe what is written about the "international dimension" of climate risk. There is no mentioning of global security risks due to rising temperatures, food shortages, civil wars, mass migration etc.The term "climate risk" has become meaningless. It is only described as the risk to petrostates and fossil fuel shareholdesr and employees. There is no reflection on the gains in terms of employment and avoided economic damages for the rest of the world for generations to come. This is the trade-off humanity is currently facingUnless heavily deepened an broadened, I urgently recommend to scrap the whole paragraph.	Addressed. The subsection on International dimension has been removed.	Young-jin Choi	Phineo gAG	Germany
82459	53	18			title of paragraph is general while paragraph only addresses fossil fuels	Taken into account. The section is revised, and the contents are moved to 'Macroeconomic implications of the technological transition'	Hugues CHENET	University College London	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86473	53	18	53	28	This account of potential employment losses due to international fossil fuel market dynamics is not addressing 1) The higher potential for employment losses from macroeconomic damage and corporate level damages caused by lack of climate response, and 2) The potential for a planned retraining and gradual employment transition of workers into clean energy activities, whether state-owned or privately funded.	Addressed. We added a sentence at the end of the subsection.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
58989	53	27	53	28	Multiplier effects should not be considered in cost-benefit analyses.	The subsection on International dimension has been removed upon request of several reviewers.	Government of United States of America	U.S. Department of State	United States of America
23601	53	32	53	33	We recommand to add the Bank of International Settlements among those actors. reference: Bolton, P., Despres, M., Da Silva, L. A. P., Samama, F., & Svartzman, R. (2020). The green swan. BIS Books.	Addressed.	Government of France	Ministère de la Transition écologique et solidaire	France
10225	53	37	54	12	Within this section referring to more clarity required on comparable climate-related disclosures, is it premature to mention the proposed IFRS accounting standard for climate change, mooted recently? e.g. here > https://www.reuters.com/article/us-climate-change-finance-regulators-idUSKBN2AB1KC	At the stage of this revision, the cited initiative is not yet confirmed.	Gary Kendall	Nedbank	South Africa
51263	53	37	53	39	This sentence should be complemented by an additional follow-up sentence that also highlight that research has shown that the lack of reliable or material corporate climate-related financial disclosure is evidenced by the fact that currently, climate-related physical risk exposure of TCFD-supporting companies and non-TCFD-supporting companies is remains almost identical. (Reference: Schumacher, K., Chenet, H., & Volz, U. (2020). Sustainable finance in Japan. Journal of Sustainable Finance and Investment, 10(2), 213–246. https://doi.org/10.1080/20430795.2020.1735219)	See next comment.	Schumacher Kim	Tokyo Institute of Technology	Japan
51251	53	43	53	44	Besides Stanny (2018), inconsitent or selective disclosure has also been documented in Japan, as reported in 2020 by Schumacher et al. inSchumacher, K., Chenet, H., & Volz, U. (2020). Sustainable finance in Japan. Journal of Sustainable Finance and Investment, 10(2), 213–246. https://doi.org/10.1080/20430795.2020.1735219	Accepted and implemented.	Schumacher Kim	Tokyo Institute of Technology	Japan
49863	53	45			Should mention that New Zealand has broadly mandated TCFD disclosure	Noted. Thank you for your suggestion. However, it wasn't able to include the example due to limited space	Jason Patrick	New Zealand Green Investment Finance	New Zealand
46397	54	0	56		Please check if you could leverage from the last SCF's Biennial Assessment (BA) and their discussion on enabling environments and consider linking/merging this section with page 55/56 on "Efficient financial markets and regulation".	Noted. Thank you for your suggestion. The section has been revised. However, it wasn't able to include the details and contents due to limited space	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
23603	54	1	54	2	We suggest to rephrase this sentence as the sentence on majority of companies not reporting risk is presented as reflecting on the French experience. Indeed, French regulators and supervisors published a joint implementation assessment of Article 173 of the Law on Energy Transition in July 2019. They found that, among firms reviewed 5, 50% published all mandatory information required by the implementation decree, 44% do so but insufficiently in terms of the mandatory provisions, while 6% neither comply or explain. REF : https://www.tresor.economie.gouv.fr/Articles/2019/07/02/publication-du-bilan-de-l-application-des-dispositions-du-decret-2015-1850 and https://www.ecologie.gouv.fr/sites/default/files/Reporting%20extra-financier%20-%20Bilan%20de%20l%27appplication%20des%20disposition%20du%20d%C3%A9cret.pdf	Addressed. The sentence could be misleading and we rephrased it.	Government of France	Ministère de la Transition écologique et solidaire	France
30603	54	5	54	5	How about quoting the latest version of TEG report (TEG2020) instead of TEG report (TEG2019)?	Accepted and implemented.	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan
86475	54	5	54	8	This paragraph on the EU Taxonomy is too concise and should be expanded. In particular, adequate space should be given to a discussion on the "best-in-class" approach of the EU Taxonomy. The "best-in-class" approach allows the inclusion in the list of "sustainable activities" of business activities belonging to very carbon-intensive or "hard-to-abate" sectors, simply based on the fact that they perform better compared to sector averages - in terms of emissions and efficiency. Is there any evidence that such approach can be successful in meeting the necessary decarbonization targets by 2030 as well as 2050? This specific approach seems to belong to a wider "momentum" transitional approach (to use Mark Carney's wording) towards a concerted transition of the entire economy, but is it timely enough? And will it not result in the lock-in of additional funding to carbon-intensive sectors that inevitably need to be phased out to transition to a low carbon economy?	The EU Taxonomy applies a best in class approach only to certain sectors where there is potential for mitigation. For instance, no activities are included from those sectors that do not contribute to climate mitigation such as fossil fuel production or ICE cars. A discussion of this aspects would be to detailed here.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
58991	54	6	54	7	Unclear how a classification of economic activities would contribute to climate mitigation or be enabling for the low-carbon transition.	The rational is that a classification brings clarity to the market in a landscape where otherwise there is confusion about what contribute to mitigation and what does not. A sentence has been added to clarify.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
51253	54	8	54	8	In addition to Alessi et al. (2019) and ESMA (2020), Schumacher et al. (2020) illustrate the usefulness of the upcoming Japanese taxonomy in assessing portfolio-level climate-related transition risks. It would thus be good to outline that sustainable finance taxonomies are not limited to Europe as the IPCC AR6 is a global document (Reference: Schumacher, K., Chenet, H., & Volz, U. (2020). Sustainable finance in Japan. Journal of Sustainable Finance and Investment, 10(2), 213–246. https://doi.org/10.1080/20430795.2020.1735219)	Based on the cited article, it seems that the Japanese taxonomy is not published yet.	Schumacher Kim	Tokyo Institute of Technology	Japan
58993	54	10	54	10	Replace "foot printing" with "footprints"	Accepted and implemented.	Government of United States of America	U.S. Department of State	United States of America
16671	54	11	54	12	Please consider to replace "metrics" with "score or figures" or change "inadequate" to other word. The use of the word inadequate is inappropriate. If it's score or figures, the word inappropriate is correct, but it's not a metric.	Addressed.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
82465	54	12			as mentioned above, the whole subsection would benefit a bit more articulation between the different levels of risk assessment, from the climate risk factors to exposure for financial institutions to the real financial materiality (the only thing really of interest for FIs at the moment). This, as mentioned, needs to be articulated with the related discussion on the capacity/possibility to really assess climate-related financial risks (cf Chenet et al 2021, sorry again!)	Noted. Thank you for your comment, but there is limited space to include details	Hugues CHENET	University College London	France
86933	54	12	54	25	The developing of local capital markets and 13 robust domestic financial systems is a priority however is a long term strategy for low and middle 14 income countries and regions, with capacity - that choose to pursue that path using the technical 15 assistance programmes available (see Section 15.6.7). More pro-active interventions, such as publicly 16 organised and supported low-carbon infrastructures through resurrected national development banks 17 may be justified (Mazzucato and Penna 2016). High investment risks tend to obstruct low-carbon 18 investments, especially in LDCs and developing countries. It is important to implement effective de- 19 risking measures to reduce investment risks, but lacking research and data availability hinders designing 20 de-risking measures (Dietz et al. 2016). Especially in developing countries with insufficient traditional 21 de-risking measures, the risks bearers with low financial resilience suffer severely from losses and are 22 forced to give up their productive assets. In addition to the traditional risk financing, innovative risk 23 financing mechanisms, such as index-based micro-insurance programs, catastrophe bonds and 24 contingent credits, can be beneficial to enhancing financial resilience of risk bearers, especially the most 25 vulnerable communities and their governments (Linnerooth-Bayer and Hochrainer-Stigler	Taken into account.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
285	54	13	0	0	Section 15.6.2 needs to have more on the role of the TCFD, trhis has been one of the step changes in producing the enabling conditions for private sector involvement	Accepted. Added: Organizations such as the Task Force on Climate-related Financial Disclosures (TCFD) can help increase capital markets' climate financing, including private sector, by providing financial markets with information to price climate-related risks and opportunities (TCFD 2020).	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
23605	54	13	54	13	This section does not talk about the social cost of carbon (or "value of climate action"), which can be instrumental in assessing investment projects against climate action goals, hence is supportive of aligning finance flows with climate goals. https://www.strategie.gouv.fr/english-articles/value-climate-action and Quinet 2009 (https://www.vie-publique.fr/sites/default/files/rapport/pdf/094000195.pdf) et 2019 (https://www.strategie.gouv.fr/sites/strategie.gouv.fr/files/atoms/files/fs-2019-rapport-la-valeur-de-laction-pour-le-climat_0.pdf).	Noted. Detailed discussion of the social cost of carbon is outside the scope of this section.	Government of France	Ministère de la Transition écologique et solidaire	France
82205	54	14	54	45	Again, the process of aligning financial flows to climate targets makes sense in countries with developed financial markets.Green projects in developing countries would require substantial subsidies as the market, if it exists at all, would not generate returns to attract private investors as the risk is often too high	Taken into account. Section has been significantly revised and shortened.	Smile Dube	California State University, Sacramento	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82467	54	14		16	cf. Zamarioli et al (submitted, under review) "Climate-consistent finance as a pretty penny for climate action".	Accepted. Added: The Paris Agreement recognised for the first time the key role of aligning financial flows to climate targets. It further emphasises the importance of making financial flows to consistent with climate actions and SDGs (Zamarioli et al. 2021).	Hugues CHENET	University College London	France
63423	54	17	54	45	This section raises the importance of enabling envrionments, both in the financial system and in broader society. However, most of the section provides examples related to the financial system itself (tax returns, green credits, etc). Its also important to expand on the policies (energy, transport, infrastructure, etc) that can help attract investment. Closer linkages between policy capacity building and climate finance would go a long way in creating that enabling environments that remove non-project risks so that the private sector can see the business case of climate investments. The UN Secretary General and other leading experts have recognized the need for foundational policy and regulatory support, capacity building, and technical assistance in developing countries to establish the enabling environment for clean energy investments, technology development, and deployment.	Taken into account. Thank you for detailed comment but it was not possible to include all of the raised issues in this section due to limited space.	Government of Canada	Environment and Climate Change Canada	Canada
28915	54	22	54	22	Please define Finance ecosystem or clarify	Taken into account. Term removed in revision and shortening of section.	Nathalie Hilmi	Centre Scientifique de Monaco	France
51631	54	22	54	45	It is suggested that tax incentives could boost private incentives to finance green projects. But care is needed here particularly where these are in developing countries. First the impact of tax incentives on investment decisions are not clear cut. Second, tax incentives can be considered as an effective subsidy and where this is from developing country tax payers to institutional investors from the global North, the full equity impacts need to be unpacked.	Noted. A very important point, equity impacts should always be considered in all policies. This section is focusing on enabling environments and policies that promote financial flows to climate goals.	Kate Bayliss	SOAS, University of London	United Kingdom (of Great Britain and Northern Ireland)
8807	54	25	54	30	An additional aspect of the importance of an enabling environment for investments is analysed by Kempa et al. (2021), who show that the environemtal policies are an important driver for the cost of debt of renewable energy firms with more stringent policies leading to decresing financing costs for renwewable energy firms (and increasing financing costs for fossil fuel firms). Full reference: Kempa, K., Moslener, U., and Schenker, O. (2021), "The cost of debt of renewable and non-renewable energy firms", Nature Energy 6: 135-142. https://doi.org/10.1038/s41560-020-00745-x	Taken into account. Thank you for the literature but due to space limitations it was not possible to include.	Karol Kempa	Frankfurt School of Finance & Management	Germany
85901	54	25	54	27	Suggest authors cite Australia's Technology Investment Roadmap as an example of a policy that considers the direction and not just the amount of financing. The Roadmap identifies priority low emission technologies to guide the Australian Government's investment and sets targets for their cost-competitiveness as well as private co-financing to be leveraged. Progress towards these targets will be monitored through the Roadmap's impact evaluation framework. https://www.industry.gov.au/sites/default/files/September%202020/document/first-low-emissions-technology-statement-2020.pdf	Noted. The investment roadmap is a promising policy but is not an appropiate fit for this section.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
82461	54	37		39	Ameli et al 2019 has to be referenced here; additional reference to Christophers 2017 welcome (referenced in the SR15(2018)) Christophers, B., 2017. Climate Change and Financial Instability: Risk Disclosure and the Problematics of Neoliberal Governance. Ann. Am. Assoc. Geogr. 107, 1108–1127. https://doi.org/10.1080/24694452.2017.1293502	Accepted. Added: However, risk disclosures alone would likely be insufficient (Christophers 2017) (high confidence). Transparency can help but on its own as long as market failures that inhibit the emergence of low-carbon investment initiatives with positive risk-weighted returns (Ameli et al. 2020).	Hugues CHENET	University College London	France
49865	54	41			In this section on efficient enabling environments, add that other regulatory measures such as tax and accounting treatment can be effective	Noted. Thank you for the suggestion but due to space limitations it was not possible to include.	Jason Patrick	New Zealand Green Investment Finance	New Zealand
79051	54	41	54	45	"The government can reduce the risks of financing green projects by improving the rate of returns, which could be achieved by establishing green credit guarantee schemes (GCGSs), considering tax returns (Taghizadeh-Hesary and Yoshino 2019), improving green finance policy frameworks, developing information exchange channels, and strengthening the international cooperation in green financial system (Peng et al. 2018b)." I don't understand why there is no mentioning of carbon pricing. Thousands of US economists support the demand for carbon pricing to address a well-known market failure. https://clcouncil.org/economists-statement/	Taken into account. Carbon pricing is mentioned later in the section, and in greater detail in other sections of the report. Please refer to section 9.9.3 for detailed discussion of carbon pricing.	Young-jin Choi	Phineo gAG	Germany
18565	54	43	54	43	There might be something missing here but it's not clear to me what we mean by "considering tax returns"? Are the authors referring to tax incentives or deductions in the tax return declarations?	Accepted. Those words and reference have been deleted.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
82463	54	44			cf also Christophers 2018 Christophers, B., 2019. Environmental Beta or How Institutional Investors Think about Climate Change and Fossil Fuel Risk. Ann. Am. Assoc. Geogr. 1–21. https://doi.org/10.1080/24694452.2018.1489213	Noted. Thank you for the suggestion but due to space limitations it was not possible to include.	Hugues CHENET	University College London	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
46399	55	0	56		On green QE you could include the examples of the French Central Bank. Overall, the discussion on central banks' role is welcome as recently there has been evidence on how asset purchase programs support the status quo of the economy and support big firms carbon entanglement. However, what in this section: when discussing those green QE options are they discussed within a current Covid context or as a general policy? You might want to reference a bit more tangible research on asset purchase programs since the financial crisis, their effect on low interest rates, and the existing limitations to monetary financing via central banks.	Noted. Thank you for the comment. The section is reorganized to demonstrate the central banks' role in climate change more clearly. It discusses QE and policy instruments in general, but it is necessary to consider the COVID-19 context, which changed the global financial and social landscapes and raised attention to the central banks' role in climate actions	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
58995	55	1	55	3	Pandemic-related quantitative easing may last for several years, but it is likely to be temporary rather than continuing.	Noted. The manuscript does not state pandemic-related quantitative easing will be definitely continous.	Government of United States of America	U.S. Department of State	United States of America
58997	55	5	55		Eliminate biased wording "exceptional privileges"	Accepted. Deleted: especially in the context of their 'exceptional privileges' as global reserve currencies.	Government of United States of America	U.S. Department of State	United States of America
58999	55	10	55	10	Citation missing for the 60 negative credit actions.	Accepted. We have deleted the sentence as citation was not provided.	Government of United States of America	U.S. Department of State	United States of America
82469	55	19			cf also Christophers 2018 https://doi.org/10.1080/24694452.2018.1489213 and Chenet et al 2021 https://doi.org/10.1016/j.ecolecon.2021.106957	Accepted. Added: Central bankers have started examining the implications of disruptive risks of climate change, as part of their core mandate of managing the stability of the financial system (Chenet et al. 2021).	Hugues CHENET	University College London	France
28917	55	20	55	21	Does the ECB policy of quantitative easing impact environmental policy objectives? Journal of Economic Policy Reform doi.org/10.1080/17487870.2020.1855176: https://www.tandfonline.com/doi/abs/10.1080/17487870.2020.1855176?journalCode=gpre20	Accepted. Added: Green QE would have positive effects for stimulating a low-carbon transition, such as accelerating the development of green bond markets (Hilmi et al. 2021),	Nathalie Hilmi	Centre Scientifique de Monaco	France
59001	55	20	56	7	"GreenQE" is discussed several places in this chapter and should be consolidated and clearly defined and discussed in one spot.	Taken into account. Thank you for the comment. The section is reorganized to demonstrate the central banks' role in climate change more clearly.	Government of United States of America	U.S. Department of State	United States of America
23607	55	21	55	21	We recommand to add the reference advocating for green QE at the beginning of ECB QE policy: Aglietta, M., Espagne, E., & Perrissin-Fabert, B. (2015). A proposal to finance low carbon investment in Europe. Finance Stratégie, 24, 1-7.	Accepted. The reference has been added: Green QE is being examined as a tool for enabling climate investments (Dafermos et al. 2018) in which central banks could explicitly conduct a program of purchases of low-carbon assets (Aglietta et al. 2015).	Government of France	Ministère de la Transition écologique et solidaire	France
59003	55	21	55	23	It is not sustainable medium- or long-term financing.	Noted. The manuscript does not state pandemic-related quantitative easing will be definitely continous.	Government of United States of America	U.S. Department of State	United States of America
79053	55	23	55	25	"Green QE would have positive effects, such as accelerating the development of green bond markets, encouraging investments and banking reserves, and reducing risks of stranded assets, while it might increase the income inequality and financial instability (Monasterolo and Raberto 2017)" This possibility is a price worth paying for human survival. "might increase income inequality and financial instability" can't be a reasonable excuse.	Noted. The possible negative consequences are not stated as excuses, rather they are stated to inform policy makers of possible negative impacts so they can prepare for and address them.	Young-jin Choi	Phineo gAG	Germany
59005	55	27	55	27	Far too much discussion on quantitative easing, which will end after several years and eventually get reversed through financial asset sales, so it has no medium-term or long-term benefits for bond markets or climate finance.	Taken into account. Central banks' role and quantitative easing have been playing an important role in the recent years. Also, they are an important player in establishing enabling environment for climate finance. The section is reorganized to demonstrate central banks' role in climate finance.	Government of United States of America	U.S. Department of State	United States of America
81821	55	30	55	31	A reconsideration of central banks' mandates to include climate risks is already under way and should be appreciated. Hugues Chenet, Josh Ryan-Collins & Frank van Lerven (2021). Finance, climate-change and radical uncertainty: Towards a precautionary approach to financial policy. Ecological Economics 183: 106957.	Accepted. The reference has been added: Central bankers have started examining the implications of disruptive risks of climate change, as part of their core mandate of managing the stability of the financial system (Chenet et al. 2021).	Elena Hofferberth	University of Leeds	Switzerland
59007	55	38	55	39	Undocumented assertion and "not averse" is vague. What central banks have agreed to exclude fossil fuels from benefiting from quantitative easing? What have they actually done in support of that?	Accepted. Deleted sentence: "Central banks are now increasingly under pressure and not averse to correcting for this distortion by excluding fossil-fuel investments from future quantitative easing programs.	Government of United States of America	U.S. Department of State	United States of America
15047	56	1	56	7	It might be worth mentioning that not all central banks are legally allowed to engage in such industrial policies.	Taken into account. Thank you for the valid point and comment, but due to space limitations it was not possible to include this.	Galina Hale	UC Santa Cruz	United States of America
15049	56	8	56	23	It appears this paragraph is continuation of the previous one, which has a title, "Green QE". However, this paragraph is not about QE - perhaps it needs its own title?	Taken into account. The section has been reorganized	Galina Hale	UC Santa Cruz	United States of America
82477	56	8		9	would be relevant to add reference to D'Orazio, P., Popoyan, L., 2019. Fostering green investments and tackling climate-related financial risks: Which role for macroprudential policies? Ecol. Econ. 160, 25–37. https://doi.org/https://doi.org/10.1016/j.ecolecon.2019.01.029	Accepted. The provided reference has been added: Additional monetary policies and macroprudential financial regulation may facilitate the expected role of carbon pricing on boosting low-carbon investments (D'Orazio and Popoyan 2019).	Hugues CHENET	University College London	France
85431	56	8	56	23	This reference to making make green stimulus packages "greenwashing-proof" is important and should be more prominent in my opinion. It is now buried in the text and not mentioned in the summary. Yet what we see is that stimulus packages get a seal of approval with green language and are then squirelled away by incumbent lobbyists without having the impact they could have had if this issue was clearly adressed from the start and safeguards against greenwashing where part of the approval process.	Noted. The necessity of greenwashing proof is mentioned in the section: Financial supervisors need to implement stricter guidelines to overcome the greenwashing challenges (Caldecott 2020).	Auke Hoekstra	Eindhoven University of Technology	Netherlands

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
75623	56	11	56	15	This comment pertains solely to the editors as it has nothing to do with content! A recurring stylistic issue that I noticed throughout this chapter is sentences including concepts and/or terms that are not as specified as would be needed to immediately, straightforwardly understand the message of the sentence. An example would be the following: “However, it needs to consider trade-offs that might negatively affect the financial stability at the same time. For instance, green supporting factors, would have could support the productivity of green capital goods and encourage green investments in the short-term, but might cause financial instability by raising non-performing loans ratio of dirty investments and creating green bubbles (Dunz et al. 2019).” In this sentence it would be very helpful for the reader to have a reference and/or specification as to what exactly is meant with ‘green supporting factors’. It would be appreciated if the editors would pay attention to this matter throughout Chapter 15.	Accepted. The sentence has been edited.	Amira El-Feiaz	Technische Universiteit Eindhoven	Netherlands
52907	56	12	56	13	...,green supporting factor, would have could support... "would have" should be dropped.	Accepted. The sentence has been edited.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
70889	56	12	56	18	Some examples of vague language: green supporting factors: what are these? . Companies have not signed the PA, so they cannot comply with it.......	Taken into account. The sentence has been edited.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
79055	56	12	56	15	"...might cause financial instability by raising non-performing loans ratio of dirty investments and creating green bubbles (Dunz et al. 2019)." Again, the possibility of relatively marginal costs cannot be a rational reason to NOT aggressively move forward.	Noted. Those costs may be marginal compared to the costs of not effectively mitigating climate change, but policy makers should be made aware of them to minimize negative impacts.	Young-jin Choi	Phineo gAG	Germany
9737	56	15	56	23	One could argue that Covid-19 recovery package should focus broadly on SD and SDGs and not just Paris agreement and climate change. Funding should be directed to help countries to achieve SDGs including climate change in accordance with national circumstances and national resources.	Noted. That is a valid argument but this section is focusing on the enabling environment for climate financing.	Mustafa Babiker	Saudi Aramco	Saudi Arabia
28455	56	15	56	23	This section is important, nice to include it! Could it also be added to the executive summary? "After focusing on providing recovery packages in the short-term, the governments need to nurture renewable and energy efficient technologies and prepare the long-term strategies for restructuring of the economy through stimulus packages. In the long-term, it is necessary to design policies to prepare for future shocks (Steffen et al. 2020)."	Noted. Thank you for your suggestion but due to space limitations it was not possible to include entire point in executive summary.	Naud Loomans	Eindhoven University of Technology	Netherlands
67325	56	15	56	15	Fix citation:Dunz et al. 2019 -> Dunz et al, 2020 (already in the references)	Accepted. We have updated the reference Dunz et al. 2021. Climate sentiments, transition risk, and financial stability in a stock-flow consistent model. Journal of Financial Stability. 54. 100872	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
75619	56	15	56	23	The following passage is so critically important for setting the correct tone for the coming years; it would be highly appreciated if it were elaborated upon in the executive summary: "The COVID-19 crisis has opened an opportunity to restructure the economy into climate-friendly form by aligning the COVID-19 response packages with the Paris Agreement. The key is to monitor and ensure that the public and private finance do not flow into companies and assets that do not comply with the Paris Agreement. The financial supervisors needs to implement stricter guidelines to overcome the greenwashing challenges (Caldecott 2020). After focusing on providing recovery packages in the short-term, the governments need to nurture renewable and energy efficient technologies and prepare the long-term strategies for restructuring of the economy through stimulus packages. In the long-term, it is necessary to design policies to prepare for future shocks (Steffen et al. 2020)." This could – per example – be phrased as follows: At this point, it is critical to ensure that the COVID-19 recovery packages are aligned with the Paris Agreement. Financial supervisors and governmental agencies alike have an unique opportunity to stimulate renewable and energy efficient technologies and a shock-proof, long-term approach to economic restructuring, if the public and private finance will be guided towards sustainable assets.	Noted. Thank you for your suggestion but due to space limitations it was not possible to include entire point in executive summary, but executive summary mentions climate compatible stimulus packages could significantly reduce the macro-financial uncertainty generated by the pandemic and increase the sustainability of the world economic recovery.	Amira El-Feiaz	Technische Universiteit Eindhoven	Netherlands
79057	56	15	56	17	"The COVID-19 crisis has opened an opportunity to restructure the economy into climate-friendly form by aligning the COVID-19 response packages with the Paris Agreement" Unfortunately this has failed spectacularly. https://www.energypolicytracker.org/region/g20/	Taken into account. The sentence has been removed.	Young-jin Choi	Phineo gAG	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
79061	56	15	56	17	"More pro-active interventions, such as publicly organised and supported low-carbon infrastructures through resurrected national development banks may be justified (Mazzucato and Penna 2016)." No, they are not "maybe" justified, they are extremely urgent. Human civilization really has no more time left.	Noted. The AR6 cannot state definitively what is the best policy path, it can only present knowledge, evidence and policy options for decision makers.	Young-jin Choi	Phineo gAG	Germany
82093	56	15	56	23	The idea conveyed in these lines is of utmost relevance for setting the pathway in the future years. As it is mentioned here, the current COVID-19 situations is giving us an opportunity to align policy making with Paris Agreement goals and restructure the economy in a climate friendly form. Therefore, I think that this passage should be further elaborated both in the executive summary and perhaps also in the body of this chapter. It could also include examples of policy approaches or even efforts towards adressing these climate concerns while at the same time providing support packages to those companies being affected by the COVID-19 situation. An example could be refering to the discussions about the support to airlines to avoid them going bankrupt while conditioning them to adopt more climate friendly strategies. An example of an approach that could also be further discussed is capping the use of fossil fuels for airplanes to current levels and requesting future growth to be fulfilled yb renewable alternatives. Of course, what I am mentioning are just very 'simplistic' possible solutions that would need to be further discussed in terms of technological readiness, but I think it is important to mention this in this section. The COVID-19 situation is a unique situation in history and it is also one that is determining the way humans are currently living, so I think it deserves a bitmore of attention and discussion.	Noted. COVID-19 and related matters are discussed in greater depth in section 15.2.3.	Sofia Rosero Abad	University	Netherlands
52943	56	24	56	24	The use of efficient financial market is by its definition	Noted. The definition and meaning of efficient financial markets is outlined, as well as potential issues with the theory.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
82471	56	24		42	all this paragraph would benefit from the following references, which intensively discuss the different arguments put forward. Moreove the focus on disclosure has been challenged in many places (cf these papers) and the limitations of the disclosure forces in e.g. Carney (2015) narrative is not well described in the paragraph. Aglietta & Espagne 2016, Christophers 2017, Christophers 2018, Ameli et al 2019, Chenet et al 2019; Chenet et al 2020; Chenet 2021, Chenet et al 2021 (cf full references above) Aglietta, M., Espagne, E., 2016. Climate and Finance Systemic Risks: more than an analogy? The climate fragility hypothesis, CEPII Working paper. https://doi.org/10.13140/RG.2.1.2378.6489 Chenet, H., Zamarioli, L., Winning, M., 2020. "Finance after the Paris Agreement: The necessary transformation of the financial system". COP21-RIPPLES Horizon2020 Project, Policy Brief. https://www.cop21ripples.eu/wp-content/uploads/2020/01/COP21-RIPPLES-PB6_UCL.pdf Chenet, H., Zamarioli, L., Kretschmer, B., Narvaez, R., 2019. From transformational climate finance to transforming the financial system for climate. https://www.cop21ripples.eu/wp-content/uploads/2019/09/20190830_COP21-RIPPLES_D4-3a_Transforming-the-Financial-System.pdf	Taken into account. The references Christophers 2017 and Chenet 2021 have been added to the text.	Hugues CHENET	University College London	France
82473	56	24	57	25	Aglietta & Espagne (2016) could be referenced here with an alternative role of regulation to mobilise capital markets: from an insurance (Weitzman 2009, 2012) to a precautionary approach (Chenet et al 2021)	Taken into account. The reference Chenet et al 2021 has been added to the text.	Hugues CHENET	University College London	France
77881	56	27	56	29	Indeed one of the major weaknesses of the Fama et al efficient market hypothesis is that information does not spread instantly but rather diffuses through the market, economy and the populace, and is increasingly subject to disinformation flows, all of which reduce the efficacy around pricing financial risks of climate change	Noted. That is a very valid point which is why the text argues for greater and swifter disclosure of climate risk exposure information to address this issue.	Alex Rau	Climate Wedge LLC	United States of America
63425	56	28	56	29	sustainability bonds need to be introduced in common indices to be traded like other equites and bonds, provides more liquidity for investors. Some countries have introduced them in their indices but lot of works still needs to be done.	Taken into account. This section does not deal in depth with types of bonds such as sustainability bonds. Sustainability bond discussed in other section (see 15.6.6 Support the development of new asset classes).	Government of Canada	Environment and Climate Change Canada	Canada
18567	56	29	56	31	This is not a correct statement of the weak form market efficiency hypothesis. Weak form market efficiency is not to do with allowing `enough time' but with analysts beating the market in the short term due to insights gained from research using fundamental analysis.	Noted. Point is well noted. Analysts may beat the market in the short term due to insights gained from research using fundamental analysis but the key point here is that it takes time for novel risks such as climate change to be reflected in assets prices.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
79059	56	31	56	33	"It is arguable that as a cascade of more credible scientific information has been accumulating about the effects of global warming, it is being accompanied by rising levels of climate finance, such as global green bonds" This hasn't happened yet. If it happens one day it will likely be too late by then.	Noted. The level of climate finance such as global green bonds is rising but not to a sufficient degree.	Young-jin Choi	Phineo gAG	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
52945	56	41	56	41	This is well covered by market regulation athourites to provide full disclusure on the Board of Directors level and also in the FS	Taken into account. Regulatory authority to legal require effective disclosure risks related to climate change is still lacking in many countries. Still risks relevant to climate change are disclosed on a voluntary basis.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
67323	56	42	56	42	Fix citation: Battiston et al. 2017a -> Batttiston et al. 2017 (already in the references)	Accepted. The citation has been fixed.	Irene Monasterolo	Vienna University of Economics and Business (WU)	Austria
81823	56	43	56	44	For a critical stance towards securitisation see Ban & Gabor 2016. The Political Economy of shadow banking. Review of International Political Economy, 23:6, 901-914,	Noted. Thank you for your suggestion but due to limited space it was not possible to include the literature.	Elena Hofferberth	University of Leeds	Switzerland
84773	56	47	56	47	yield cost' I think should be 'yieldco'	Taken into account. The term has been removed in revision of executive summary.	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
43305	56		58		Securitization and financial market development can hardly be an instrument to reach "innovating solutions". The structures and functioning of financial markets and (shadow) banking are based on profitability issues, and this should be taken into account. In brief, drafting solutions and mechanism in line with the market and technology will hardly work, even in the short run. There is a need to discuss the ability of technological advancements and innovations to foster the transition detached from core implicit goals of profit-maximization and capital accumualtion.	Noted. The section includes reference to the fact that financial flows need to aligned with climate goals.	Daniele Tori in	The Open University Business School	United Kingdom (of Great Britain and Northern Ireland)
28021	57	1	57	2	Delete "fossil fuel".	Rejected. Deleting those words would underline the clarity of the sentence.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
82207	57	1	57	25	The recognition that higher risks in developing countries discourages low-carbon investments is welcome in this chapter.The chapter fails to venture into obvious political constraints seen in developing countries - some politicians often own businesses that are too lucrative and carbon polluting. Tuk Tuks in the Philippines and Kenya, taxis in the rest of Sub Saharan Africa are often owned by influential politicians, police, the security service personnel and so forth.	Noted. Such issues are beyond the scope of this report.	Smile Dube	California State University, Sacramento	United States of America
59009	57	11	57	11	A 20 January 2021 U.S. Executive Order established an Interagency Working Group of experts to develop new estimates of the social cost of carbon, nitrous oxide, and methane. Use of these measures in public investment and policy decisions as well as private investment decisions could have an enormous impact on reducing GHG emissions. This citation has been provided in the Chapter 1 general comments.	Taken into account. More in depth discussion of the inclusion of the social costs in public investment and policy decisions is outlined in other section and are outside the scope of this section.	Government of United States of America	U.S. Department of State	United States of America
59011	57	11	57	12	Statement does not make sense: "Local governments effort to de-risk might turn out negative and encourage privatisation of public services (Gabor, 2019)."	Accepted. Rewritten as: Local governments efforts to de-risk by securitization might have negative effects by narrowing the scope for a green developmental state and encouraging privatisation of public services (Gabor 2019).	Government of United States of America	U.S. Department of State	United States of America
79067	57	11	57	13	"While carbon taxes have negative effects on GDP, which can be alleviated from using the revenues of carbon taxes, it would raise the price of carbon intensive products as well as increase production costs of carbon-intensive firms (Dunz et al. 2020)." This is the whole point of carbon pricing. To correct a market failure since current prices and costs of carbon-intensive products have been allowed to be far too low for decades.	Taken into account. Please refer to section 9.9.3 for detailed discussion of carbon pricing.	Young-jin Choi	Phineo gAG	Germany
59013	57	12	57	14	More anti-market bias and poor writing style: "The developing of local capital markets and robust domestic financial systems is a priority however is a long term strategy for low and middle income countries and regions, with capacity - that choose to pursue that path."	Taken into account. The sentence was removed in revision of section.	Government of United States of America	U.S. Department of State	United States of America
70891	57	13	57	13	is it a priority or a long term strategy?	Accepted. The sentence was removed in revision of section.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
59015	57	15	57	17	Exaggerated view of opportunities resulting from the pandemic. There are massive negative impacts on climate-related investment.	Taken into account. It is true that ther have been massive negative impacts on climate-related investment. Neverthelss, the opportunity to restructure the economy into climate-friendly form by aligning the COVID-19 response packages with the Paris Agreement still exists. Refer to section 15.2.3.	Government of United States of America	U.S. Department of State	United States of America
59017	57	17	57	18	Who is doing this monitoring? Who has authority to ensure that ""private finance do(es) not flow into companies and assets that do not comply with the Paris Agreement""?	Taken into account. The sentence was removed in revision of section.	Government of United States of America	U.S. Department of State	United States of America
59019	57	17	57	22	Devote more attention to examples and sources of capital derisking.	Taken into account. Examples of de-risk such as securitization, government guarantees, robust policy design and better transparency are provided in the section.	Government of United States of America	U.S. Department of State	United States of America
59021	57	20	57	21	Not just governments, vital to focus on the private sector. Renewable energy is commercially viable and does not need a lot of government investment or subsidies now -- just removal of fossil fuel subsidies and electricity price subsidies, failure to collect payments from users, and elimination of regulatory and market barriers. This is not an issue of stimulus packages.	Taken into account. Renewable energy may require government support to be viable in certain contexts.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
23609	57	26	57	28	We recommand that this section address the risk of crowding-out.	Taken into account. Discussion of the risks of crowding-out have been added. Literature has discussed the risks of a low effectiveness of public interventions and of a crowding out effects of climate targeted public support to other innovation sectors (Buchner et al. 2013). However, much academic literature suggests no strong evidence of crowding out. (Deleidi et al. 2020). Examining the effect of public investment on private investment into renewables in 17 countries over 2004-2014, showed that the concept of crowding out or in does not apply well to sectoral studies and found that public investments positively support private investments in general.	Government of France	Ministère de la Transition écologique et solidaire	France
43301	57	26	57	45	The importance of financialization in shaping firm-level capital investment (in general) decision is well documented. The intervention of the public (State) actor should not be confined to "price or regulatory policies to reduce uncertainty on expected economic returns". In this respects, financial market liberalization and development can be understood as an 'institutional drivers' for speculative pressures in the non-financial corporate sector, especially in the case of larger companies. Reforming a financialised productive system requires coordinated public investments. In fact, the public sector can act as the catalyst and driver of a new phase in which corporations' objectives are essentially brought back to productive, stable, and green accumulation. A vast programme of public investment that can sustain and provide a sustainable direction to the private initiative (see our work Tori and Onaran, 2020 SER)	Noted. The role of government in helping create a enabling environment for increased climate flows to climate goals is further outlined in the section.	Daniele Tori in	The Open University Business School	United Kingdom (of Great Britain and Northern Ireland)
82965	57	26	59	46	This material is covered in Chapters 13 and 16 and it is not obviosu why this level of detail is needed.	Taken into account. The section has been edited and revised.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
83921	57	26	57	26	The heading spells 'public theory', which may not be caught by editorial revisions, but I don't think the authors want to say that. Do they want to say "Theory, public finance, ..." ? I suggest revisiting this title.	Accepted. Heading and contents have been revised.	Gregor Semieniuk	University of Massachusetts Amherst	United States of America
83925	57	26	58	10	Two recent studies relevant to this discussion are Polzin and Sanders (2020) discussing the suffifient availability but insufficient matching of private funds to financing needs in Europe, and Deleidi et al. (2020) noting that both evolutionary (Schumpeterian) and neoclassical theories advocate for public intervention in markets for new technologies, creating a perhaps surprising alignment of sometimes opposed theories. This is mainly because the often used idea of 'crowding out' is inapplicable to sectoral 'meso' not 'macro' problems. Full references: Polzin, F. and Sanders, M. (2020) 'How to finance the transition to low-carbon energy in Europe?', Energy Policy, 147, p. 111863. doi: https://doi.org/10.1016/j.enpol.2020.111863. Deleidi, M., Mazzucato, M. and Semieniuk, G. (2020) 'Neither crowding in nor out: Public direct investment mobilising private investment into renewable electricity projects', Energy Policy, 140, p. 111195. doi: https://doi.org/10.1016/j.enpol.2019.111195.	Taken into account. Added: However, much academic literature suggests no strong evidence of crowding out. (Deleidi et al. 2020).	Gregor Semieniuk	University of Massachusetts Amherst	United States of America
28023	57	30	57	30	Delete "(fossil fuels energy system)".	Rejected. Deletion of those words would make the sentence less clear.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
79063	57	32	57	34	"but the scale and urgency of change might force options of change to occur faster, supported by state policy because excessive financialisation may be impeding the establishment of new investments (Jerneck 2017)" No it is not that they "might" force options, they do.	Noted. The AR6 cannot state what actions policy makers must do, it can only outline climate change mitigation policy options.	Young-jin Choi	Phineo gAG	Germany
79065	57	42	57	44	"One implication of the latter is that new technologies might will not find their way [fast enough] to the market without price or regulatory policies to reduce uncertainty on expected economic returns. " This is what is empirically happening. This is what the finance gap is all about.	Noted. As there is evidence that this is empirically happening we include this statement.	Young-jin Choi	Phineo gAG	Germany
59023	57	43	57	48	In addition to discussing renewable energy financing, this chapter needs to devote more attention to AFOLU and climate adaptation financing.	Taken into account. AFOLU and climate adaptation financing is dealt with in more depth in other sections.	Government of United States of America	U.S. Department of State	United States of America
77883	57	44	57	44	As mentioned in line 60 above, securitization for energy efficiency alongside renewables	Noted. Sentence removed in revision of section.	Alex Rau	Climate Wedge LLC	United States of America
77885	57	48	57	48	POSSIBLE TYPO: "yield cost" or "yield cos", i.e. yield companies	Accepted. Sentence removed in revision of section.	Alex Rau	Climate Wedge LLC	United States of America
59025	58	4	58	11	Arguing against the efficient markets strawman does not do anything to advance climate financing.	Noted. Information on Efficient market theories is provided to help readers to understand the discussion better.	Government of United States of America	U.S. Department of State	United States of America
72333	58	4	58	10	You could point the reader to section 9.9.5	Accepted. Added: (see section 9.9.5).	bertoldi paolo	european commission	Italy

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
59027	58	6	58	10	Address the obsolescence of feed-in-tariffs and their replacement with competitive auctions.	Accepted. Added: Competitive auctions that the successful bidder with the lowest price or other criteria is selected for government's call for tender are increasing being utilised as an alternative to FITs due their strengths of flexibility, potential for real price discovery, ability to ensure greater certainty in price and quantity and capability to guarantee commitments and transparency (IRENA and CEM 2015).	Government of United States of America	U.S. Department of State	United States of America
59029	58	11	58	41	Within 'Financing Energy Efficiency' paragraph, add UESCs and their international equivalent.	Accepted. Section has been significantly revised and shortened.	Government of United States of America	U.S. Department of State	United States of America
59031	58	11	58	41	General discussions of the history of energy efficiency programs are more appropriate for an energy chapter (and are actually covered extensively in Chapter 11); they are tangential for the finance chapter.	Taken into account. Sentence has been removed in editing and shortening of section.	Government of United States of America	U.S. Department of State	United States of America
72331	58	23	58	31	The ESCO model also faces barriers and has some limited application to large buildings, very often public buildings, and only for cost-effective projects. The ESCO model is working best when the financing is provided by a third party, e.g. commercial banks, directly to the end users with the technical guarantee of the ESCO, which retain the technical risk of the project. When the financing is on the ESCO balance sheet an option to further stimulate the ESCO markets is to use forfeiting. Barriers and opportunities for ESCO business in the EU are discussed in the following articles, which should be cited here: Paolo Bertoldi, Benigna Boza-Kiss, Analysis of barriers and drivers for the development of the ESCO markets in Europe, Energy Policy, Volume 107, 2017, Pages 345-355, https://doi.org/10.1016/j.enpol.2017.04.023. The definitions of share and guaranteed savings were introduce in 2003 by Dressen, see P. Bertoldi, S. Rezessy, E. Vine, Energy service companies in European countries: current status and a strategy to foster their development, Energy Policy, 34 (14) (2006), pp. 1818-1832 For the residential sector the concept of One-Stop-Shop is emerging an a very effective method to organise the financing for the renovation of buildings (see https://e3p.jrc.ec.europa.eu/publications/one-stop-shops-energy-renovations-buildings), or see section 9.9.4	Taken into account. Section has been significantly revised and shortened.	bertoldi paolo	european commission	Italy
70893	58	25	58	25	ESCOs have been explained and treated in various places in the report. Please consider harmonizing	Taken into account. The section has been revised and edited.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
59033	58	26	58	49	This chapter on climate finance does not need a lecture about economic theories of innovation dating back to Schumpeter and Keynes and more recent theorists.	Taken into account. The authors think it is important to provide a brief summary of economic theories of innovation.	Government of United States of America	U.S. Department of State	United States of America
8809	58	31	58	33	Related to the importance of guarantees, Haas and Kempa (2020) show that that loan guarantees can prevent credit rationing of firms investing in new low-carbon technologies. Full reference: Haas, C. and Kempa, K. (2020), "Low-carbon Investment and Credit Rationing", SSRN Electrinic Journal. http://dx.doi.org/10.2139/ssrn.3521332	Accepted. Added: . Risk-sharing that bring together public agencies, firms, local authorities, private corporates, professional cooperatives, and institutional financiers can reduce costs (UNEP 2011), and support the deployment of innovative business models (Déau and Touati 2018). Combined with emission taxes they can contribute to reducing credit rationing of immature and risky low-carbon technologies (Haas and Kempa 2020).	Karol Kempa	Frankfurt School of Finance & Management	Germany
81825	58	31			see above. De-risking strategies may involve burden shifting on to governments (cf. Yannis Dafermos , Daniela Gabor & Jo Michell (2021): The Wall Street C onsensus in pandemic times: what does it mean for climate-aligned development?, Canadian Journal of Development Studies / Revue canadienne d'études du développement)	Taken into account. There is a possibility of such burden shifting but the evidence is of yet not clear.	Elena Hofferberth	University of Leeds	Switzerland

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86935	58	31	58	41	Government guarantees are an important 32 financial instrument that plays an important role in expanding climate finance, especially from the 33 private sector, with scarce public finance, by reducing the risk profile of the investment opportunities. 34 Investment guarantees issued by governments or development banks encourage oversea investments 35 usually by covering political risks (IIGCC 2015). Different types of government guarantees mitigate 36 the various types of risks surrounding investment opportunities. For example, government guarantees, 37 such as loan guarantees or investment guarantees, are the direct instruments for reducing the risk profile 38 of the private sector investment (Climate Action Network 2013). Risk-sharing allows participants to 39 increase the amount and number of resources and participants, to leverage scarce public finance to 40 maximise the impacts, and to take shared and common approaches among financial actors (UNEP 41 2011). We should help the reader by cross-referencing this important role that guarantees play in derisking as discussed in the section 15.6.7 development of local capital markets	Noted. Section has been edited and shortened. Due to space limitation is was not possible to cross-reference.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
51629	58	32	58	41	Guarantees are an important financial instrument to reduce private sector risk. But guarantees do not reduce risk so much as allocate them to government rather than private sector. The risks to the government are substantial and include not just political but also demand risk (with fixed power purchase agreements) currency risk (fixed in USD) and they present a risk to government that they will be unable to adopt new and cheaper technology as they are tied to a fixed price PPA for decades.	Taken into account. It is true that such guarantees may increase risk to governments but given the scale of financing required it is important to induce greater private sector finance through risk reduction. There is also a lack of available evidence on the negative side of government guarantees.	Kate Bayliss	SOAS, University of London	United Kingdom (of Great Britain and Northern Ireland)
59035	58	34	58	41	There is an excessive emphasis on government roles in reducing the risks of energy (and renewable energy) investments and many old references (2011, 2013, and 2015). This can also be done by the private sector. Companies such Swiss Re and Munich Re are already involved. See: https://pdf.usaid.gov/pdf_docs/PA00X136.pdf	Noted. The private sector can also reduce risk but in many contexts government action in risk reduction is needed.	Government of United States of America	U.S. Department of State	United States of America
81827	58	38			Awareness needed that it will not result in sharing of risks, but privatisation of gains.	Noted. That is not clear according to the available evidence. As stated in the text risk-sharing can increase the amount of resources and participants, which is necessary given the scale of the challenge of mitigating climate change.	Elena Hofferberth	University of Leeds	Switzerland
52931	58	42	59	46	Carbon Pricing & ETS: Must reflect all socio-economic impacts of these policies (e.g. Paris Yellow Vests) as well as cross border impacts on Fossil Fuel dependent economies.	Taken into account. Please refer to section 9.9.3 for detailed discussion of carbon pricing.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
59037	58	42	59	46	This would be a good area to discuss Border Adjustments for carbon (https://brill.com/view/title/54098).	Noted. Please refer to section 9.9.3 for detailed discussion of carbon pricing.	Government of United States of America	U.S. Department of State	United States of America
70895	59	1	59	25	The treatment of carbon prices is too superficial: 1. What is missing here is that carbon prices can have an important role in making stranded assets less sweet. They are therefore an indispensible element of a low carbon strategy. If you want to have a reference where this is analyzed in detail, you can refer to various grey literature, such as: https://www.ce.nl/publicaties/1822/investment-challenges-of-a-transition-to-a-low-carbon-economy-in-europe. 2. The statement that carbon taxes have negative effects on GDP is superficial. In general they tend to have very small negative impacts on GDP, but there are more complex econometric models that even predict positive outcomes. https://www.sciencedirect.com/science/article/pii/S0140988316300032 gives an interesting overview of potential impacts. 3. The statement that " The effectiveness and results of carbon pricing so far have been mixed" is not supported by literature and should not be made here. It is fair to say that "carbon pricing has been largely absent for capital intensive sectors, such as industry, by formulating numerous exemptions for reasons of competiveness" as has been observed in Chapter 11. This is a much more realistic explanation why carbon pricing so far has not resulted in substantial emission reductions.	Taken into account. Please refer to section 9.9.3 for detailed discussion of carbon pricing.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
72335	59	1	59	13	You could point the reader to section 9.9.3 page 78, discussing in much more details the impact of carbon taxes and the double divided.	Accepted. Added: (see Chapter 9.9.3 for carbon taxes).	bertoldi paolo	european commission	Italy

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82209	59	1	59	13	This position seems reasonable but it is conditionally determined by HOW carbon tax revenues. Zimbabwe has for years had the carbon tax which was meant to reduce carbon emissions. However, the government being unaccountable to its citizens simply co-mingled these receipts into the general revenue found and used it for other expenditures. At the same, it allowed the imports of dirtier diesel (high sulphur content because it is cheaper) and negated the idea behind a carbon tax.	Noted. Such issues are outside the scope of this section.	Smile Dube	California State University, Sacramento	United States of America
23611	59	3	59	6	We recommand to mention in addition to this statement that the lower social acceptance of carbon taxation and need for redistributive policies	Taken into account. The following statement has been added: The reallocation of revenues from carbon taxes can be used for low-carbon investments, supporting poorer sections of society and fostering technological change (High-Level Commission on Carbon Prices 2017).	Government of France	Ministère de la Transition écologique et solidaire	France
8811	59	6	59	8	Consider rewording the sentence, it is not clear, to me at least, what is meant here.	Accepted. Changed to: The reallocation of revenues from carbon taxes can be used for low-carbon investments, supporting poorer sections of society and fostering technological change (High-Level Commission on Carbon Prices 2017).	Karol Kempa	Frankfurt School of Finance & Management	Germany
63427	59	9	59	10	It would be helpful to provide an assessment of the efficacy of carbon taxes and different levels.	Taken into account. Refer to section 9.9.3 for more detailed discussion of carbon taxes.	Government of Canada	Environment and Climate Change Canada	Canada
28921	59	11	59	13	What about subsidies. And reorienting them towards low carbon activities? Climate agreements' implementation through energy transition and economic diversification in Kuwaït in Gulf stud. In: Economic Development in the Gulf Cooperation Council Countries - From Rentier States to Diversified Economies. Miniaoui Hela (Ed.) vol. 1, Chap. 2	Taken into account. The following statement has been added: The reallocation of revenues from carbon taxes can be used for low-carbon investments, supporting poorer sections of society and fostering technological change (High-Level Commission on Carbon Prices 2017).	Nathalie Hilmi	Centre Scientifique de Monaco	France
59039	59	11	59	11	Taxes have no effect on GDP, by definition they are included. They affect the distribution of income, but not national income levels.	Accepted. The following sentence has been deleted: "While carbon taxes have negative effects on GDP, which can be alleviated from using the revenues of carbon taxes, it would raise the price of carbon intensive products as well as increase production costs of carbon-intensive firms (Dunz et al. 2020)."	Government of United States of America	U.S. Department of State	United States of America
59041	59	12	59	13	The whole point is to build the externality costs into the product prices to reduce consumption of GHG-intensive products and stimulate substitution.	Accepted. The following sentence has been deleted: "While carbon taxes have negative effects on GDP, which can be alleviated from using the revenues of carbon taxes, it would raise the price of carbon intensive products as well as increase production costs of carbon-intensive firms (Dunz et al. 2020)."	Government of United States of America	U.S. Department of State	United States of America
59043	59	13	59	13	See RFF publications on carbon taxes: https://www.rff.org/search/?query=carbon+tax&order=	Accepted. The following sentence has been deleted: "While carbon taxes have negative effects on GDP, which can be alleviated from using the revenues of carbon taxes, it would raise the price of carbon intensive products as well as increase production costs of carbon-intensive firms (Dunz et al. 2020)."	Government of United States of America	U.S. Department of State	United States of America
15323	59	14	59	23	The statement here in this paragraph is inaccurate. Suggested changes: 1. carbon taxes should be Carbon price; 2. China's carbon trading started its pilot phase in 2013, not 2005. 2005 should be the year when CDM started to enter China.	Accepted. The paragraph has been edited according to the suggested changes.	Government of China	China Meteorological Administration	China
18569	59	14	59	23	The paragraph could be revised as it starts by saying that ETS are effective but finishes by two examples of the exact opposite of 2 examples (EU and China). The example of China is also confusing as the text itself appears to say that China achieved emission reductions through the ETS pilot. Line 15 is missing something "for example...". Finally, the reference to "carbon taxes" on line 19 should also be amended to "carbon pricing" as to avoid confusion with the other form of carbon pricing through taxation.	Taken into account. The paragraph has been revised and edited as suggested.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
59045	59	16	59	16	Caveats are needed because the Government of Mexico has reversed key reforms in this area. See: https://www.thedialogue.org/wp-content/uploads/2020/08/Mexican-Power-Sector-Policies_Final.pdf	Accepted. Deleted: For example, (Barragán-Beaud et al. 2018) recommended that ETS is the most appropriate 16 mechanism with better political feasibility and cost-effectiveness in the Mexican electricity market.	Government of United States of America	U.S. Department of State	United States of America
23613	59	17	59	18	We suggest to take a more mature ETS as an example (e.g. Québec-California, or EU). Until early 2021, the Chinese pilot ETS is not yet a fully-fledged ETS: there is no auction nor price owed by emitting installations.	Taken into account. The EU ETS has been added, and the paragraph has been edited and revised.	Government of France	Ministère de la Transition écologique et solidaire	France
77887	59	17	59	17	CORRECTION: China's original 7 pilot ETS markets were announced in 2011 and started in 2013, were not operational prior to 2011.	Accepted. Edited accordingly.	Alex Rau	Climate Wedge LLC	United States of America
72337	59	18	59	23	The statement "evident from the poor performance of the EU ETS and those in China (Lo 2016)." is not anymore valid. There is ample literature showing the effectiveness of the EU ETS in particular after the introduction of the Market Stability Reserve (MSR) of the EU Emissions Trading System (ETS), carbon price is now about 25 Euro (see https://markets.businessinsider.com/commodities/co2-european-emission-allowances) and the ETS is expected to deliver 40% of the EU 2030 GHG target.	Accepted. That statement has been deleted. The paragraph has been edited and revised.	bertoldi paolo	european commission	Italy
23615	59	19	59	19	Concerning the statement "carbon taxes too low" in this line, we suggest a rephrasing as it may be a typo. ETS and carbon taxes are two different options: in a ETS, emissions are capped but prices float. If the sentence was intended to refer to shortcomings of an ETS, it could refer to exemptions or to caps that are set too high (not tight enough).	Accepted. That statement has been deleted. The paragraph has been edited and revised.	Government of France	Ministère de la Transition écologique et solidaire	France
46401	59	21	59	22	Regarding the three alleged problems "limited financial involvement, incomplete regulatory infrastructure, and excessive government intervention": please clarify that/if the quoted literature on these specific problems (Lo 2016) refers to Chinese ETS. The three problems are certainly not a major issue in the EU-ETS (and also have not been in the past). Please revise.	Accepted. That statement has been deleted. The paragraph has been edited and revised.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
23617	59	22	59	23	The statement "as evident from the poor performance of the EU ETS and those in China (Lo 2016).The effectiveness and results of carbon pricing so far have been mixed. Emissions reductions" is in contradiction with the beginning of the paragraph: Please make it clear whether the EU ETS and the Chinese ETS have been successful or not. (The EU ETS has delivered a 20% emissions reduction between 2005 and 2020)	Accepted. That statement has been deleted. The paragraph has been edited and revised.	Government of France	Ministère de la Transition écologique et solidaire	France
46403	59	22	59	23	Please correct or delete the last part of the sentence: the strong judgement of "poor performance" is not substantiated by literature at all here (the only quoted reference (Lo 2016) investigates the Chinese systems, but not e.g. the EU-ETS. Also, the vulnerabilities listed in the beginning of the sentence are no substantiation for assigning a generally "poor performance", without further citations or evidence given.	Accepted. That statement has been deleted. The paragraph has been edited and revised.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
59047	59	23	59	23	See RFF publications on cap and trade programs: https://www.rff.org/publications/all-publications/?query=cap+and+trade&order=	Taken into account. That statement has been deleted. The paragraph has been edited and revised.	Government of United States of America	U.S. Department of State	United States of America
78013	59	23	59	24	Suggested edit: In between these sentences add the following paragraph: "However, some analysists believe that many of these problems may be alliviated in international ETS systems, like the Kyoto cap and trade system, if all countries were covered by emissions limits (that for developing countries could be conditioned on receiving developed country funding), and were responsible for reaching their national targets, as aggregate net national emission reductions can be measured more accurately and reliably than those of individual projects (Chichilnisky and Bal 2019, 262-71) (Hahnel 2012, 2012a, 2013) (Baiman 2021). ETS systems, like the Kyoto cap and trade system and the European Union Emissions Trading System (EU ETS), have been able to generate significant and effective financing through market mechanisms without reliance on public or private voluntary contributions. For example, from 2001 to 2018 the Kyoto ETS Clean Development Mechanism (CDM) generated $ 303.8 B and offset almost 2 GT CO2e, whereas the voluntary Green Climate Fund established at COP17 in 2011 has rasied $ 8.3 B from 2015 to 2020 (UNFCCC 2018) (Green Climate Fund 2018). Kyoto Accord crediting mechanisms generated almost 75% of all emissions credits issued from 2002 to 2019, and more than half of carbon pricing initiatives (ETS or carbon tax) that covered 61% of global emissions in 2020 are ETS (World Bank 2020). Recent evidence suggests that the EU ETS, that came out of the Kyoto ETS, cut EU emissions by 1.2 GT C02 from 2008 - 2016, and that the EU will cut its emissions by 21% from 2005 levels by 2020 (Bayer and Aklin 2020) (Kramer 2019)." Rationale: See references. References: Bayer, Patrick and Michael Aklin. 2020. The European Emissions Trading System reduced CO2 emissions despite low prices. PNAS 117(16): 8804-12. Chichilnisky, Graciela and Peter Bal. 2019. Reversing Climate Change. Singapore: World Scientific Publishing Co. Pte. Ltd. Kramer, David. 2019. Should carbon emissions be taxes or capped and traded? PhysicsToday. 72(28): 28-30. Hahnel, Robin. 2012. Left clouds over climate change policy. Review of Radical Political	Taken into account. Thank you for your detailed suggestions, but such discussion of carbon pricing is outside the scope of this chapter. Please refer to section 9.9.3 for more detailed discussion of carbon taxes.	Ron Baiman	Benedictine University	United States of America
18577	59	24	59	46	The paragraph appears to paint a negative picture of carbon pricing, especially in developing countries, in what appears to be a contradiction to line 3-6 of the same page. The authors mention that the effectiviness of carbon pricing is limited without strong political support, which is entirely correct, but has this changed in recent years? The authors could also clarify the options ahead i.e. given that more countries are adoptign carbon pricing, what would be the needed level for carbon pricing to be more effective? The IMF has recently mentioned that carbon taxes are the most powerful tool to "give people and firms incentives to reduce energy use and shift to clean energy sources" if implemented taking into consideration the political economy. https://blogs.imf.org/2019/10/10/fiscal-policies-to-curb-climate-change/	Taken into account. That statement has been deleted. The paragraph has been edited and revised.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
46405	59	24	59	46	The paragraph intends to inform about "the effectiveness and results of carbon pricing". The aspect of "revenue recycling" is missing, though, and should be mentioned in this paragraph, as revenues of carbon pricing can be used to promote mitigation activities and / or to address distribution concerns (please refer to chapter 13.6.3.3)	Taken into account. The following statement has been added: The reallocation of revenues from carbon taxes can be used for low-carbon investments, supporting poorer sections of society and fostering technological change (High-Level Commission on Carbon Prices 2017).	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
23619	59	25	59	25	Regarding the statement "due to the low taxe rates" we recommand to quote the Report of the High-Level Commission on Carbon Prices, on the level advocated for carbon pricing ($40-80 by 2020, $50-100 by 2030) or other research identified by AR6.	Taken into account. That statement has been deleted. The paragraph has been edited and revised.	Government of France	Ministère de la Transition écologique et solidaire	France
72339	59	31	59	46	Please note that also the IPCC Special Report 1.5 C concluded in Chapter 4 that other policy instruments beside carbon price instruments are needed, in particular regulatory instruments and incentives (which can also be funded by carbon tax or ETS revenues). In particular, for the building sector building code and appliances standards (regulatory instruments) are also very effective in developed countries (see section 9.9.3), as many end-user are not responding to price signal due to different barriers.	Taken into account. Mention of the importance of regulatory instruments has been added to the section.	bertoldi paolo	european commission	Italy

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
18571	59	33	59	35	These lessons also apply to carbon taxation and fossil fuel subsidy reforms. I would suggest adding this to sentence or replacing the term ETs with "carbon pricing and fossil fuel reforms"	Noted. That may be the case but the particular literature (Narassimhan et al. 2018) is regarding ETS.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
18573	59	35	59	38	"… (Finon 2019) argued the role of the non-carbon price instruments….". This sentence is missing something. What did this paper argue?	Accepted. Changed to: Non-carbon price instruments, such as market-oriented regulation and public programs involving low carbon infrastructure, may be preferential in developing countries where market and regulatory failure and political economy constraints are more prevalent (Finon 2019).	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
23621	59	35	59	40	Conversely, also provide cases where carbon pricing policies can address shortcomings of command-and-control policies. Carbon pricing can be a "safety net" complementing non-carbon price policies, as it will apply to emissions cross the board if other policies fail to deliver emissions reductions. (Ember 2018 https://ember-climate.org/commentary/2018/03/14/better-safe-than-sorry/; Vailles and Berghmans 2020 https://www.iddri.org/en/publications-and-events/op-ed/re-shaping-eu-ets-safety-net-not-driver)	Noted. Such detailed discussion of carbon pricing is outside the scope of this section. Please refer to section 9.9.3 for more detailed discussion of carbon pricing.	Government of France	Ministère de la Transition écologique et solidaire	France
28923	59	35	59	46	What about carbon credits and carbon offsetting?	Taken into account. Such detailed discussion of carbon pricing is outside the scope of this section. Please refer to section 9.9.3 for more detailed discussion of carbon pricing.	Nathalie Hilmi	Centre Scientifique de Monaco	France
84775	59	37	59	37	Suggest removing 'command and control' or otherwise explain what is meant	Accepted. Removed term.	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
18575	59	38	59	40	Is there any evidence for this? Perhaps we can say that there isn't enough evidence given that very few developing countries actually have any form of carbon pricing? This also appears to contradict what it says on p.59 line 3 and 4.	Noted. There is not definitive evidence but (Finon 2019) outlines the argument for this. "Non-carbon price instruments, such as market-oriented regulation and public programs involving low carbon infrastructure, may be preferential in developing countries where market and regulatory failure and political economy constraints are more prevalent (Finon 2019). "	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
78015	59	40	59	42	Suggested edit: Remove apparently factually incorrect sentence: "To date ... 2020b)." Rationale: See (World Bank Group 2020a) p.18 and p. 25.	Taken into account. Sentence was removed in revision and shortening of section.	Ron Baiman	Benedictine University	United States of America
23623	59	41	59	42	Regarding the statement "64 carbon pricing initiatives were implemented or scheduled for implementation, and covered only 22% of global GHG emissions (World Bank Group 2020b) REF : World Bank, State and Trends of Carbon Pricing, May 2020. https://openknowledge.worldbank.org/bitstream/handle/10986/33809/9781464815867.pdf?sequence=4&isAllowed=y I4CE, Global Carbon Account 2020, May 12, 2020. https://www.i4ce.org/download/global-carbon-account-2020 CPLC, Report of the High-Level Commission on Carbon Prices, May 29, 2017. https://static1.squarespace.com/static/54ff9c5ce4b0a53decccfb4c/t/59b7f2409f8dce5316811916/1505227332748/CarbonPricing_FullReport.pdf IEA, World Energy Outlook 2019, November 13, 2019. https://www.iea.org/reports/world-energy-outlook-2019	Taken into account. Sentence was removed in revision and shortening of section.	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
78017	59	46	59	46	Suggested edit: At end of end of sentence add: "However, recent evidence suggests that the EU ETS, that came out of the Kyoto ETS, cut EU emissions by 1.2 GT C02 from 2008 - 2016, and that the EU will cut its emissions by 21% from 2005 levels by 2020 (Bayer and Aklin 2020) (Kramer 2019). Given this, other analysts note that ETS regimes that are coupled with new fossil-fuel powered carbon-negative power generation technology could benefit existing and emerging industries and benefit economic growth in both developed and developing nations and restore climate stability. In particular, they argue that an International ETS such as a revised conditional reauthorization of the Kyoto cap and trade and CDM that would cover all parties may the best and only way to rapidly generate and transfer adequate funding and technology from developed to developing countries fast enough to avert climate catastrophe even as its support rapid economic development in both the north and the south (Chichilnisky and Bal 2019, p. 262-71). Though the failure to reauthorize the international Kyoto mantatory cap and trade regime has led to a collapse of trading credit for GHG mitigation and removal relative to its 2012 peak, multinational, national, and subnational ETS regimes and their coverage are growing. As of 2021, 61 carbon pricing initiatives have been implemented or scheduled for implementation, and cover 61% of global carbon emissions (World Bank Group 2020a)." Rationale: See references. Also, the developing country carbon pricing constraints identified in the second part of the paragraph will be less of a problem for tracking aggregate national emissions and this may be the only way to secure adequate funding for green technological development and technology per Baiman Chap. 15: Investment and finance p. 59 line 23 to 24 suggested edit. References: Bayer, Patrick and Michael Aklin. 2020. The European Emissions Trading System reduced CO2 emissions despite low prices. PNAS 117(16): 8804-12. Chichilnisky, Graciela and Peter Bal. 2019. Reversing Climate Change. Singapore: World	Taken into account. Such detailed discussion of carbon pricing is outside the scope of this section. Please refer to section 9.9.3 for more detailed discussion of carbon pricing.	Ron Baiman	Benedictine University	United States of America
46407	59	47	60		On the role of the subsection on domestic funding sources: This section should reference other sections where fiscal policies are discussed (page 58), otherwise the reader might get the impression that SIB are the major source of domestic finance. Please also reference the vast research on state owned enterprises (which generate revenue steams or losses) and green investment banks.	Taken into account. The subsection on domestic funding sources has been expanded to include sources other than state investment banks.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
59049	59	47	60	10	Discussion of domestic sources of financing should not be limited to state-owned banks.	Taken into account. The subsection on domestic funding sources has been expanded to include sources other than state investment banks.	Government of United States of America	U.S. Department of State	United States of America
86937	59	47	59	47	Role of domestic funding sources. We should mention the importance of improving domestic resource mobilisation including the UN Addis Abbaba Action Agenda for Financing Development - one of the blueprints for " developing country universe".	Taken into account. The subsection on domestic funding sources has been expanded to include sources other than state investment banks.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
63429	60	3	60	5	It would be helpful to provide an overview of financial instruments and considerations for distribution of financing between instruments (e.g., equity, loans, bonds).	Noted. Such detailed discussion of financial instruments (equity, loans, bonds) is outside the scope of this section	Government of Canada	Environment and Climate Change Canada	Canada
81829	60	5			see above. De-risking strategies may involve burden shifting on to governments (cf. Yannis Dafermos , Daniela Gabor & Jo Michell (2021): The Wall Street C onsensus in pandemic times: what does it mean for climate-aligned development?, Canadian Journal of Development Studies / Revue canadienne d'études du développement)	Noted. Thank you for the provided literature recommendation but it was not possible to include due to limited space in section.	Elena Hofferberth	University of Leeds	Switzerland
59051	60	11	60	24	Define 'societal costs'. Externalities? The IRENA range in LCOE is not due to externalities but solar resource, soft costs, etc.	Taken into account. The sentence has been edited to make it clearer.	Government of United States of America	U.S. Department of State	United States of America
59053	60	11	60	43	Discussion of enabling environment for renewable energy belongs in Chapter 6. It is tangential for a climate finance chapter.	Noted. The authors think it is relevant to the enabling environment for proactive climate action.	Government of United States of America	U.S. Department of State	United States of America
70897	60	11	68	43	This box on LCOE is extremely useful and deserves more prominence in the ES. However, its title does not really match the content. I would call it something like 'scale-up of renewable energy: breaking down the final barriers'. The box is important because there is a mismatch between bold claims (e.g. IEA's claim that PV is the cheapest energy ever) vs continued investment in fossil fuel systems. Clarifying the limitations of LCOE and the barriers that it does not address is therefore extremely helpful. In addition to the financial and technical arguments, it is also worth mentioning political economy considerations. e.g. renewables can sometimes be a threat to large incumbent producers, and social tariffs can be difficult to escape from (either because the incumbents provide subsidised energy to consumers, or the reverse - because energy bills are implicitly part of government revenue, or needed to cover the debts of the incumbents). This is one example: https://doi.org/10.1525/cse.2018.001297	Noted. It is outside the scope of this section to discuss the political limitation of LCOE in greater detail.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
74277	60	11	60	43	A similar "Box" should be added to discuss "The role of enabling environments for decreasing economic cost of nuclear energy.	Noted. Such detailed discussion of nuclear energy is outside of the scope of this section.	Jeffrey Merrifield	Pillsbury Law Firm	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82967	60	11	60	43	Not sure why this box is in this chapter.	Taken into account. The authors think it is relevant to the enabling environment for proactive climate action.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
59055	60	25	60	28	Feed-in-tariffs have been replaced with competitive auctions. Update references.	Taken into account. Added: Competitive auctions that the successful bidder with the lowest price or other criteria is selected for government's call for tender are increasing being utilised as an alternative to FITs due their strengths of flexibility, potential for real price discovery, ability to ensure greater certainty in price and quantity and capability to guarantee commitments and transparency (IRENA and CEM 2015).	Government of United States of America	U.S. Department of State	United States of America
59057	60	25	60	43	Consider eliminating this paragraph.	Taken into account. The content has been reduced.	Government of United States of America	U.S. Department of State	United States of America
59059	60	39	60	43	Increasing general interest rates is not currently relevant in this macroeconomic environment and is unlikely to be relevant for several years.	Accepted. The content has been reduced.	Government of United States of America	U.S. Department of State	United States of America
59061	60	40	60	41	Despite the 2018 opinion reported here, renewable energy costs have continued to decline since then.	Accepted. The content has been removed.	Government of United States of America	U.S. Department of State	United States of America
15051	60	44	60	44	Incorrect grammar : two "and"s and missing noun after "public-private"	Accepted. Incorrect grammar has been corrected.	Galina Hale	UC Santa Cruz	United States of America
81831	60	44	62	31	A critical stance towards current trend of PPP required as it involves a number of risks, see Kate Bayliss & Elisa Van Waeyenberge (2018) Unpacking the Public Private Partnership Revival, The Journal of Development Studies, 54:4, 577-593	Noted. More detailed discussion of PPP is outside the scope of this chapter.	Elena Hofferberth	University of Leeds	Switzerland
83923	60	44	61	36	This subsection (but would perhaps also fit a few pages earlier) could benefit from citing two recent studies Corrocher and Cappa (2020) and Deleidi et al. (2020) that estimate the effect of public (not state development bank) finance on mobilizing private finance using quantitative analytical frameworks and project-level investment data (unlike many other studies looking at capacity data only and an indicator variable only to represent public investments). Full references: Corrocher, N. and Cappa, E. (2020) 'The Role of public interventions in inducing private climate finance: An empirical analysis of the solar energy sector', Energy Policy. Elsevier Ltd, 147(July), p. 111787. doi: 10.1016/j.enpol.2020.111787. Deleidi, M., Mazzucato, M. and Semieniuk, G. (2020) 'Neither crowding in nor out: Public direct investment mobilising private investment into renewable electricity projects', Energy Policy, 140, p. 111195. doi: https://doi.org/10.1016/j.enpol.2019.111195.	Taken into account. Deleidi, M., Mazzucato, M. and Semieniuk, G. (2020) has been added to the section.	Gregor Semieniuk	University of Massachusetts Amherst	United States of America
84779	60	45	61	16	Useful to say what 'at various levels' refers to? ref page 61, line 16 to 'a higher level' appears to refer to refinancing so I infer levels means along the project pipeline, or is it linked to scale?	Taken into account. The sentence has been deleted.	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
79103	60	47	60		What about the government as a public commissioner of infrastructure modernization? A more flexible electricity grid, for instance, is a key enabler to accelerate renewable energy adoption but is unlikely to be paid for privately.	Noted. This sub section is regarding public-private mobilisation narrative and current initiatives.	Young-jin Choi	Phineo gAG	Germany
84777	60	47	60	48	Adding a short additional explanation at the end of the introductory sentence on what 'Role of domestic funding sources' is covering (public or private finance or both?) as it goes on to mainly focus on state investment banks as an answer.	Taken into account. The subsection on domestic funding sources has been expanded to include sources other than state investment banks.	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
59063	61	1	61	3	This sentence is too vague to be useful: "Private sector investments can happen at various levels depending on the level of remaining risk allocation to the public sector as well as the level of due diligence, project management, and aggregation being provided by the public sector."	Accepted. The sentence has been deleted.	Government of United States of America	U.S. Department of State	United States of America
86477	61	1	61	3	This sentence is repeated twice.	Accepted. The sentence has been deleted.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
59065	61	4	61	6	Not necessarily true that government development bank loans are on subsidized (concessional) terms. Also, access to loans is often more important to SMEs than a subsidized interest rate.	Taken into account. Paragraph has been revised and edited.	Government of United States of America	U.S. Department of State	United States of America
59067	61	6	61	6	Longer loan tenor is not a subsidy.	Taken into account. Sentence has been removed. Paragraph has been revised and edited.	Government of United States of America	U.S. Department of State	United States of America
84781	61	8	61	9	This is a really important and useful point for policymakers to understand different appraoches to risk (from different actors): "concessional loans could be replaced by commercial financing in combination with public sector guarantees and subsidies".	Noted. We appreciate your comment. The paragraph has been revised and edited.	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86939	61	11	61	12	Section 15.6.2.1 cross border instruments, sovereign guarantees, supraguarantor, boosting the USD annual climate finance commitment Given the high level of required subsidisation, many development and climate projects in 11 developing and emerging countries have traditionally been supported with concessional loans by 12 DFIs/IFIs, combining both elements described above. Nevertheless, three uncertainties remain. First, only those countries and regions with highest credit- 24 ratings (AAA or AA) with access to deep financial markets and excess savings will be able to mount 25 such counter-cyclical climate investment paths, typically high-income developed economies. In more 26 debt constrained countries have and lower access to global savings pool countries because of higher 27 risk perceptions and lower credit ratings (BBB or less), exacerbated by COVID-19 and already leading 28 to credit downgrades and defaults (Kose et al. 2020) and have long tended to be fiscally pro-cyclical 29 (Mcmanus and Ozkan 2015). These include the general class of virtually all major emerging and 30 especially low-income developing countries, to which such demand-stimulating counter-cyclical 31 climate consistent borrowing path is likely To access such funds, these countries would need globally 32 coordinated fiscal policy and explicit supporting cross-border instruments, such as	Noted. Such issues are outside the scope of this section.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59069	61	15	61	16	Does not reflect the fact that the more financing subsidies, the fewer potential recipients of financing. Also does not account for crowding out of commercial bank financing. Many developing country banks report a shortage of bankable loan applications, relative to their available lending capital.	Taken into account. Concerns regarding crowding-out are already included in the paragraph. Literature has discussed the risks of a low effectiveness of public interventions and of a crowding out effects of climate targeted public support to other innovation sectors (Buchner et al. 2013). However, much academic literature suggests no strong evidence of crowding out. (Deleidi et al. 2020). Examining the effect of public investment on private investment into renewables in 17 countries over 2004-2014, showed that the concept of crowding out or in does not apply well to sectoral studies and found that public investments positively support private investments in general.	Government of United States of America	U.S. Department of State	United States of America
75625	61	15	61	17	This comment pertains solely to the editors as it has nothing to do with content! The other recurring stylistic issue that recurs throughout the chapter, is certain paragraphs being written in what almost seems 'reverse order' – with the main take-away, the main message of the passage at the end of the paragraph/leaning towards the end. Considering how packed each paragraph is with scientific information, it would be appreciated if the editors would consider paying attention to having the principal sentence at the start of each new (sub-) topic. A good example can be found in section 15.6.2.1 The public-private and mobilisation narrative and current initiatives. One of the paragraphs where putting the main/core sentence (" take-away"; in this case it seems to be this: "The combination of the financing and subsidisation element at the project/asset level has traditionally shifted private sector involvement to a higher level (refinancing of DFIs/IFIs on capital markets if at all) ") at the very start of the paragraph would give the reader immediate guidance as to what this piece of information – densely packed with important information, sentence for sentence – will precisely argue for/bring across!	Taken into account. The paragraph has been edited to make it's key points clearer.	Amira El-Feiaz	Technische Universiteit Eindhoven	Netherlands
19097	61	20	61	21	The report introduces PPP late. The PPP concept should feature explicitly in the framing of the report. Why? Two principal forces are shaping our world – climate change and the fourth industrial revolution (4IR). These forces have thrown the world in a transition and deep complexity. We need PPP to navigate public space – to deliver the services people expect. So, we must manage more efficiently risks of the transition. But the PPP concept has been abused. It has been reduced to a procurement tool. Therefore, a key global report such as the present should attempt to draw PPP back to the high policy pedestal. The report should include PPP in the framing chapter.	Noted. More detailed discussion of PPP is outside the scope of this section.	Fred Amonya	Lyciar	United Kingdom (of Great Britain and Northern Ireland)
59071	61	28	61	31	Unclear and seems to reflect anti-private sector bias.	Taken into account. The sentence has been removed.	Government of United States of America	U.S. Department of State	United States of America
59073	61	34	61	35	Delete unattributed opinion: "Selected authors also flag the risk of an overemphasis on private sector finance and the reduced focus on increased public sector funding to accelerate climate action."	Taken into account. Sentence has been removed. Paragraph has been revised and edited.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
59075	61	35	61	36	It is not the private sector's role to finance what is more appropriate for public sector financing.	Noted. All sectors will be needed to be actively involved in climate change mitigation.	Government of United States of America	U.S. Department of State	United States of America
79069	61	35	61	35	"Shortfalls in public sector funding might not be picked up by the private sector as hoped (Clark et al. 2018)." "Might not"? This has been empirically the case for the past years to decades. Hence the climate financing gap.	Taken into account. Sentence has been revised: The role of government is crucial for creating an enabling environment for climate (Clark 2018).	Young-jin Choi	Phineo gAG	Germany
82211	61	41	61	47	I think the assertion that failure to align post Covid-19 expenditures and investment to the Paris Agreement results in stranded assets, carbon lock-ins is completely implausible even for developed countries. As these countries emerge from depressed growth over the 2020-21 period, their concern is to stimulate the economy to solve the unemployment problem. I doubt that meeting Paris Agreement targets is the highest priority. The case for developing countries is actually dire - they cannot afford to employ fiscal policy to stimulate their economies with causing high inflation.	Taken into account. Thank you for your comment. Impact of COVID-19 pandemic section is added to the chapter	Smile Dube	California State University, Sacramento	United States of America
79071	61	42	61	45	"A missing alignment of public funding and investment activity with the Paris Agreement (and sustainable development goals) would result in significant carbon lock-ins, stranded assets and thus increase transition risks and ultimately economic costs of the transition". Sadly, this has been the case. https://www.energypolicytracker.org/region/g20/	Noted. Thank you for your comment	Young-jin Choi	Phineo gAG	Germany
30605	61	45	62	2	Other regulatory challenges to implement BCAs can be added, such as its scope of applicability (i.e. which policies, goods, sectors, countries), the methodology for assesing the carbon content of products, and how the resulting revenues will be used, as mentioned in Cosbey et al. (2019).	Noted. Thank you for your suggestion. The section has been revised. However, it wasn't able to include the details and contents due to limited space	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan
59077	61	45	61	47	Continuing overemphasis in this chapter on short-term public stimulus.	Noted. It is important to discuss the impact of COVID-19 and recovery packages	Government of United States of America	U.S. Department of State	United States of America
59079	61	47	62	1	Why is this important? "a third of which being spent in liquidity support and healthcare"	Noted. Thank you for your comment. It is providing additional information on COVID-19 related fiscal expenditure	Government of United States of America	U.S. Department of State	United States of America
59081	62	1	62	2	This sentence is not relevant to the chapter.	Noted. Thank you for your comment. LAs decided this information is relevant to the discussions in 'Higher public spending levels driven by the impacts of COVID-19 and related recovery packages'	Government of United States of America	U.S. Department of State	United States of America
59083	62	6	62	7	The goals of macroeconomic stimulus are to spend money as quickly as possible and benefit the most vulnerable populations. These goals are often inconsistent with sound medium-term and long-term solutions to climate problems. A further risk of the focus on short-term stimulus is that sustainable financing of climate mitigation and adaptation will not materialize after the stimulus ends.	Noted. Thank you for your comment	Government of United States of America	U.S. Department of State	United States of America
59085	62	10	62	10	Not the mandate for this chapter to advocate aggressive monetary policy.	Noted. Thank you for your comment. LAs decided to keep this information	Government of United States of America	U.S. Department of State	United States of America
59087	62	10	62	11	Suggest combining GreenQE material into a single section or callout box.	Taken into account. Green QE is discussed in 15.6.2.	Government of United States of America	U.S. Department of State	United States of America
82213	62	12	62	15	The fact that climate risk awareness is now reflected in many financial instruments does not translate into the wider adoption of the concept. The decrease in electricity prices is defintely a developed world experience. In majority developing countries few housholds can afford electricity consumption when it is available. Since moost electricity is produced and supplied by nationalized industries (parastatals), the prevalent action is to increase the tariff rates to recover the cost of electricity generation. Thus, high prices should present a serious impediment to a low carbon recovery.	Noted. Thank you for your comment. The statement generally speaking from the cost-side, including technology costs.	Smile Dube	California State University, Sacramento	United States of America
59089	62	18	62	22	Tangential to topic of climate finance and ignores the fact that macroeconomic recovery will increase GHG emissions substantially.	Noted. Thank you for your comment.	Government of United States of America	U.S. Department of State	United States of America
23625	62	20	62	22	We suggest to also quote the European recovery plan "Next Generation EU" or "France Relance" (which have been adopted and being enacted, unlike the plan from the new US administration which is pending approval).	Taken into account. "Next Generation EU" is included	Government of France	Ministère de la Transition écologique et solidaire	France
28025	62	26	62	26	After "debt constrained countries", add "and developing countries".	Taken into account. revised to "debt contrained developing countries"	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
63431	62	26	62	27	green stimulus has been overall poor globally with the exception of a few Scandinavian countries. Developed countries especially need to do a better job at including green measures	Noted. Thank you for your comment	Government of Canada	Environment and Climate Change Canada	Canada
59091	62	31	62	32	"globally coordinated fiscal policy and explicit supporting cross-border instruments" are likely to be inappropriately timed, designed, and implemented. This is just a call for large financial transfers from developed countries to developing countries that are not well targeted to achieving climate mitigation and adaptation goals.	Noted. Thank you for your comment	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
59093	62	35	62	37	"strong assumption is that voters will be politically supportive of extended and increased fiscal deficit spending on climate on top of COVID-19 related emergency spending, and governments will overcome treasury biases towards fiscal conservatism (to preserve credit ratings)." This is a dubious assumption and is, in fact, contradicted by the very next sentence.	Noted. Thank you for your comment	Government of United States of America	U.S. Department of State	United States of America
59095	62	35	63	4	This section discusses politics, which is perhaps not appropriate for this chapter.	Noted. Thank you for your comment	Government of United States of America	U.S. Department of State	United States of America
79073	62	37	62	40	"Evidence strongly suggests that voters (and credit rating agencies) tend to be fiscally conservative(Peltzman 1992; Lowry et al. 1998; Alesina et al. 2011; Borge and Hopland 2020) especially where expenditures involve higher taxes in the future and do not identifiably flow back to their local bases (the 'public good' problem)" This "evidence" should not apply to the climate crisis where our children are certain to blame our generation for a misguided fiscal conservatism at the expense of the planet's habitability. This is not about funding growth at the expense of future generations. It's about accelerating a transformation for the rescue of future generations. Do we as a society fundamentally fail to understand what is at stake here?	Noted. Thank you for your comment	Young-jin Choi	Phineo gAG	Germany
59097	62	43	62	44	Unsupported assertion: "effectiveness of least-cost fiscal spending on climate for reviving private activity"	Noted. Thank you for your comment.	Government of United States of America	U.S. Department of State	United States of America
59099	62	48	63	1	Not appropriate for this chapter to dismiss the importance of emergency healthcare spending.	Noted. Thank you for your comment	Government of United States of America	U.S. Department of State	United States of America
59101	63	6	63	35	Most of this box is off-topic for this chapter.	Noted. Thank you for your comment	Government of United States of America	U.S. Department of State	United States of America
81833	63	6			see above. Up to date evidence suggests that recovery packages fall short of being sufficiently sustainable and Paris compatible (cf. UNEP 2021. Are we building back better? Evidence from 2020 and Pathways to Inclusive Green Recovery Spending	Noted. Thank you for your comment	Elena Hofferberth	University of Leeds	Switzerland
79075	63	14	63	15	"The standard 'neo-classical' macroeconomic model is often used in integrated energy economy-climate assessments (Nordhaus 2018; Balint et al. 2016)." Indeed this model has tragically failed and led world leaders to believe that e.g. a "4 dgrees C warming scenario" would be "cost optimal"... https://profstevekeen.medium.com/economic-failures-of-the-ipcc-process-e1fd6060092e "...But the main weaknesses with the IPCC's methodology are firstly that, in economics, it exclusively selects Neoclassical economists, and secondly, because there is no built-in review of one discipline's findings by another, the conclusions of these Neoclassical economists about the dangers of climate change are reviewed only by other Neoclassical economists. The economic sections of IPCC reports are therefore unchallenged by other disciplines who also contribute to the IPCC's reports."	Noted. Thank you for your comment	Young-jin Choi	Phineo gAG	Germany
23627	63	34	63	34	We recommand to add the following sentence : "Both supply-side and demand-side macroeconomic models tend to advocate for investment-oriented policies while putting aside more institutional transformations of the financial sector which can be considered as a key enabling factor of energy transitions (Svartzman et al., 2019)." Reference: Svartzman, R., Dron, D., & Espagne, E. (2019). From ecological macroeconomics to a theory of endogenous money for a finite planet. Ecological economics, 162, 108-120.	Noted. Thank you for your suggestion. However, due to limited space, your suggestion is not included	Government of France	Ministère de la Transition écologique et solidaire	France
681	63				box 15.7. The box is interesting, but I'd suggest to improve the style, language and the overall clarity of the box	editorial-noted	Nadia Ameli	University College London	United Kingdom (of Great Britain and Northern Ireland)
59103	64	1	64	30	All of this box is off-topic for this chapter.	Noted. While the figure is removed, it is decided to remain the contents in this box and the chapter	Government of United States of America	U.S. Department of State	United States of America
43311	64	3	64	5	Additional borrowing is not constrained by the current level of public debt, but by the realtionship between the interest rates and the growth rate (i.e. the ability to repay). It is perfectly possible that debt linked to the green transition can have a very long maturity, and also can be rolled-over.	Noted. Thank you for your comment.	Daniele Tori in	The Open University Business School	United Kingdom (of Great Britain and Northern Ireland)
81835	64	17			see above. The primary focus on growth is misleading. It is not about growth per se but environmental sustainability, welfare and equity. The negative effects of growth and its likely unsustainablity due to lack of sufficient decoupling is not appreciated enough. A change in narrative and main indicators would better servce the purpose. Cf Hickel, Jason & Giorgos Kallis (2019). 'Is Green Growth Possible?', New Political Economy.	Noted. Thank you for your comment	Elena Hofferberth	University of Leeds	Switzerland
59105	64	26	64	26	Label axes and devine variables (NetFiscalSpend?).	Taken into account. The figure is removed	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
70899	64	26	64	30	It is not clear what is on the Y-axes left and right, please clarify and give units.	Taken into account. The figure is removed	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
59107	64	32	64	34	No need to repeat Paris temperature limit targets again here.	Noted. Thank you for your comment. The sentence is decided to remain	Government of United States of America	U.S. Department of State	United States of America
59109	64	34	64	35	Delete personal opinion: "As such, the question on "How much can we afford" vs "Whatever it takes and what is the most appropriate and robust set-up and framework for that" should have been answered."	Accepted.	Government of United States of America	U.S. Department of State	United States of America
46409	65	0	65	0	As the IMF is considering how to include climate change into their operations, perhaps the authors should address the following questions: Should climate-positive debt, e.g. green infrastructure, be treated in the same as grey (as the assumption could be that green debt is associated with more productivity and employment)? Are the indicators of climate vulnerabilities in the DSA sufficient or is there an academic discussion on how climate vulnerability translates to debt vulnerability?	Taken into account.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
59111	65	2	65	4	Not appropriate for this chapter to criticize internationally agreed Maastricht Treaty standards for public financial management in normal times.	Taken into account.	Government of United States of America	U.S. Department of State	United States of America
59113	65	7	65	8	States "many studies" but only one is cited.	Taken into account.	Government of United States of America	U.S. Department of State	United States of America
59115	65	10	65	9	Rationalizations for developing country public sector debt are veering off the topic of this report. Just provide debt/GDP, deficit/budget, and deficit/GDP numbers, disaggregated by country. Provide more information on prior public debt for nature swap experience and discuss advantages, disadvantages, and potential for using this tool again (could be a new box).	Noted.	Government of United States of America	U.S. Department of State	United States of America
59117	65	14	65	15	Sentence fragment: "IPCC scenario data is often not sufficient to perform such analysis with additional assumptions being"	Accepted.	Government of United States of America	U.S. Department of State	United States of America
59119	65	20	65	21	Not the mandate for this chapter to offer blanket criticism of GDP projections being insufficiently conservative. Could discuss flaws in omissions of environmental costs and natural capital from GDP and cite references.	Taken into account. Wording has been slightly adjusted. With climate impacts being still massively underestimated, the risk of an inappropriate reflection in GDP forecasts remains	Government of United States of America	U.S. Department of State	United States of America
86941	65	31	65	31	Considerations on global debt levels and debt sustainability as well as implications for climate finance. With many vulnerable countries already 32 being burdened with higher financing costs, this limited fiscal head space further shrinks their ability to 33 actively steer the required transformation (Buhr et al. 2018). 1. We should help the reader by cross referencing to the Debt Transparency discussion in section 15.67 dLCM around resolving legacy debt as well as strategies for debt management long term noting most of the climate investments are needed in the "developing country universe with debt financing integral to this. 2. We should incorporate cross-referencing to the 2015 UN Addis Abbaba Agenda Action for the "developing country universe" (referred to in some sections as developing and emerging) - articles 93-100 Debt and Debt Sustainability,https://www.un.org/esa/ffd/wp-content/uploads/2015/08/AAAA_Outcome.pdf We should see if we can achieve a balance by reflecting "developing country universe" literature perspectives on Debt and Debt Sustainability as the nations affected by the debt? We can for example include some discussion around the 2015 UN Addis Abbaba Agenda Action Financing for Development articles 93-100 on Debt and Debt Sustainability. For the final draft we should also include cross references to technical assistance at regional/national/international level for developing countries (examples previously provided in our Table 15.8/15.9	Noted	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
15053	65	34	65	44	While not yet common, some economies vulnerable to climate change have started introducing "natural disaster clause" that grants debt relief/restructuring in the event of disasters such as hurricanes. These economies include Grenada and Barbados. Researchers have started paying attention to the implications of including a climate clause in sovereign bonds. For instance, see Enrico Mallucci (2020) "Natural Disasters, Climate Change, and Sovereign Risk". Perhaps these are worth mentioning.	Accepted. Noted with thanks	Galina Hale	UC Santa Cruz	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
80615	65	34	65	44	There is increasing support globally for debt-for-climate swaps from world leaders and academics who see this as a core component of raising climate ambition. See e.g. Press Release, Deputy Secretary-General, United Nations, Proactive Plan Must Address Recovered Climate Crises, Deputy-Secretary-General Says, as World Returns to Pre-COVID-19 Carbon Emission Levels (27 November 2020) ("Scaling up adaptation and resilience finance will require all financial flows to align with these imperatives — national budgets, national, regional and multilateral development banks, climate funds and private finance. Implementing innovative financing models such as debt-for-climate and debt-for-adaptation swaps will also be key to these efforts."); Volz U., et al. (2020) Debt Relief for a Green and Inclusive Recovery, 39 ("Under Pillar 3, we envisage debt-for-climate or debt-for-sustainability swaps for countries that are not heavily indebted, but have reduced fiscal space due to Covid-19. For these, such swaps would facilitate raising climate ambitions in the form of additional actions or investments in climate adaptation or mitigation. Debt swaps under this pillar would be voluntary and not conducted as a distressed debt exchange. In other words, existing creditors can decide not to participate in the debt-for-nature swap offer without having to fear that the alternative to accepting the swap would be a default. Therefore, most swaps would probably be transacted with official – mostly bilateral – creditors, or commercial financial debt bought by non-profit organisations at a discount in the secondary market."). It is expected that the World Bank and International Monetary Fund will work with partners to establish an international platform for linking debt and climate. This will include pilot projects, which are important to scaling debt-for-climate swaps. R. Chakamba, With debt-for-climate swaps in Africa, timing is crucial, Devex ("Steele noted that the World Bank and International Monetary Fund, along with the Organisation for Economic Co-operation and Development and the U.N., have also set up a platform to pilot and design these links between debt, climate, and nature that they want to launch for the Annual Meetings of the World Bank and IMF in October. Pilot programs in selected countries will begin before that.").	Taken into account.	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
80759	65	34	65	44	There is increasing support globally for debt-for-climate swaps from world leaders and academics who see this as a core component of raising climate ambition. See e.g. Press Release, Deputy Secretary-General, United Nations, Proactive Plan Must Address Recovered Climate Crises, Deputy-Secretary-General Says, as World Returns to Pre-COVID-19 Carbon Emission Levels (27 November 2020) ("Scaling up adaptation and resilience finance will require all financial flows to align with these imperatives — national budgets, national, regional and multilateral development banks, climate funds and private finance. Implementing innovative financing models such as debt-for-climate and debt-for-adaptation swaps will also be key to these efforts."); Volz U., et al. (2020) Debt Relief for a Green and Inclusive Recovery, 39 ("Under Pillar 3, we envisage debt-for-climate or debt-for-sustainability swaps for countries that are not heavily indebted, but have reduced fiscal space due to Covid-19. For these, such swaps would facilitate raising climate ambitions in the form of additional actions or investments in climate adaptation or mitigation. Debt swaps under this pillar would be voluntary and not conducted as a distressed debt exchange. In other words, existing creditors can decide not to participate in the debt-for-nature swap offer without having to fear that the alternative to accepting the swap would be a default. Therefore, most swaps would probably be transacted with official – mostly bilateral – creditors, or commercial financial debt bought by non-profit organisations at a discount in the secondary market."). It is expected that the World Bank and International Monetary Fund will work with partners to establish an international platform for linking debt and climate. This will include pilot projects, which are important to scaling debt-for-climate swaps. R. Chakamba, With debt-for-climate swaps in Africa, timing is crucial, Devex ("Steele noted that the World Bank and International Monetary Fund, along with the Organisation for Economic Co-operation and Development and the U.N., have also set up a platform to pilot and design these links between debt, climate, and nature that they want to launch for the Annual Meetings of the World Bank and IMF in October. Pilot programs in selected countries will begin before that.").	see above	Gabrielle Dreyfus	Institute for Governance & Sustainable Development	United States of America
52909	65	35	65	35	… are focused "XX" the liquidity issue "her" than… "XX" should be replaced with on and "her" should be dropped.	editorial. The section is revised	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86943	65	35	65	41	section 15.6.3 Considering the need for responses to short-term liquidity issues and long-term fiscal space, current 35 G20/IMF/World Bank debt service suspension initiatives are focused the liquidity issue her than 36 underlying problems of more structural nature of many low-income (Fresnillo 2020). In order to ensure 37 fiscal space for climate action in the coming decade a mix between debt relief, deferrals of liabilities, 38 extended debt levels and sustainable lending practices including new solidarity structures need to be 39 considered in addition to higher levels of bi/multilateral lending to reduce dependency on capital 40 markets and to bridge the availability of sustainably structured loans for highly vulnerable and indebted 41 countries. 1. As part of addressing structural aspects long term - suggest we cross-reference to 15.6.8 development of local capital markets on the technical assistance on supporting developing countries to introduce Debt Transparency through embedding UN National Statistical Systems to measure. monitor, report on public sector finances including monetary and fiscal indicators (including debt). A sample of technical assistance programmes (at national, regional and international level) available to support developing countries were originally summarised in our Table 15.8/15.9 published FOD for external reviewers but subsequently removed as part of editing. Here is a high level article that provides a summary of these Debt Transparency measures as one example measure to address the structural challenges: https://www.opengovpartnership.org/stories/debt-transparency-an-open-government-	Revised	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59121	65	39	65	39	Replace "bi/multilateral" with "bilateral and multilateral"	Noted	Government of United States of America	U.S. Department of State	United States of America
86945	65	41	65	44	section 15.6.3 debt-for-climate swaps, GDP linked bonds More standardised debt-for-climate swap, a higher share of GDP linked bonds or structures 42 ensuring (partial) debt cancellation in case countries are hit by physical climate change impacts/shocks 43 appear possible. The collective action clause might be a good example of a loan/debt term which became 44 market standard. Definition of triggers is likely the most complex challenge in this context. We should cross-reference to section 15.6.7 development of local capital markets highlighting that countries can acess technical assistance to review options and structure debt-for-climate swaps, GDP linked bonds and other instruments - where this is appropriate to country context. Our literature assessments points to development of the bond market, the building of yield curve - for relevant country contexts supporting increased usage and development of risk management instruments.	Noted	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59123	65	45	65	46	This is speculative and unsupported with evidence: "With public funds becoming scarcer, a preference for loan rather than grant instruments could emerge in international climate cooperation."	Taken into account.	Government of United States of America	U.S. Department of State	United States of America
82215	66	1	66	9	While debt swaps could be useful instrument for nature, they are limited in other constraints related to low carbon strategies.	Taken into account.	Smile Dube	California State University, Sacramento	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
80617	66	5	66	9	Multiple countries have successfully implemented debt-for-nature and debt-for-climate swaps, with Spain alone entering into 37 debt swaps affecting €1.4 billion of debt between 1999 and 2011. Previous debt swaps should inform the effective use of these instruments to relieve debt burdens and mitigate climate change for countries where debt swaps are appropriate. For example, in 2003 and 2005, Spain and Uruguay entered into environmentally-linked debt swaps. In 2003, Spain forgave $9.3 million in debt in exchange for the Uruguay government depositing an equivalent amount of local currency to finance three liquid waste treatment plants. In 2005, the agreement exchanged $10.8 million of debt for a similar amount in local currency to support energy efficiency and clean energy. The swap partially funded a 10 MW grid-connected wind farm and generated around 179,000 Certified Emission Reduction Credits of avoided greenhouse gas emissions. Spain received the right of first purchase for the credits, and Uruguay became a regional leader in wind energy. See generally Cassimon, D., Prowse, M., & Essers, D. (2014) Financing the clean development mechanism through debt-for-efficiency swaps ? Case study evidence from a Uruguayan wind farm project, European Journal of Development Research. Accessible at https://lup.lub.lu.se/search/ws/files/3332093/5218858.pdf. In addition to debt swaps for climate protection, here is growing political support for tapping the IMF's "liquid gold" - its Special Drawing Rights (SDRs) - to meet the plight of developing countries. It is important that new SDRs include Green SDRs that are ring-fenced to support climate protection, including more ambitious national plans to reduce emissions by 2030, to reduce SLCPs, protect carbon sinks, and transitioning to clean energy. For both debt swaps and SDRs, it is important to include mitigation strategies to reduce the SLCPs, along with strategies to reduce fossil fuel emissions, and to build resilience. See e.g. United Nations. Economic Commission for Africa; United Nations. Economic Commission for Africa (2020). Building forward together: financing a sustainable recovery for the future of all. Addis Ababa. © UN.ECA. https://repository.uneca.org/handle/10855/43829; United Nations. Economic Commission for Africa; United Nations. Economic Commission for Africa (2020-04). Making special drawing rights work for COVID-19 economic relief. ECA POLICY BRIEF. 2020, 5. Addis	Taken into account.	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
80761	66	5	66	9	Multiple countries have successfully implemented debt-for-nature and debt-for-climate swaps, with Spain alone entering into 37 debt swaps affecting €1.4 billion of debt between 1999 and 2011. Previous debt swaps should inform the effective use of these instruments to relieve debt burdens and mitigate climate change for countries where debt swaps are appropriate. For example, in 2003 and 2005, Spain and Uruguay entered into environmentally-linked debt swaps. In 2003, Spain forgave $9.3 million in debt in exchange for the Uruguay government depositing an equivalent amount of local currency to finance three liquid waste treatment plants. In 2005, the agreement exchanged $10.8 million of debt for a similar amount in local currency to support energy efficiency and clean energy. The swap partially funded a 10 MW grid-connected wind farm and generated around 179,000 Certified Emission Reduction Credits of avoided greenhouse gas emissions. Spain received the right of first purchase for the credits, and Uruguay became a regional leader in wind energy. See generally Cassimon, D., Prowse, M., & Essers, D. (2014) Financing the clean development mechanism through debt-for-efficiency swaps ? Case study evidence from a Uruguayan wind farm project, European Journal of Development Research. Accessible at https://lup.lub.lu.se/search/ws/files/3332093/5218858.pdf. In addition to debt swaps for climate protection, here is growing political support for tapping the IMF's "liquid gold" - its Special Drawing Rights (SDRs) - to meet the plight of developing countries. It is important that new SDRs include Green SDRs that are ring-fenced to support climate protection, including more ambitious national plans to reduce emissions by 2030, to reduce SLCPs, protect carbon sinks, and transitioning to clean energy. For both debt swaps and SDRs, it is important to include mitigation strategies to reduce the SLCPs, along with strategies to reduce fossil fuel emissions, and to build resilience. See e.g. United Nations. Economic Commission for Africa; United Nations. Economic Commission for Africa (2020). Building forward together: financing a sustainable recovery for the future of all. Addis Ababa. © UN.ECA. https://repository.uneca.org/handle/10855/43829; United Nations. Economic Commission for Africa; United Nations. Economic Commission for Africa (2020-04). Making special drawing rights work for COVID-19 economic relief. ECA POLICY BRIEF. 2020, 5. Addis	See response above	Gabrielle Dreyfus	Institute for Governance & Sustainable Development	United States of America
59125	66	7	66	7	Statement based on one old reference.	Addressed	Government of United States of America	U.S. Department of State	United States of America
46411	66	10	66	36	As the overall estimation of stranded asset is closely linked with assumptions in climate scenarios, please reference the relevant chapters here.	Taken into account. New reference added	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
59127	66	10	66	36	Stranded assests is discuss in many places. Consolidate this information.	Rejected. The stranded asset discussion in section 15.6.3 has a very specific focus on the impact on public funding which is often neglected in the public debate, not in research, and requires more attention. Therefore, we feel that the subsection makes sense.	Government of United States of America	U.S. Department of State	United States of America
59129	66	10	66	36	At least to date, the "stranded assets" argument has been overblown. If they become widespread in the future, they would be borne and written off mainly by large companies and parastatals. These involve sunk costs that economists state should not be considered in making decisions on resource use going forward. Unsure why stranded assets deserve so much space in this chapter as they do not really affect mitigation or adaptation financing.	Rejected. The stranded asset discussion in section 15.6.3 has a very specific focus on the impact on public funding which is often neglected in the public debate, not in research, and requires more attention. Therefore, we feel that the subsection makes sense.	Government of United States of America	U.S. Department of State	United States of America
52911	66	13	66	13	...and hence the tax payer.. It should be tax payer"s".	Accepted. Noted with thanks	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
82475	66	16			typo "the for"	Accepted.	Hugues CHENET	University College London	France
79077	66	22	66	29	"In contrast to the line of argument in the tobacco industry, the backward looking approach and a resulting obligation of compensation by investors in polluting assets can be observed rarely with the forward looking approach of compensations by future winners for current losers dominating – despite the high level of awareness about carbon externalities and resulting climate change impacts among polluters for many years (van der Ploeg and Rezai 2020). In particular, transactions in the energy sector show a high level of investor protection also against much needed climate action which is also well illustrated by share of claims settled in favour of foreign investors under the Energy Charter Treaty and investor-state dispute settlement (Bos and Gupta 2019)." These are key findings that require urgent action and should be in the summary for policy makers	Noted	Young-jin Choi	Phineo gAG	Germany
28027	66	34	66	35	Delete "With a significant share of fossil resources which need to become stranded in developing countries".	Rejected. Unclear why the sentence should be deleted.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
59131	66	35	66	35	Throughout, use "REDD+" instead of "REDD"	Accepted.	Government of United States of America	U.S. Department of State	United States of America
82969	66	37	70	33	This is entirely about impacts and disasters. Not sure why it's in scope.	This was discussed within the chapter; it may be outsourced elsewhere. I did not see trend liteurate on mitigation based climate risk pooling.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
70901	66	38	67	16	It seems to me that such numbers, as given in the text, are for all disasters/catastrophies and not specifically related to climate change, so including earthquakes and so forth. A bit more text what these numbers exactly mean would be beneficial	The numbers are for weather and climate disasters. Disaggregation with consistent numbers across years are difficlut to find. Numbers will have to be updated as we get closer to finalizing the report. I am adding in 2020 data here. 2021/01/07 Reinsurance. date uis for the period 2000-	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
59133	67	3	67	4	Are the 58 billion USD for typhoon and flood damage in Asia Pacific for 2000-2017 consistent with the estimate for the combination of flooding typhoon and drought of 89 billion USD in 2018? Do these pertain to the same countries? Are they from different sources using different methods?	same sources as cited. $58 billion is the median loss 2000-2017 for Asia Pacific & Oceania. $89 b is 2018 due to natural disasters.the $89 billion include losses by privateinsures and govt sponsored programmes. The countreis and perils are as follows: Typhone Jebi and floods-Japan; Typhone manskhut Ocean, philipines and China; Monsoon floods-India, severe weather Australia. Severe weather is defined in AON as severe convective storms (SCS) – includes thunderstorm damage resulting from tornadoes, hail, straight- line winds, and ooding	Government of United States of America	U.S. Department of State	United States of America
59135	67	5	67	6	Delete "Based on past historical analysis, a region such as" and "which"	reject suggestion	Government of United States of America	U.S. Department of State	United States of America
17929	67	8	67	10	More specificity about "the hurricane" - Hurricane Maria in 2017; as it stands now there is an unspecified antecedent in the sentence.	sentence deleted	Robert Brecha	Climate Analytics	Germany
59137	67	10	67	10	In what year?	hurricane Maria 2017	Government of United States of America	U.S. Department of State	United States of America
59139	67	11	67	11	In what year?	2018	Government of United States of America	U.S. Department of State	United States of America
59141	67	18	67	18	Delete "it is generally agreed that"	done	Government of United States of America	U.S. Department of State	United States of America
59143	67	24	67	26	Not inappropriate as a starting point, but may need to be adjusted upward due to climate change and increasing potential economic damages due to development.	text revised to take into account suggestion	Government of United States of America	U.S. Department of State	United States of America
59145	67	30	67	32	Replace "index insurance and weather derivative approaches" with "weather-indexed insurance and other parametric insurance products". Incorrect to state that these are traditional insurance products. They are relatively new. Damage-based insurance and, to a lesser extent, business interruption insurance are the conventional (not traditional) products.	rejected suggestion. I think text is clear on this.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86947	67	31	67	43	15.6.4 Climate Risk Pooling and Insurance Approaches - Catastrophe bonds, Weather Derivatives/Risk Management The traditional approach to such protective or hedging position has been indemnity and other classical 31 insurance micro, meso and macro level schemes (Hermann et al. 2016). These include micro insurance 32 schemes such as index insurance and weather derivative approaches that cover individual’s specific 33 needs such as coverage for farm crops. Meso level insurance schemes, which primarily benefit 34 intermediary institutions, such as NGOs, credit union, financial institutions and farmer credit entities, 35 seek to reduce losses caused by credit default thereby ‘enhancing investment potential’, whereas macro- 36 level insurance schemes ‘allow both insured and uninsured individuals to be compensated for damages 37 caused by extreme weather events’ (Hermann et al. 2016). These macro-level insurance include 38 catastrophe bonds and weather derivatives etc. that transfer risk to capital market (Hermann et al. 2016). 39 Over the last decade, there have been a trend towards parametric insurance, index-based, predefined 40 pay-out risk pooling instrument as a preferred insurance approach, especially for developing countries. 41 It has gained favour with governments in the developing regions such as Africa, the	ok with general nature of cooments. But differentiating between capacity bld and TA is more granular than the space allotted would allow. Also assuming some of this discussion has occurred elsewhere. Linking suggstion is an editorial choice.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
86951	67	31	67	43	15.6.4 Climate Risk Pooling and Insurance Approaches - Catastrophe bonds, Weather Derivatives/Risk Management [Technical Assistance, Capacity Building, Paris MRV] 3. We should consider differentiating between capacity building and technical assistance in line with international agreement benchmarks. The Paris Agreement differentiates between technical assistance, capacity building which developing countries have to measure via Paris MRV Support noting the national, regional, international technical assistance programmes to support developing countries (originally summarised in table 15.8/15.9 published for dLCM FOD external review). Paris MRV https://www.wri.org/blog/2016/08/insider-untangling-measurement-reporting-and-verification-mrv-paris-agreement Example literature in lessons in place-based capacity building initiatives: https://www.tandfonline.com/doi/pdf/10.1080/14693062.2020.1870915	not in scope need more text space to engage in this discussion	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59147	67	40	67	40	Not correct to say "as a preferred insurance approach"	deleted the word preferred	Government of United States of America	U.S. Department of State	United States of America
59149	68	6	68	6	DfID name has changed.	change to the Foreign, Commonwealth & Development Office (FCDO) of the UK Government/formerly DFID	Government of United States of America	U.S. Department of State	United States of America
59151	68	11	68	11	Change "seems" to "is"	done	Government of United States of America	U.S. Department of State	United States of America
59153	68	12	68	12	"subsidizing" not "subsiding"	done	Government of United States of America	U.S. Department of State	United States of America
59155	68	20	68	20	Risk sharing and transfer are not intended to risk proof. Insurance for risk proofing would be too costly and lead to what economists call "moral hazard" (failure to take actions to reduce risks).	delete risk proof	Government of United States of America	U.S. Department of State	United States of America
59157	68	21	68	22	Clarify that this is about parametric insurance.	yes,	Government of United States of America	U.S. Department of State	United States of America
59159	68	27	68	29	The triggers and payout amounts are all negotiable, but premiums will be more costly if the triggers are set too low and payouts too high.	certainly	Government of United States of America	U.S. Department of State	United States of America
59161	68	30	68	38	It seems that 'climate risk insurance' is a subset of 'disaster risk insurance'. How would / does this work in practice?	the examples given should suffice.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
15055	68	39	70	33	It may be helpful to also mention inherent issues with providing public goods to constituents beyond national boundaries. In particular, depending on the group composition, the provision of climate-related public goods can follow either the "best shot" or "weakest link" approach, which would have vastly different implications for how countries can respond to climate risks. Free riding would be another problem. As examples of overcoming such problems, existing regional financing facilities such as the Chiang Mai Initiative and European Financial Stabilisation Mechanism (EFSM) may offer lessons of mechanism design and coordination problems.	a reasonable argument but bit out of scope	Galina Hale	UC Santa Cruz	United States of America
59163	68	42	68	42	Why would financial payouts be appropriate for non-economic losses?	This is a misinterpretation of the point of the cited paper. Addressing losses and damages requires addressing non-economic losses as well. The point is that insurance can only address those losses and damages that are economic in character; a limitation of insurance schemes is that they are unable to address non-economic losses.	Government of United States of America	U.S. Department of State	United States of America
59165	68	45	68	45	Define "covariate risk".	done in text	Government of United States of America	U.S. Department of State	United States of America
59167	69	1	69	1	No reason why fisheries and public utilities are not insurable, especially the latter. Transaction costs would be high for small-scale fisheries.	made adjustment intext to reflect new fisheries coverage by CCRIFSPC	Government of United States of America	U.S. Department of State	United States of America
82217	69	1	69	33	The idea behind parametric insurance -- offering pre-specified payouts based on an trigger event is less preferred to indemmnity insurance -reimbursement for the total loss. In Sub Saharan Africa, East Africa has seen explosive growth of the former. There is evidence that it has spread to Southern Africa and West African particularly in cattle and crops.	There is some debate around this with a significant member countries of across the four risk pool mentioned not taking the insurance for a variety of reason. This is noted in the text	Smile Dube	California State University, Sacramento	United States of America
59169	69	2	69	3	Citations are old, situation may have changed: "In some regions and countries, there may also be limited access to reinsurance."	citations up dates as per above comments	Government of United States of America	U.S. Department of State	United States of America
59171	69	3	69	5	"An important down-side of climate risk pooling is that it does not cover the actual cost of damage and losses.": Risk sharing and transfer are not intended to risk proof. Insurance for risk proofing would be too costly and lead to what economists call "moral hazard" (failure to take actions to reduce risks).	point taken	Government of United States of America	U.S. Department of State	United States of America
86949	69	13	69	24	section 15.6.4 Climate Risk Pooling and Insurance Approaches The pathway to this includes 14 capacity building in underdeveloped financing sectors of developing countries. They argue that as 15 climate extreme become more normalised, they will wipe out significant part of the infrastructure and 16 productive capacity of developing countries. This will have knock-on impact on fiscal capacity due to 17 lowered tax revenue and high rebuilding costs. 'Developing countries, Schoenmaker and Zachmann 18 (2015) argue, 'cannot insure against such event on a market basis, nor would it be sensible to divert 19 scare fiscal resources away from infrastructure investment into accumulating a financial buffer for such 20 a situation (Schoenmaker and Zachmann 2015). In that context, Schoenmaker and Zachmann (2015) 21 call for international risk pooling as the only sensible strategy. They proposed a global risk pool that 22 builds on the experiences of regional insurance pool such as ARC and CCRIF SPC and PCRAF. The 23 premium they argue should be partly based on a country's carbon footprint to provide an incentive for 24 mitigation—the 'polluter pays' principle. 1. Financing sectors of any nation - be it developing countries/developed countries - literature studies tell us that this forms part of the local capital markets ecosystem notwistanding the stage of market development. Our chapter literature analysis points to	Noted	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59173	69	14	69	16	Only if there is no insurance, relief, and aid.	Noted	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
59175	69	14	69	24	The Coase Theorem disproved the "polluter pays" principle on economic efficiency grounds; it can be justified on equity grounds.	yes, there is tension between PP and the CT but this is so for much of anthropocentric economic analysis that is based on effiency. yet, as note by the Polluter Pays Principle as a non-obligatory condition to achieve economic efficiency in environmental policy. Futher, Mamlyuk (2010) among others, Calabresi and bobbit, 1978, the tragic choices, a new form of economic modelling that privillege preservation, conservation and future use of resources and the right of the environment, homo ecoligius versus homo economius as part of the new baseline for PPP. at the same time there are multitude of article linking PPP to climate justics (for example: (Verschuuren 2013). Despite the endless debate on issues of morality and justice, especially in the America, the tenets of climate justice should be upheld by enforcing environmental policies that require the polluter to pay (Jenkins 2013). Others such as Kimuyu (2018) propose complementing PPP with APP (ability to pay)	Government of United States of America	U.S. Department of State	United States of America
59177	69	21	69	21	Delete "as the only sensible strategy"	done	Government of United States of America	U.S. Department of State	United States of America
59179	69	24	69	25	Reword "how the G20 can cement their agenda"	editorial. The section is revised	Government of United States of America	U.S. Department of State	United States of America
59181	69	27	69	27	Unclear what a "smart support instrument" for premium support is and how it would avoid moral hazard.	clarification added to text	Government of United States of America	U.S. Department of State	United States of America
59183	69	43	69	43	Unclear: "… has the challenge of dealing or not dealing with covariant risks ..."	noted	Government of United States of America	U.S. Department of State	United States of America
86953	70	4	70	4	Section 15.6.4 Climate Risk Pooling and Insurance Approaches We should recast where appropriate as UK government has since restructured and DFID has since been replaced by Foreign, Commonwealth & Development Office https://www.gov.uk/government/organisations/department-for-international-development	Accepted.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59185	70	5	70	5	Explanation needed for ARC.	done	Government of United States of America	U.S. Department of State	United States of America
59187	70	9	70	9	Avoid inflammatory language like "cash-starved countries".	deleted	Government of United States of America	U.S. Department of State	United States of America
59189	70	14	70	15	Explanation is speculative "which may signal that ARC is not attractive to all food insecure countries and that there is no overwhelming appetite for ARC among poorer countries."	this is a quote from the lit. I tried to contextualized it better	Government of United States of America	U.S. Department of State	United States of America
8897	70	34	70	35	I am not sure where in the chapter it belongs, but some coverage of the recent trend toward climate-focused SPACs (Special Purpose Acquisition Companies) may deserve mention as a new investment approach.	Noted	Seth Dunn	ServiceMax	United States of America
70903	70	36	73	34	What is missing from this analysis is a private capital perspective. Given the fact that private capital is so important, remarkably little has been said about private capital.	Noted	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
59191	70	40	70	40	Change "many" to "some". Subnational governments in other countries lack decentralized planning and governance. In Mexico, they lack legal authority to seek financing independently of the national government.	Reflected. Added governance>> policy framework, governance and choices..	Government of United States of America	U.S. Department of State	United States of America
82219	71	6	71	29	The focus on urban climate investment is understable but unfortunate because it ignores 66% of the population that lives in rural areas. Outside urban areas some of the well-defined instruments in developed countries have no value at all: standards, pricing, regulations and land values. On the later, most of the land is communal owned and there no title deeds.	Noted	Smile Dube	California State University, Sacramento	United States of America
59193	71	13	71	14	How did the IFC define emerging markets in these numbers?	Revised it to developing country universe.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86957	71	13	71	14	Section 15.6.5 Widen the focus of relevant actors: Role of communities, cities and sub-national 35 levels "13 IFC (2018) estimates a cumulative climate investment opportunity of 29.4 trillion USD across six urban 14 sectors in emerging market cities to 2030" Some literature studies mix the terminology in terms of what is meant by emerging markets etc. In the statement above which countries are included in the emerging market cities to which this statements refer? There is a 29.4 trillion USD cities " climate investment opportunity" summarised in the World Bank/IFC study on page 10 at https://olc.worldbank.org/system/files/Part%202_Climate%20Investment%20Opportunities%20in%20Cities-2.pdf however this is on a "regional basis" including Sub-Sahara Africa ($1,5trillion), ECA ($1.2 trillion), SAR ($2.5 trillion), MENA ($1,7 trillion), LAC ($5 trillion), EAP ($17.5 trillion) - covering the entire "developing county universe". If our narrative is referring to the same $29.4 trillion - we should amend the text to make reference to something like "developing country universe" cities etc. Page 8 of the same report refers to "The global financing needed to implement the Sustainable Development Goals (SDGs) is estimated to be between $5 trillion and $7 trillion per year, with a $2.5 trillion annual financing need in developing countries for key infrastructure sectors and related areas.18" "With 400 cities having submitted almost 1,150 projects for support worth close to $60 billion,24 there is scope to build a pipeline of investments that are attractive to bond finance, Cties need resources to prepare their projects, particularly in the early stages and know-how in terms of access to finance. " This section acknowledges in the discussion the importance of bond market development and project preparation facilities established in our ZOD-FOD-SOD drafts for 15.6.7	Revised it to developing country universe.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
23629	71	17	71	22	We suggest a clarification. Has this single estimate been confronted with other sources? the definition of "locally-focused" would benefit from being more explicit, especially if this 10% figure is to be reflected in the IPCC report. The scope of the 17.4 billion USD total investments in climate finance as well. In addition, the focus on projects and international climate finance fails to capture the subnational domestic resources mobilization challenges, slightly mentionned in the paragraph below (in particular for local authorities with mandates in climate-related sectors). the authors can refer to the extensive litterature of UCLG on the matter. Significant support (and stock-taking reports) from UNCDF, World Bank and bilateral cooperation sources (SIDA, AFD amont others) are being provided on the matter.	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
59195	71	17	71	19	Older and far lower than numbers cited earlier from the Climate Policy Initiative.	Deleted, and added new numbers	Government of United States of America	U.S. Department of State	United States of America
84783	71	20	71	22	It will be important to understand, jurisdictionally what a local government is responsible for policy wise in order to ensure local elements are in place that impact investment (or institutional support provided). For example what city or local planning and permitting decisions cover, network issues, existing funding (may include role of local government pension fund). 'Local' also crosses into sub-local government to community level projects and micro-local or a tier of activity that does not involve an intermediary such as peer-to-peer (which may or may not be geographically located).	Reflected.	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
15057	71	23	72	26	On muni bonds, besides enabling climate finance, it is important to think about the cost differential of debt issuance already caused by climate change. In other words, climate risks may already pose increased financing costs, climate or non-climate, for local governments that are exposed to such risks. See Marcus Painter (2020) "An inconvenient cost: The effects of climate change on municipal bonds"	Reflected and reference is added in 'Subnational climate public and private finance.'	Galina Hale	UC Santa Cruz	United States of America
81837	71	25	71	29	see above. A critical stance towards current trend of PPP required as it involves a number of risks, see Kate Bayliss & Elisa Van Waeyenberge (2018) Unpacking the Public Private Partnership Revival, The Journal of Development Studies, 54:4, 577-593.	Added needs of better standardization in processes on 'Subnational climate public and private finance' with suggested reference. The rest is more fitting for PPP discussion in Section 15.6.6.1	Elena Hofferberth	University of Leeds	Switzerland
59197	71	45	71	45	Need to define land value capture and add examples.	Noted. Unable to include examples in detail due to limted space	Government of United States of America	U.S. Department of State	United States of America
23631	72	2	72	2	We recommand adding the following ressources that are relevant to the matter : see works (including panoramas) from OECD and UCLG, and evaluation reports from development programs on the matter from World Bank, ADB and AFD among others (see also https://www.sciencedirect.com/science/article/pii/S014098832030400X ;)	The suggested literature mostly focuses on fiscal descentralization and environmental quality from the perspective of institutions and human capital. It does not address local finance.	Government of France	Ministère de la Transition écologique et solidaire	France
59199	72	3	72	3	Replace "municipal bonds and borrowing" with "subnational government bonds"	Accepted. Reflected to some as appropriate.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
84785	72	3	72	3	Is this true and available to all municipalities? There are parts of the chapter further down that appear to qualify this (e.g. lines 27-28 ref capital markets and lines 40-41)	Revised; especially for rich cities.	Kirsty Hamilton	Chatham House (Associate Fellow, unpaid)	United Kingdom (of Great Britain and Northern Ireland)
86959	72	3	72	14	Section 15.6.5 Widen the focus of relevant actors: role of communities, cities and sub-national levels Debt financing via municipal bonds and borrowing is another essential tool for raising upfront capital. 4 The share of municipal, sub-sovereign, and sovereign bonds could grow over time, given efforts to 5 expand the creditworthiness and ensure a sufficient supply of own-source revenue to reduce the default 6 risk. As of now, subnational and sub-sovereign bonds are constrained by public finance limits and the 7 fiscal capacities of governments. Green municipal bonds can attract investors who do not typically buy 8 municipal bonds, e.g., ESG investors, and fostering greater cross-agency collaboration because of the 9 process of structuring and issuing a green bond requires cooperation within a city bringing together 10 various departments responsible for finance, sustainability, infrastructure, and planning (Saha and 11 D'Almeida 2017). However, it is prone to reputation externalities, which suggests caution about the 12 existence of high specific demand for green bonds or the willingness of investors to 'pay for 13 green'(Karpf and Mandel 2018). The process of issuing green municipal bonds incurs extra transaction 14 costs due to the level of disclosure and reporting required.	Not quite sure what's the feedback here as it seems only copied the text. Need clarification.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59201	72	7	72	13	Broaden by replacing "municipal" with "subnational"	Accepted. Reflected to some as appropriate.	Government of United States of America	U.S. Department of State	United States of America
77889	72	7	72	14	Indeed, California at the subnational level has undertaken several measures to promote the development of the green municipal bond market in the US, both by setting standards for climate and green bonds at the municipal level (e.g. https://gspp.berkeley.edu/faculty-and-impact/centers/cepp/projects/green-bonds-market-development-committee/ca-green-bond market-development-committee) and by the state issuing green bonds to expand the circulation of green bond instruments in the market. See (Chiang 2017, https://www.treasurer.ca.gov/greenbonds/publications/reports/1.pdf_	Noted. Unable to include due to limited space	Alex Rau	Climate Wedge LLC	United States of America
59203	72	11	72	13	There has been ample demand for purchase of green bonds. There are some questions about how green some of the bonds have actually been. See: https://www.downtoearth.org.in/blog/energy/green-bonds-is-it-green-finance-or-green-washing--72755 https://www.ft.com/content/1bcbad16-f69e-47db-82fa-0419d674bb53 https://www.bloomberg.com/news/articles/2019-10-14/as-green-bonds-boom-so-do-greenwashing-worries-quicktake	Taken into account. refer to innovative financial products section which includes academic references on greenwashing	Government of United States of America	U.S. Department of State	United States of America
23633	72	15	72	16	We suggestion to update this paragraph as there are five challenges, not four; and another one is forgotten, as detailed in the above paragraphs : local finance and resource mobilisation constraints (allocation of sufficient resources (and resource mobilization tools) at local level to carry out climate-related mandates) > this depends largely on national policies of decentralization and should be better reflected as challenges in resource mobilization are associated in this paragraph only with private finance, while public sources remain structural at this level.	Taken into account. Revised.	Government of France	Ministère de la Transition écologique et solidaire	France
59205	72	27	72	21	Change "rich and poor cities" to "cities in OECD vs non-OECD countries"	Noted	Government of United States of America	U.S. Department of State	United States of America
59207	72	27	72	27	There is a continuum of income levels in cities and countries and use of "rich vs poor" language is polarizing and condescending.	Noted	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86961	72	27	72	46	15.6.5 cities, sub-national Different finance challenges between rich and poor cities In the mature bond market, e.g., the US, one of the biggest 47 challenges to green municipal bonds is the lack of bankable green projects or project pipelines. projects and project pipelines are generally smaller in scale than the bond markets typically like to see 2 come to market (Saha and D'Almeida 2017). For the final draft - we should help the reader connect with the narrative between the challenges outlined in 15.6.5 lines 27-46 and the literature solutions put forward in 15.6.7 dLCM: SPV securitation, co-ordination, derisking particularly in the early stages to kickstart projects, project preparation facilties, co-ordination entities etc	Reflected.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
86963	72	40	72	47	The depth and character of the local capital market also affect cities differently in generating bonds. 41 Challenges facing developing bond market cities, e.g., India, include a lack of in-house capacity or 42 trained professionals for managing bond issuances, and the abundance of existing state funds to meet 43 capital needs, thus, lowering any interest or need for entering the bond market in general, or green bond 44 market, in particular (GIZ 2017b) We should take account of wider literature studies besides Deutsche Gesellschaft für Internationale Zusammenarbeitand/German Development Agency GIZ narrative (assuming the we have correctly analysed and represented the context in the GIZ 2017b paper) and recognise that development of local capital markets is a long term strategy for the "developing country universe" with countries at different stages of market development taking into account as well the historical legacies of some countries. The elements referred to in the text are not peculiar to India alone - many developing countries require technical assistance to be provided by developed nations - for example under Paris MRV Support. Within the "developing country universe" - literature studies point to China and India's progress in catalysing developing local capital markets through green bond issuance by listing of guidelines on exchanges (although of course this is not the only element). For India's SEBI this is summarised at: https://www.sebi.gov.in/legal/circulars/may-2017/disclosure-requirements-for-issuance-and-listing-of-green-debt-securities_34988.html Climate Bond Initiative also provides independent analysis on India as summarised at https://www.climatebonds.net/2017/06/howzat-india-sebi-delivers-new-gb-regs-pitched-line-international-best-practice-look-bounce. China, jump-started its green bond market by issuing listing guidance as summarised at	Taken into account. Reflected. New reference is added.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59209	72	42	72	43	"Developing bond market cities" is poorly worded and "the abundance of existing state funds to meet capital needs" is questionable.	Taken into account. Reflected.	Government of United States of America	U.S. Department of State	United States of America
18579	72	46	73	1	The lack of bankable green projects / project pipelines for investors, as noted here, is a fundamental problem which is not given adequate attention in this chapter. It should, for example, be noted in the Executive Summary. The DFID International Development Infrastructure Commission found that the lack of projects was more of a problem than the lack of finance. https://www.gov.uk/government/publications/international-development-infrastructure-commission-report . Such projects need to be clearly signalled in key national planning / strategy documents for climate such NDCs.	Taken into account. UK is added as example along with US.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
72341	72	46	73	2	The PACE financing based on green municipal bonds can create a flow of bankable projects for the energy renovation of buildings including the installation of renewable resources. The introduction of OSSs type organisations is to indeed to help creating a stable demand for bankable project by end-users	Noted. Not sure how important this case is.	bertoldi paolo	european commission	Italy
59211	72	47	72	47	"lack" means "none". Globally replace with "insufficient" where zero is not meant.	Taken into account. Revised.	Government of United States of America	U.S. Department of State	United States of America
59213	73	1	73	2	Replace "bond markets typically like to see come to market" with "feasible for a bond market transaction"	Taken into account. Revised.	Government of United States of America	U.S. Department of State	United States of America
59215	73	3	73	21	Microfinance and community finance are unlikely to make a large difference in private sector adaptation investments relative to the need, and the demand for using these funds for climate adaptation is uncertain.	Taken into account. Agree. We need reference to support this argument. Will reflect on the text when reference is found.	Government of United States of America	U.S. Department of State	United States of America
59217	73	22	73	23	Unclear: "Subnational climate financial systems need to be sensitive to shadow systems influencing organisational ability to translate adaptive capacity into actions."	Taken into account. Replaced shadow with informal systems and definition is added	Government of United States of America	U.S. Department of State	United States of America
59219	73	22	73	34	The section is unclear, but well referenced. Rework and expand.	Taken into account. Revised.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
59221	73	22	73	76	Clearly define 'shadow systems'.	Taken into account. Definition and reference added.	Government of United States of America	U.S. Department of State	United States of America
86965	73	22	73	34	15.6.5 Indigenous People We've covered local communities - where do the "indigenous people" fit in our narrative? eg First Nations Of Australia, First Nations of Africa, First Nations of Canada etc? Indigenous people are included in the UNFCCC Paris Agreement: - "Acknowledging that climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity" - "In pursuit of the objective of the Convention, and being guided by its principles, including the principle of equity and common but differentiated responsibilities and respective capabilities, in the light of different national circumstances" Paris Agreement https://unfccc.int/sites/default/files/english_paris_agreement.pdf	Noted.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
24935	73	35	76	37	I think the issue of additionality of climate finance is not very well covered in the chapter. It is mentioned a few places such as in Box 1, p. 6 and in 15.6.6, but this is imported for international transfers and should be stressed more. EBRD has for instance additionality in their mandate, and additionality is a principle in international flexible mechanisms such as CDM and JI. In international climate finance where one country or an international institution finances mitigation or adaptation in another country, additionality simply means that more mitigation or adaptation should take place with the finance than without. If there is crowding out, the finance is just a (distributional) transfer. Additionality is a question of crowding out of mitigation and adaptation effort in the receiving country. The economic literature mainly assumes that adaptation is a private good, meaning that the country has all incentives already to adapt to climate change. If this is true, transferring money or technology for adaptation will give a full crowding out. Some ways to overcome these incentives may be to use matching grants (i.e., give one dollar to adaptation for each dollar the receiving country spend on adaptation) or mainly give adaptation money to those who are restricted from doing the optimal adaptation (mainly the very poor countries), but there may also be other options. Note that giving restrictions such that the matching grant, will not be the preferred option for the receiving country, as their welfare will be higher if they can decide themselves how to spend the resources. In a similar way, there may also be crowding out mitigation transfers. For the rich countries, the incentives to give mitigation support is higher than the incentives to give adaptation support, which may explain the very little share of adaptation in climate finance. The reason is that mitigation is a public good, i.e., we benefit from mitigation in other countries, while adaptation is usually assumed to be a private good, i.e., only the receiving country benefit. The last assumption may be loosen up if we consider climate migration, international instability, international trade etc. The incentives mentioned above are pure economic incentives. The picture will be a bit more complicated if we introduce ethical incentives, e.g., rich countries care about inequality of welfare in the receiving country.In my comment below, I give some literature references.	Noted. challenging to introduce deeper discussion on additionality at this point, some of it is covered in int'l cooperation chapter	Snorre Kverndokk	Frisch Centre	Norway

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
24937	73	35	76	37	Here are some references on additionality and crowding out of international adaptation and mitigation transfers that are related to my comment above: Some studies find that transfers may have a negative impact on the environment: - Sarr, M. and T. Swanson (2017): Will technological change save the world? The rebound effect in international transfers of technology, Environmental and Resource Economics, 66: 435–456. - Glachant, M., J. Ing and J. P. Nicolai (2017): The incentives for North–South transfer of climate-change mitigation technologies with trade in polluting goods, Environmental and Resource Economics, 66: 435–456. Studies referring to the private good character of adaptation: - Barrett, S. (2008): Climate treaties and the imperative of enforcement, Oxford Review of Economic Policy, 24: 239–258. - Kane, S. and J. F. Shogren (2000): Linking adaptation and mitigation in climate change policy, Climatic Change, 45: 75–102. Some examples of mechanisms that relax the private good character of adaptation via externalities are mentioned in these papers: - Buob, S. and G. Stephan (2013): On the incentive compatibility of funding adaptation, Climate Change Economics, 4(2): 1–18. - Kverndokk, S. (2018): Climate Policies, Distributional Effects and Transfers Between Rich and Poor Countries, International Review of Environmental and Resource Economics, 12: 2-3, pp 129-176. An example of international trade that can relax the private good character of adaptation: Schenker, O. (2013): Exchanging Goods and Damages: The Role of Trade on the Distribution of Climate Change Costs. Environ Resource Econ 54, 261–282. Possible interactions between mitigation and adaptation: - Kane, S. and J. F. Shogren (2000): Linking adaptation and mitigation in climate change policy, Climatic Change, 45: 75–102. - Ingham A., J. Ma and A. Ulph (2007): Climate change, mitigation and adaptation with	Noted. challenging to introduce deeper discussion on additionality at this point, some of it is covered in int'l cooperation chapter	Snorre Kverndokk	Frisch Centre	Norway
49867	73	36			Add that other innovative financial products and structures are both possible and increasingly common, such as funds, operating companies and others	Taken into account. Funds are noted in text	Jason Patrick	New Zealand Green Investment Finance	New Zealand
60309	73	36	74	45	Repeating point 1 above regarding ESG crowding out An issue that is being overlooked in the impact of Covid (particuarly) and a 'just transition' narrative is the ESG bandwagon crowding out the the climate changed agenda - there is massive institutional invetor demand for ESG products before any meaingful SG standards have been developed - threre are dubious claims for the asset class and there is a dwith the risk that capital is funnelled away from climate adaptain and mititation to more generalist objectives with weaker climas - this is a huge risk - there is also a huge risk of an ESG bublble - ESG indices include tech stocks whose both of these factors combining to undermine the cause of climate fiannce	Noted. see discussion in just transition section, not sure literature supports the crowding out point	Andy Sloan	Guernsey Finance/Guernsey Green Finance	United Kingdom (of Great Britain and Northern Ireland)
81839	73	36	73	38	see above.ESG as private, voluntary mechanism is prone to 'greenwashing' and carries other long-term risks for policy space of governments (cf. Yannis Dafermos , Daniela Gabor & Jo Michell (2021): The Wall Street Consensus in pandemic times: what does it mean for climate-aligned development?, Canadian Journal of Development Studies / Revue canadienne d'études du développement).	Taken into account. included reference	Elena Hofferberth	University of Leeds	Switzerland
84393	73	36	75	49	You have referenced the fact that climate risk is an endogenous risk and you also mentioned briefly the fact that choices of banks will affect that risk. One dimension that is not so well covered though is how banks can use that concept to reduce the cost of capital for investments in climate mitigation. I.e by doing so they might reduce the risk to other assets/transactions they have in their books and therefore the overall risk might be smaller than if they see a single financing for a mitigation project in isolation. I think it is worth adding a bit more on that.	Noted. Noted but the asset vs. portfolio risk perspective seems out of scope here	Penny Apostolaki	Independent Experts / Current employment: Barclays Bank	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86967	73	36	73	40	15.6.6 Support the development of new asset classes Our section refers to support for development of new asset classes - can we help our readers by articulating further which new asset classes we are referring to by giving specific examples? Bonds/fixed income as an asset class - our chapter shows these can be structured in a legion of ways - green bonds, catastrophe bonds, social bonds, SDG bonds, blue-bonds, gender bonds, GDP-linked bonds etc. In our development of local capital markets and in our macroeconomic sections we have references to carbon remediation assets. Traditionally analysts talk of stocks/equities, bonds or fixed income, cash/money markets and commodities as examples of asset classes. Some literature studies also refer to alternative asset classes such real estate etc. In this section - which new asset classes are we referring to? If we are talking about innovation of financial products - we should help the reader and clarify in the title? In our development of local capital markets we make reference of carbon remediation assets as a new asset class - if we are referring to this asset class, we should cross-reference and reflect this in our narrative in this section - helps the reader ?	Accepted. Innovative financial products was title of section but had not been updated in SOD, will be changed in FGD	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59223	73	37	73	37	Environmental, social, and governance (ESG) indices are important, but they are not financial products.	Taken into account. Clarified the distinction in the text	Government of United States of America	U.S. Department of State	United States of America
59225	73	43	73	44	Delete example as too old "Swedish pension funds, which resulted in pioneering efforts in climate and green bonds by the European Investment Bank and the World Bank in 2007-2008." Replace with statement about the potential importance of domestic pension funds and insurance companies as markets for green bonds because they have continuing needs to generate moderate, but low-risk returns in domestic currency for annual payouts.	Accepted. Deleted specific reference to countries and noted pension fund preference for bonds	Government of United States of America	U.S. Department of State	United States of America
59227	73	45	73	45	Is "responsible" the term used in the source citation?	Accepted. Edited text to be more precise	Government of United States of America	U.S. Department of State	United States of America
86969	73	46	73	46	15.6.6 Support the development of new asset classes Page 73, line 46: "Since AR5, labelled green bonds have grown significantly, exceeding 160 billion USD in 2017–2018" Page 73, line 46 section 15.6.7 new financial products refers to "Municipal green bond issuance has also been strong in certain countries such as Sweden (see further discussion on municipal green bonds in section 15.6.6 on local actors)". 1. For our final draft, we should consider adopting market convention across all sections in our chapter by referring to "bonds outstanding" for a specific time period? 2. For our final draft - we should help the reader connect to our Chapter narrative by cross-referencing to discussion of municipal bonds in both section 15.6.5 cities-local actors and 15.6.8 development of local capital markets discussion. Our ZOD-FOD-SOD dLCM15.6.8 draft established that sovereign and quasi-sovereign bonds (state-national banks, cities/municipalities, state entities) including examples such as rail, government treasuriesl) can be important in development of local capital markets through; - mobilising diverse investors-long term capital (in relevant country contexts) including local/international institutional investors through: - sovereign/quasi sovereign bond issuance (state-national banks, cities/municipalities, state entities) with range of tenors to build benchmark bond yield curve (pricing discovery/liquidity); - bonds can be issued a legion of ways as reflected across Chapter 15 [green bonds, catastrophe bonds, social bonds, blue bonds, nature-linked bonds, sustainability bonds, sukkuk bonds, GDP-linked bonds, nature linked bonds etc: which we should reflect in our final draft dLCM); - co-ordination, standardisation and scaling up of investment vehicles (eg one stop shop project preparation facilities which embed early stage support derisking to kick start	Accepted. Clarified both bonds issued and outstanding, cross reference to munis and dLCM	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
77891	74	3	74	4	As noted in line 71, recommend inserting reference that municipal green bond issuance has been strong at the subnational level in California as well.	Noted. Deleted specific reference to countries	Alex Rau	Climate Wedge LLC	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86971	74	3	74	4	section 15.6.6 cities/section 15.6.7 new asset classes/innovative financial products Page 72, lin 46 section 15.6.5 cities refers to "In the mature bond market, e.g., the US, one of the biggest 47 challenges to green municipal bonds is the lack of bankable green projects or project pipelines. projects and project pipelines are generally smaller in scale than the bond markets typically like to see 2 come to market (Saha and D'Almeida 2017)" Page 73, line 46 "section 15.6.7 new asset classes" refers to "Municipal green bond issuance has also been strong in certain countries such as Sweden (see further discussion on municipal green bonds in section 15.6.6 on local actors)". 1. For the final draft - we should cross-reference the municipal bond discussion to both ZOD-FOD-SOD dLCM 15.6.7 and 15.6.5 local actors 2. The $100bn climate finance/Paris MRV by developed nations which is to be directed to the entire "developing country universe" - our dLCM takes account of literature solutions to support the lowest income developing countries (highest risk/highest cost of capital). However these literature discussions - the mobilising instruments, the challenges the needs - common to the entire "developing country universe" irregardless of how these countries are described - emerging, developing, low income, middle income etc. There are discussions around "Investment grade UK" potentially setting up an infrastructure development bank to continue providing guarantees to derisk projects in the UK (see UK Infrastructure commission reports). The EIB provides guarantees including in investment grade countries in Europe. Literature studies point to the possibility of setting up a multilateral supra-guarantor institution with the explicit task of providing guarantees to developing countries. We should be mindful to compare apples with apples, not apples and oranges by comparing literature on developing country bond markets with developed country bond markets?	Noted. removed dicussion of specific countries. Cross reference to de-risking in DLCM	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
51255	74	4	74	6	The most complete and up-to-date academic paper on the green bond universe and its variants (such as climate bonds, social bonds, social impact bonds, benchmark bonds, SDG bonds, sustainability bonds, sustainability-linked bonds, etc.) should be included in terms of providing a more adequate overview of the green bond universe in the latest academic literature. Reference: Schumacher, K. (2020). The Shape of Green Fixed Income Investing to Come. The Journal of Environmental Investing 10(1), 5-29. http://dx.doi.org/10.2139/ssrn.3663308	Accepted. included reference	Schumacher Kim	Tokyo Institute of Technology	Japan
59229	74	4	74	4	Unnecessary to single out Sweden here.	Accepted. Removed specific country reference	Government of United States of America	U.S. Department of State	United States of America
86999	74	4	74	6	section 15.6.6 new financial products "Beyond green bonds, 5 additional products such as green loans, green commercial paper and sustainability-linked loans have 6 also been introduced in the market (CBI 2019)" For the final draft, we should help the reader by linking the "green money market products" - (green commercial paper, green deposits) to building the short-end of the yield curve section dLCM 15.6.7	Accepted. added cross reference	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59231	74	8	74	9	Delete this statement: "… but as of yet literature has not been identified that explores the extent to which the increase in indebtedness for sovereigns and corporates has been financed via climate-related labelled debt products."	Noted. Statement in text is correct so no reason to delete, but rephrased to clarify.	Government of United States of America	U.S. Department of State	United States of America
79079	74	17	74	20	"Index providers and exchanges can also play a role in supporting the development of innovative financial products for climate action. Low-carbon indices have proliferated in recent years, with varying approaches including reduced exposure to fossil, best-in-class performers within a sector, and fossil20 free (UN PRI 2018) (see discussion on ESG index performance that follows in this section)." The problem is that those products which basically transfer ownershpi, have hardly any real-world emissions impact.	Noted. Noted supporting role of indices and exchanges in identifiying green investment opportunities	Young-jin Choi	Phineo gAG	Germany
77893	74	22	74	24	As noted in line 19, new green indices and tradable financial contracts are also appearing in the traditional commodity futures markets as demonstrated by the London Metal Exchange's launch of a green aluminum spot contract.	Taken into account. Noted green commodities but not specific example	Alex Rau	Climate Wedge LLC	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86997	74	23	74	23	section 15.6.6 new asset classes "Green security listings can also 24 be used to enhance local capital markets, see Section 15.6.7 for further discussion" We should consider rephrasing that to reflect that within the "developing country universe" - China and India have both used publishing exchange listing rules to enhance development of local capital markets. Several developing countries have also used fiscal incentives and grants to lower the transaction costs associated with bond certification. [Brief summary in dLCM, more indepth detail in earlier draft includes table 15.8/15/9 FOD]. Our dLCM refers to the entire "developing country universe" - irregardless of terminology - emerging, developing, low income, middle income, upper middle income and including China and India]: 1. India's SEBI incorporated Green Bond Principles/Climate Bonds Standards in the published listing guidelines as summarised by Climate Bond Initiative and SEBI at https://www.sebi.gov.in/legal/circulars/may-2017/disclosure-requirements-for-issuance-and-listing-of-green-debt-securities_34988.html at https://www.climatebonds.net/2017/06/howzat-india-sebi-delivers-new-gb-regs-pitched-line-international-best-practice-look-bounce. 2. China's development of local capital markets included publishing green bonds listing requirements as discussed at https://www.lseg.com/sites/default/files/content/documents/Africa_GreenFinancing_MWv10_0.pdf. China published its 5year plan and economic blueprint in early March 2021. 3. For the final draft our dLCM should consider updating the narrative to include the new nature linked bonds where "cost of debt repayments can be paid using carbon credits (under see carbon remediation assets and Paris MRV in dLCM). Reports in literature of Pakistan	Noted. added cross reference to DLCM, no specific countries mentioned	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
60311	74	25	74	45	There is a mismatch between the typical investment horizon of private investors - 5-10 years with the lifetime of the assets class - 30/40 years. This will necessitate new products. Guernsey (https://www.weareguernsey.com/literature/making-waves-the-power-of-private-capital/ 2020) and the UK (2021) have made this point in reports and publications.	Noted. investment horizon mismatch covered in another section. Paricular literature in comment not the most relevant, another section already included Carney references	Andy Sloan	Guernsey Finance/Guernsey Green Finance	United Kingdom (of Great Britain and Northern Ireland)
77895	74	31	74	45	In the United States, green bonds have also lagged adoption in other countries Europe in particular due to perceptions of issuers exposing themselves to increased litigation risk by adopting green bonds if they subsequently do not perform on those obligations. Legal barriers to adoption of green bonds are still significant in certain regions of the world, the US in particular (Chiang 2017)	Noted. did not include as a specific argument since it is a specific country example with grey literature only. Other arguments are noted 'inter alia'	Alex Rau	Climate Wedge LLC	United States of America
15325	74	33	74	37	The description in this paragraph is a general phenomenon, and the deliberate emphasis on individual countries is inappropriate. So, it is suggested to delete "including China and India."	Accepted. Deleted specific country reference	Government of China	China Meteorological Administration	China
47129	74	33	74	45	To compliment green bond standards, publicly available and regularly published impact reporting on green bond proceeds allocations may also serve to boost the transparency of green bonds and provide additional assurance against greenwashing.	Noted. added point on impact reporting inconsistency	Clarence Tolliver	University of Michigan Law School	United States of America
16673	74	34	74	36	"There is no universal definition of green bonds" is not an exact phrase. It should be modified to say "it's being made" rather than "no definition". And please consider including "Green bond standards are being established not only in the EU but also in other countries. Korea announced the green bond standard in December 2020, and made it mandatory for third-party verification, focusing on improving transparency and preventing green washing. These activities must be accelerated." ISO14030-1 is the international standard for green bonds. By the time this report is published, it will have been published.	Noted. Korea's developments noted but avoiding specific country examples. Point about other taxonomy/standard developments noted in text. 'there is no universal definition' is accurate, nor is there a 'universal' definition under development	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
86479	74	39	74	41	In reference again to the lack of evidence for the decarbonization effectiveness of the best-in class approach in the EU Taxonomy, I believe that this paragraph should mention that a potential threat to appropriate monitoring and labeling of climate finance instruments could derive from over-centralization of standards. In this context, potential flaws in the EU Taxonomy (for example from the use of the best-in-class approach) will reverberate on the majority of climate finance policies, regulations and standards within the EU. The Green Bond Standard relying on the EU Taxonomy for the identification of a "green" investee activity is an example. I think a discussion on the most effective level of centralization vs. granularity of standards could be useful.	Noted. good point but no literature found. Included balanced language on tradeoffs of specific definitions and transaction costs.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
51267	74	45	74	45	Further capacity building of finance industry and corporate practitioners as well as regulators is required to fight the grwoning risk of "competence greenwashing", which is the type of ESG-related greenwashing wherein ESG insitutions and ESG practitioners with little to no material ESG track records to overstate their levels of ESG expertise or personal/insitutional capacities at which they can process ESG investing-related matters. Reference: Schumacher, K. (2020). 'Competence greenwashing' could be the next risk for the ESG industry. Responsible Investor. Retrieved from https://www.responsible-investor.com/articles/competence-greenwashing-could-be-the-next-risk-for-the-esg-industry	Noted. speculative, opinion piece that does not meet grey literature requirements	Schumacher Kim	Tokyo Institute of Technology	Japan
86973	74	46	72	46	section 15.6.6 cities/section 15.6.7 new asset classes/innovative financial products Page 72, lin 46 section 15.6.5 cities refers to "In the mature bond market, e.g., the US, one of the biggest 47 challenges to green municipal bonds is the lack of bankable green projects or project pipelines. projects and project pipelines are generally smaller in scale than the bond markets typically like to see 2 come to market (Saha and D'Almeida 2017)" Page 73, line 46 "section 15.6.7 new asset classes" refers to "Municipal green bond issuance has also been strong in certain countries such as Sweden (see further discussion on municipal green bonds in section 15.6.6 on local actors)". 1. For the final draft - we should cross-reference the municipal bond discussion to both ZOD-FOD-SOD dLCM 15.6.7 and 15.6.5 local actors 2. The $100bn climate finance/Paris MRV by developed nations which is to be directed to the entire "developing country universe" - our dLCM takes account of literature solutions to support the lowest income developing countries (highest risk/highest cost of capital). However these literature discussions - the mobilising instruments, the challenges the needs - common to the entire "developing country universe" irregardless of how these countries are described - emerging, developing, low income, middle income etc. There are discussions around "Investment grade UK" potentially setting up an infrastructure development bank to continue providing guarantees to derisk projects in the UK (see UK Infrastructure commission reports). The EIB provides guarantees including in investment grade countries in Europe. Literature studies point to the possibility of setting up a multilateral supra-guarantor institution with the explicit task of providing guarantees to developing countries. We should be mindful to compare apples with apples, not apples and oranges by comparing literature on developing country bond markets with developed country bond markets?	Noted. Added cross references. Literature that meets grey literature bar on reduced premiums not available (only singular bank studies at this point)	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
82221	75	5	75	17	De-risking opportunities with green bonds works better if developing countries can package these to be issued by multilateral organizations to increase the up-take as well arranging the servicing of these bonds. Without such structures, their usefulness outside Europe, North America, Australia, New Zealand, and Japan is extremely limited.	Noted. derisking point is made with a reference to DLCM	Smile Dube	California State University, Sacramento	United States of America
86975	75	5	75	17	section 15.6.7 new asset classes For the final report we should be mindful of the terms used - in some sections it is not very clear which countries are being refered to as "emerging"? Worth noting that for the final draft, for our ZOD-FOD-SOD development of local capital markets includes the entire "developing country universe" including China and India: 1. India's SEBI incorporated Green Bond Principles/Climate Bonds Standards in the published listing guidelines as summarised by Climate Bond Initiative and SEBI at https://www.sebi.gov.in/legal/circulars/may-2017/disclosure-requirements-for-issuance-and-listing-of-green-debt-securities_34988.html at https://www.climatebonds.net/2017/06/howzat-india-sebi-delivers-new-gb-regs-pitched-line-international-best-practice-look-bounce. 2. China's development of local capital markets included publishing green bonds listing requirements as discussed at https://www.lseg.com/sites/default/files/content/documents/Africa_GreenFinancing_MWv10_0.pdf. China also recently published its 5year plan and economic blueprint in early March 2021. 3. For the final draft our dLCM we should updating the narrative to include the new nature linked bonds where "cost of debt repayments can be paid using carbon credits (see carbon remediation assets-Paris MRV discussion in ZOD-FOD-SOD dLCM). Reports in literature of Pakistan being one of the first sovereigns to tap this type of biodiversity linked bond	Noted. removed references to specific countries	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86977	75	5	75	17	section 15.6.7 new asset classes "The Yes Bank green bond illustrates an example of mitigating some of the 16 credit risk, whereby the Indian commercial bank sold its green bond to the IFC, which in turn resold 17 the bond on the London Stock Exchange under its higher credit rating (Torvanger et al. 2016)" We should consider putting all the discussion on reduction of cost of capital in one place under our dLCM to support the reader with consistency in narratives? Our text above does not capture all the nuances of the Yes Bank issuance? IFC has a mandate to support development of local capital markets and the Yes Bank bond issuance to which we refer was part of the ongoing programme to develop both the "onshore and offshore Rupee bond" programme in the process extending both the onshore and offshore bond yield curve and mobilising both local and institutional investors as summarised: https://www.ifc.org/wps/wcm/connect/be6c1b09-9e08-4fc4-9630-45ecc078cc88/EMCompass+Note+28+Masala+Bond+Program+FINAL.pdf?MOD=AJPERES&CVID=lDmkW5e The bonds were privately placed with IFC for some of the tenors with longer tenors issued both onshore and offshore to support ongoing efforts to lower the cost of borrowing for issuers. We should update our dLCM to reflect the fact that with technical assistance - described in our dLCM and other specific green technical assistance programmes https://www.ifc.org/wps/wcm/connect/Industry_EXT_Content/IFC_External_Corporate_Site/Financial+Institutions/Priorities/Climate_Finance_SA/GB-TAP/ - the "developing countriy universe" can be supported to explore "both offshore and onshore bond markets" with	Accepted. Removed Yes bank example from this section, cross referenced DLCM	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59233	75	8	75	8	Explain sukuks (Islamic finance instruments).	Accepted. Further described in text	Government of United States of America	U.S. Department of State	United States of America
59235	75	10	75	10	Delete "by emerging market institutions"	Taken into account. Sentence deleted in revision	Government of United States of America	U.S. Department of State	United States of America
59237	75	11	75	11	Replace "Yes commercial bank" with "YES BANK"	Accepted. Corrected	Government of United States of America	U.S. Department of State	United States of America
59239	75	11	75	12	NAFIN is Nacional Financiera.	Taken into account. Sentence deleted in revision	Government of United States of America	U.S. Department of State	United States of America
77897	75	11	75	17	Indeed, issuing green bonds can increase the ability of developing countries or subnational governments or even corporate issuers to reach international investors in developed markets, as the scarcity of green bond instruments vs. investor appetite creates an effective screening and discovery tool to reach developed capital markets	Noted. The degree to which this is an effective screening is in doubt, however intent of attract international investors noted in text.	Alex Rau	Climate Wedge LLC	United States of America
59241	75	12	75	12	Replace "finance institute" with "bank"	Taken into account. Sentence deleted in revision	Government of United States of America	U.S. Department of State	United States of America
59243	75	14	75	14	Delete due to old citation and contradictory end clause: "79% of the investors in the Korean Export Import Bank green bond were from the U.S. and Europe, although the degree to which they have attracted international investors is largely not known."	Accepted. Deleted old citation	Government of United States of America	U.S. Department of State	United States of America
59245	75	15	75	17	Move earlier in paragraph after first YES BANK sentence.	Taken into account. Sentence deleted in revision	Government of United States of America	U.S. Department of State	United States of America
59247	75	18	75	19	Not an indicator of uptake, but an indicator of additional benefits to the issuer. Most of the green bonds sold to date have had no lower interest rate due to the green aspects.	Taken into account. Revised text to focus on an indicator of demand	Government of United States of America	U.S. Department of State	United States of America
63433	75	20	75	22	How about transition bonds? Should have a section on that given many countries will need to continue to finance transition activities that won't be eligible for investment under the "green" principles.	Noted. briefly noted transition but don't have space to add another section	Government of Canada	Environment and Climate Change Canada	Canada
59249	75	21	75	23	There may be a few examples, but this is not generally true. Delete "Green bonds are an example of a financial product where investors, in certain parts of the market, may be starting to pay a premium or so-called 'greenium' for reduced climate risk." This is contradicted by the next paragraph.	Accepted. Deleted phrase since explanation is in following paragraph	Government of United States of America	U.S. Department of State	United States of America
49869	75	24			It is true that there is weak evidence of improved premium - however there is evidence that green products bring more investor depth and increased interest from investors with specific green mandates	Taken into account. Revised text to make this point more explicitly	Jason Patrick	New Zealand Green Investment Finance	New Zealand
59251	75	35	75	35	"trading marginally tighter" is unclear. Is this post-issuance trading (secondary market) and unclear what tighter means.	Taken into account. revised section with more up-to-date academic literature, and this bank report refernce was dropped. Clarified primary and secondary market results in other papers	Government of United States of America	U.S. Department of State	United States of America
59253	75	36	75	36	Correct spelling is "spillover"	Accepted. Corrected	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86979	75	36	75	47	We should reflect on how we use the terminology "emerging markets? Some analysts in literature speak of emerging markets as a general term for the "entire developing country" universe: https://www.dealstreetasia.com/stories/ifc-development-investment-223872/ and also see https://olc.worldbank.org/system/files/Part%202_Climate%20Investment%20Opportunities%20in%20Cities-2.pdf	Accepted. Revised terminology	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59255	75	37	75	37	Only applicable for publicly traded companies and not public sector entities.	Accepted. Revised text to be more specific	Government of United States of America	U.S. Department of State	United States of America
59257	75	38	75	39	"issuing green labelled bonds can lead to a lower cost of capital for issuers" is contradicted by previous paragraph.	Taken into account. Revised text to explain	Government of United States of America	U.S. Department of State	United States of America
59259	75	44	75	44	Circular argument that financing brings in money: "but potentially with the distribution of wealth concentrated in the credit sector".	Taken into account. Revised text to exclude the distribution point as it was not pertinent to rest of argument	Government of United States of America	U.S. Department of State	United States of America
50197	75				I suggest to also discuss the role of sustainable finance labels in inducing more sustainable investment decisions of asset managers and in stimulating climate finance. A recent overview of such labels can be found in Megaeva, Engelen and Van Liedekerke (2021). SRI labels are an instrument for retail investors to understand the sustainable nature of financial products and are therefore very useful in channeling financial resources towards more companies and projects supporting climate change. Megaeva, Karina and Engelen, Peter-Jan and Van Liedekerke, Luc, A Comparative Study of European Sustainable Finance Labels (January 1, 2021). Available at SSRN: https://ssrn.com/abstract=3790435 or http://dx.doi.org/10.2139/ssrn.3790435	Taken into account. General point is reflected in text but suggested reference not included (paper status unconfirmed)	Peter-Jan Engelen	University of Antwerp	Belgium
51261	76	11	76	13	Given that this one of the key evidentiary obstacles to sustainable finance and ESG investing, additional literature should be provided. Schumacher et al. demonstrate that investors Japanese portfolio holdings are not in line with below 2ºC warming pathways. (Reference: Schumacher, K., Chenet, H., & Volz, U. (2020). Sustainable finance in Japan. Journal of Sustainable Finance and Investment, 10(2), 213–246. https://doi.org/10.1080/20430795.2020.1735219)	Noted. avoiding specific country points	Schumacher Kim	Tokyo Institute of Technology	Japan
59261	76	17	76	17	Unclear: "pledges by the financial sector"	Accepted. Clarified in text	Government of United States of America	U.S. Department of State	United States of America
79081	76	17	76	19	"While an upscaling of pledges by the financial sector could result in some avoided emissions (Glomsrød and Wei 2018) there is contested evidence about the amount of direct impact from divestment." It's simple: as long as the divested carbon asset continues to operate under different ownership, the emissions reduction will be zero. What is really necessary are early retirements of fossil fuel assets.	Taken into account. Revised text to also take into account the need for tighter regulation	Young-jin Choi	Phineo gAG	Germany
86483	76	18	76	18	As already mentioned in my Comment for Chapter 15, Page 29, a discussion on the effectiveness of divestment should be given more space and should be investigated to be discuss it in the Report. Evidence (sources available upon request) seems to point to: - No effect of equity divestment when not announced, as per standard corporate finance, unless new capital expenditure is financed through sale of shares - Some effect on strategic shift by equity divestment when announced, due to symbolic and 'social shaming' effects - Evidence for limited effect of engagement alone, often limited to the establishment of side green investement projects alongside the maintenance of core carbon intensive capital expenditures and investments - Evidence of noticeable effect of debt divestment, which affects upstrem project financing. Debt divestment includes not only bonds, but also and especially revolving credit, loans, and in the case of oil&gas, RBL (Reserve-Based Lending). All these are debt investment instruments for which the banking sector plays a central role. An important area of investigation is the relevancy of primary vs secondary markets for debt instruments	Noted. covered in section 15.3.1 , added cross reference	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4741	76	20	76	27	I suggest expanding on the point of this paragraph (the challenge of linking emission reductions to specific green bonds) by emphasizing that the inability to link emission reductions to green bonds means that there is no way to differentiate the climate mitigation potential of green bonds. Investors are limited to choosing between green and non-green bonds, even though the amount of GHG emission reductions achieved per euro invested was found to vary by a factor of 12 across bonds in a recent study (Gibon et al. 2020). Since this kind of information is not available to investors, there is no signal that could guide funds are allocated in an inefficient way. Gibon, T., Popescu, I. Ş., Hitaj, C., Petucco, C., and E. Benetto, 2020: Shades of green: life cycle assessment of renewable energy projects financed through green bonds. Environ. Res. Lett., 15, 104045, https://doi.org/10.1088/1748-9326/abaa0c.	Accepted. included reference	Claudia Hitaj	Luxembourg Institute of Science & Technology	Luxembourg
46413	76	20	76	21	The authors state, that it is challenging to link specific emission reductions with green bonds. This might be true for use of proceeds bonds but less for green project bonds as the asset is new and green. It might make sense to elaborate a bit more on type of bonds and the use of proceeds to differentiate the discussion. There should be a vast amount of literature available, e.g. discussion paper by 2Dii "Shooting for the moon in a hot air balloon?"; study by Ifo on "Sustainable finance" (in German only).	Noted. noted use of proceeds point, 2dii paper is referenced in additionality discussion	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
47131	76	20	76	27	Most publicly available impact reports provide estimated emissions reductions, energy savings, and related impacts of projects and assets in the energy sector. Broader impact reports for bonds linked to transporation, buildings, water, and other mitigation projects would meet investor demand for increased transparency and bolster the informative role of impact reports.	Noted. inconsistency in impact rptng is the key point, which is now noted in text	Clarence Tolliver	University of Michigan Law School	United States of America
82479	76	22		23	attention should be given to the scope of emissions in such studies. Recently, many financial studies were published with GHG emission scopes 1&2 as "proxies" of the greenness of companies, whatever the quality of these data, and whatever the relevance of using scope 1&2 to define a green company (knowing that for many sectors the scope 3 is largely prominent... therefore a progress in scope 1 via eg a car maker own factory, says nothing about the fact the same car maker may have shifted in the mean time from small energy efficient cars to big SUVs with over powerful engines ... that can only be captured by scope 3 emissions). As many financial studies do only focus on the relevance of econometric regressions, little attention is paid to the relevance of the data chosen to represent a phenomena.	Noted. noted scope 3 but due to space limitations did not expand in detail	Hugues CHENET	University College London	France
419	76	23	76	23	There has actually been at least one attempt at characterizing the lifecycle environmental impacts of green bonds financing; you may insert "A life cycle assessment study of green bonds for renewable energy financing has shown that green bonds might yield substantive avoided emissions, but with high variability depending on the choice of emissions baseline, technology, and region of project deployment. Furthermore, other environmental impacts may occur, presenting potential trade-offs at the local level (Gibon et al. 2020)." Reference: Gibon, T., Popescu, I. Ş., Hitaj, C., Petucco, C., & Benetto, E. (2020). Shades of green: life cycle assessment of renewable energy projects financed through green bonds. Environmental Research Letters, 15(10), 104045. doi: https://doi.org/10.1088/1748-9326/abaa0c	Accepted. included reference	Thomas Gibon	Luxembourg Institute of Science and Technology (LIST)	France
47345	76	27	76	28	we can add a new idea in this section about "Create a new or a unified platform for trading voluntary carbon credits and create or developed one standard for calculating, accrediting and documenting all voluntary credits under the UN or IPCC with a compiles with the Paris agreement to take more control of the carbon market and facilitating procedures for verifying and issuing carbon credits and for the compliance carbon credits market".	Noted. carbon markets not relevant here, covered in other chapters	Khaled Mohamed Madkour	Ain Shams University, Cairo, Egypt	Egypt
47347	76	27	76	28	We want to urge governments to provide the necessary support and support international stakeholders and initiatives to reduce the personal carbon footprint and support it internationally	Noted. Agree with point but no change in text needed	Khaled Mohamed Madkour	Ain Shams University, Cairo, Egypt	Egypt
59263	76	28	76	28	Green bond labeling does not require climate mitigation or adaptation; there are many other eligible types of environmental benefits. Separate term "climate bonds" is used for those that must have climate mitigation or adaptation benefits.	Taken into account. clarified in text	Government of United States of America	U.S. Department of State	United States of America
59265	76	28	76	29	Much of the previous discussion argues against this statement	Accepted. Revised text to reflect previous discussion	Government of United States of America	U.S. Department of State	United States of America
79085	76	28	76	29	I see an even bigger problem with fossil fuel bonds which continue to attract investors and are allowed to offer inapprpriately high yields/low risks. The Saudi Aramco Jumbo bond in 2019 for example was 8X oversubscribed. https://www.bloomberg.com/news/articles/2020-11-17/world-s-biggest-oil-firm-saudi-aramco-kicks-off-jumbo-bond-sale	Noted. Agree, no recent literature but balance of reducting non-green financing discussed in other sections	Young-jin Choi	Phineo gAG	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
51257	76	30	76	32	Greenwashing and the related labelling issues are a core barrier and one of the most cited material issues in the areas of sustainable finance and ESG investing that it should be covered to a larger extent and substantited a more and more recent literature. Schumacher (2020) covers the issues around greenwashing and mislabelling of green fixed income products (i.e. green bonds) in detail. (Reference: Schumacher, K. (2020). The Shape of Green Fixed Income Investing to Come. The Journal of Environmental Investing 10(1), 5-29. http://dx.doi.org/10.2139/ssrn.3663308)	Noted. reviewed greenwashing discussion in section, but this reference did not seem to address greenwashing in a robust academic way	Schumacher Kim	Tokyo Institute of Technology	Japan
51259	76	36	76	37	Greenwashing and the related labelling issues are a core barrier and one of the most cited material issues in the areas of sustainable finance and ESG investing that it should be covered to a larger extent and substantited a more and more recent literature. Schumacher (2020) covers the issues around greenwashing and mislabelling of green fixed income products (i.e. green bonds) in detail. (Reference: Schumacher, K. (2020). The Shape of Green Fixed Income Investing to Come. The Journal of Environmental Investing 10(1), 5-29. http://dx.doi.org/10.2139/ssrn.3663308)	Noted. reviewed greenwashing discussion in section, but this reference did not seem to address greenwashing in a robust academic way	Schumacher Kim	Tokyo Institute of Technology	Japan
59267	76	38	77	13	is fintech a term of art now? See https://www.usaid.gov/sites/default/files/documents/15396/FinTech_Partnerships_Playbook.pdf	Taken into account. Thank you for your comment. In 15.6.8. "Financial technology or 'fintech' applies to data-driven technological solutions that aims to improve financial services"	Government of United States of America	U.S. Department of State	United States of America
59269	77	1	77	2	First part of MRV is measurement, not monitoring.	Taken into account. The table is now removed	Government of United States of America	U.S. Department of State	United States of America
86981	77	2		13	For the final draft we should consider linking Ex Sum- sub-Sahara Africa energy access to [PAYGO and storage models] and fintech narrative Here are some examples: PayGO & Storage https://www.pv-magazine.com/2021/02/22/storage-and-payg-critical-to-deployment-of-african-off-grid-renewables/ Fintech Partnerships - https://techcrunch.com/2021/03/15/flutterwave-and-paypal-partner-to-allow-african-merchants-to-accept-and-make-payments/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAEKBMf9GY-wljm4mUVgRruvOePFrTZ-IXHF6qSdJ0Eauwn7upagajFgD_5AhK7hRaLYFFuJsfhwwlyIoLlmjg-zR7-6pd2C9qA2XjiMVHQmAFnR8tBylyykMYpSjK8VUmb9MKMB0nI3OutaHTDzzb1R_LzSvLjLYoObGAxO4xCr2 $200m mobilised by Fintech Flutterwave across 33 Africa countries https://www.finextra.com/newsarticle/37641/africas-flutterwave-banks-170-million-in-fresh-capital Given the vast Africa terrain (approximately China, India, Europe, USA combined as summarised on page 20 - "Africa Energy Outlook 2014 - World Energy Outlook Special Report" https://webstore.iea.org/download/direct/416?fileName=WEO2014_AfricaEnergyOutlook.pdf - our new asset class section points to the role fintech and blockchain technology platforms can play in progressing UN SDG goals. We should consider tying up the narrative in our section to UN SDG 7/energy access?	Taken into account.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
79083	77	6	77	7	"High energy consumption is associated with the decentralised nature of blockchain to secure cryptocurrency ledgers, such as bitcoin (Mora et al. 2018)." Indeed, bitcoin has actually become a major contributor to global energy demand (https://digiconomist.net/bitcoin-energy-consumption/), without any positive real-world utility. It's a manifestation of human greed, not unlike a Ponzi Scheme.	Taken into account. The section is revised	Young-jin Choi	Phineo gAG	Germany
86989	77	7	77	10	section 15.6.7 dLCM It is widely recognised that developing countries have under8 developed local capital markets to different degrees – with bond markets still very much at a nascent 9 stage in many countries particularly in Africa (Mu et al. 2013; Berensmann et al. 2015; Essers et al. 10 2016; Du and Schreger 2016; Dafe et al. 2017). We should consider rephrasing from "under developed local capital markets" to "developing countries have local capital markets that are at different stages of development"	Noted. Rephrased and referred to DLCM	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59271	77	8	77	9	Depends on the proportion of renewable energy used in generating the electricity.	Taken into account. The section is revised.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86991	77	13	77	14	section 15.6.7 dLCM These offer 13 opportunities in terms of a greater diversification of funding sources, access to local currency funding 14 and in some scenarios addressing home bias effects in financing costs. We should emphasize to reflect that dLCM is a long term option noting "developing countries are at different stages of development": https://blogs.imf.org/2021/03/12/keeping-it-local-a-secure-and-stable-way-to-access-financing/#emergingmarkets	Noted. referred to DLCM	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
19093	77	15	78	18	Focus on Africa. External green finance must meld with local finance. That melding is crucial for the development of local capital markets. Yet, the flagship green projects have kept away local finance. Why? Local finance is 'messy' – quoting a leading private equity firm talking about a local pension fund. And yes, the money pools of Africa are opaque. That is a reality of moulding states. So, as Africa pulls the international investor, the deeper challenge is preparing local funds that will knit with the external funds. At the same time, the zeitgeist of ESG should encourage the international funds to embrace the development and sustainability of local capital markets. Ultimately, Africa will need empowered societies if the continent is to truly join the dynamics of investment. That means education.	Taken into account. The revised dLCM includes the discussions and literature on Africa	Fred Amonya	Lyciar	United Kingdom (of Great Britain and Northern Ireland)
8281	77	16	78	14	In regards to the situational context, it could also be important to mention what kinds of organisations/companies which most successfully have mitigated emissions in developing countries. E.g. Through investing in projects managed by INGO? NNGO? private sector investments? start-ups? international cooperation? This has not been mentioned in this chapter, and could be more suitable in another part of the report. However, I miss the discussion regarding lessons learned on this subject.	Taken into account. The section has been updated to include diverse players both private and public as part of "whole of society" approach including the players you mention - particularly noting that developing countries have soft institutional capacity and have to harnesss collaboration with all types of players. The international co-operation agreements such as the UN 2030 Agenda Agreements, UNFCCC Paris Agreement (which includes Paris MRV Support) and UNFCCC Copenhagen Agreement recognise the range of players at regional, national and international level including faith groups that are mentioned in the section. With respect to examples of successful mitigation -this can include all the components to which you refer - private sector,public sector,NGOs/INGOs/NNGOs,stat ups and international co-operation stakeholders. Example citationswhich provided an indication of mitigation projects that are being conducted for example in partnership with MDBs? a) Paris MRV https://www.wri.org/research/mrv-101-understanding-measurement-reporting-and-verification-climate-change-mitigation b) UN 2030 & SDGs https://sdgs.un.org/publications/transforming-our-world-2030-agenda-sustainable-development-17981 c) UN CDF annual report 2019 https://www.uncdf.org/article/6126/2019-annual-report d) IADB Sustainability Report https://publications.iadb.org/publications/english/document/Inter-American-Development-Bank-Sustainability-Report-2020.pdf e) AfDB Annual Report https://www.afdb.org/en/documents/annual-report-2019 f) Asia Development Bank https://www.adb.org/documents/adb-annual-report-2020	Frida Zahlander	DanChurchAid	Denmark
19091	77	16	78	14	Let us unpack 'technical support'. The object is green projects. We must look deeper. We must ponder the place of the lower-income world in the green world unfolding. If we focus narrowly on green projects, the poorer countries will be delivered to the same margins of humanity that they occupy now. Therefore, every green project should have a knowledge component that seeks to infuse the rigour of science across the children of the poorer countries. Only then will they become full participants in the new green world.	Taken into account. Discussion includes both climate and SDG investments and measurement of progress on both through mandatory reporting, strengthening responses through partnership, through technical assistance with location based institutions and achieves capacity building through participation and implementation of climate and SDG investments as part of the science-centred UN Build Back Better. Different types of technical assistance at both local,regional and international level incorporated including location based universities	Fred Amonya	Lyciar	United Kingdom (of Great Britain and Northern Ireland)
82481	77	16	78	14	it is crucial in these discussions to highlight the potential backlashes of over-financialisation for developing countries. ==> E.g. Akyuz 2017; Mawdsley 2018; Volz et al. 2020 Akyuz, Y. (2017). Playing with Fire. Deepened Financial Integration and Changing Vulnerabilities of the Global South. Oxford: Oxford University Press Mawdsley, E. (2018) '"From billions to trillions"', Dialogues in Human Geography, 8(2), pp. 191–195 Volz, U. et al (2020). Climate Change and Sovereign Risk. INSPIRE Working paper.	Taken into account. Section includes NGO activism literature on debt transparency and the use of financial instruments and has taken into account the citations provided	Hugues CHENET	University College London	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86987	77	16	77	25	Page 44 lines 1-12 section 15.5.2. Gaps identified with regard to sectors and regions refers to "Regionally, the current focus of the global climate investment needs, policies and opportunities tends to be on the big four (China, USA, EU-28 and India) and the G-20 generally (UNEP 2019a), but attention must accelerate on low-income Africa. This large continent currently contributes very little to global emissions, but its rapidly rising energy demands and renewable energy potential versus its growing reliance on fossil fuels and 'cheap' biomass (especially charcoal use and deforestation) amid fast-rising urbanisation makes it imperative that institutional investors and policy-makers recognise the very large 'leap-frog' potential for the renewable energy transition as well as risks of lock-in effects in infrastructure more general in Africa that is critical to hold the global temperatures rise to well below 2°C in the longer-term (2020–2050). Overlooking this transition opportunity, rivalling China, India, US and Europe, would be costly. Policies centred around the accelerated development of local capital markets for energy transitions - with support from external grants, supra-national guarantees and recognition of carbon remediation assets - are crucial options here, as in other low-income countries and regional settings." This analysis was originally situated in the development of local capital market section. For the final draft we should review putting this paragraph back to development of local capital markets section to help the reader connect the dLCM analysis in one place as per recommended guidance and earlier drafts?	Taken into account.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
87001	77	16	77	18	Page 44 lines 1-12 section 15.5.2. Gaps identified with regard to sectors and regions refers to "Regionally, the current focus of the global climate investment needs, policies and opportunities tends to be on the big four (China, USA, EU-28 and India) and the G-20 generally (UNEP 2019a), but attention must accelerate on low-income Africa. This large continent currently contributes very little to global emissions, but its rapidly rising energy demands and renewable energy potential versus its growing reliance on fossil fuels and 'cheap' biomass (especially charcoal use and deforestation) amid fast-rising urbanisation makes it imperative that institutional investors and policy-makers recognise the very large 'leap-frog' potential for the renewable energy transition as well as risks of lock-in effects in infrastructure more general in Africa that is critical to hold the global temperatures rise to well below 2°C in the longer-term (2020–2050). Overlooking this transition opportunity, rivalling China, India, US and Europe, would be costly. Policies centred around the accelerated development of local capital markets for energy transitions - with support from external grants, supra-national guarantees and recognition of carbon remediation assets - are crucial options here, as in other low-income countries and regional settings." This analysis was originally situated in the development of local capital market section. For the final draft we should revert to to the original draft and have this paragraph back to development of local capital markets section - so we group analysis as per recommended guidance to help the reader connect with the narrative? This paragraph also captures the scale of "vast Africa" - important for financing costs considerations and technology selections..	Taken into account.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
70905	77	17	77	17	EU-28 - to note Brexit.	Taken into account. Thank you for your comment	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
59273	77	18	77	18	Avoid didactic phrasing such as "attention must accelerate"	Noted.	Government of United States of America	U.S. Department of State	United States of America
59275	77	18	77	21	This another example where this report is advocating for Africa over other developing regions, without an objective rationale.	Noted. The section has been updated with recent figures confirming sub Sahara Africa as a region lags behind all regions in terms of progresss on UN SDG 7 Energy Access Indicators towards 2030. Citations evidence include: a) https://www.who.int/news/item/07-06-2021-global-launch-tracking-sdg7-the-energy-progress-report b) clean cooking indicators as summarised at https://rdcu.be/cpdMS. c) UNFCCC Paris Agreement Article 4(6) recognises the special circumstances of LDC and SIDs nations whilst Decision 2/Article 3 of the UNFCCC Copenhagen Climate Finance Accord notes the particularly vulnerable as Africa, LDCs and SIDs.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86993	77	19	77	23	secton 15.6.7 dLCM Decarbonisation in developing 20 countries will need to be across diverse energy systems with access to finance for projects ranging from 21 short-term loans for innovative clean cooking solutions, decentralised energy systems such as stand22 alone units and mini-grids, to affordable long term capital for intra-country power stations and regional 23 power pools and associated energy distribution network infrastructure (IRENA 2020b; IEA 2020e) We should cross-reference to box 6.1 in Energy Systems, cross-reference to SPM messages on energy systems	Taken into account. The section has been revised	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
86985	77	20	77	23	section 15.6.7 development of local capital markets refers to: "The scale of investments 21 required for energy access and low-carbon infrastructure in Africa and LDC developing country regions requires access to long term capital over and above what public sector governments of developing 23 countries and private sector commercial banks have available." We should revert back to the original version before SOD editing - the sentence read: "The scale of investments 21 required for energy access and low-carbon infrastructure in developing country regions 22 requires access to long term capital over and above what public sector governments of developing 23 countries and private sector commercial banks have available" Mobilising long term capital, the needs, the financing mechanisms, the development of local capital markts are not peculiar to Africa and LDC only but common to "developing country universe"	Taken into account. The section has been revised	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
87003	77	20	77	23	section 15.6.6 "The scale of investments 21 required for energy access and low-carbon infrastructure in "Africa and LDC developing country regions" 22 requires access to long term capital over and above what public sector governments of developing 23 countries and private sector commercial banks have available" We should revert back to the original text before SOD editing which read: The scale of investments 21 required for energy access and low-carbon infrastructure in "developing country regions" 22 requires access to long term capital over and above what public sector governments of developing 23 countries and private sector commercial banks have available Mobilising long term capital is not peculiar to Africa and LDC developing country regions only. However Africa and LDC, low income groups are perceived amongst the "highest risk/highest cost of capital" and some of the financial assistance and derisking interventions covered in literature are specifically targetted to this group. References to Paris Agreement should be updated to UNFCCC.	Taken into account. The section has been revised	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
19979	77	21	77	22	South Africa's Government Employees Pension Fund (GEPF)	Noted.	Thapelo Tsheole	Botswana Stock Exchange	Botswana
43509	77	21	77	22	Please add "," after "Africa" also add "and" after "LDC"	Noted. The section is revised	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
50415	77	21	77	22	Please add "," after "Africa" also add "and" after "LDC"	Taken into account. The section is revised	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
59277	77	23	78	1	Off topic and dated for this climate finance chapter: "The 2015 UN Addis Ababa Agenda Financing for Development (UN 2015) Article 14 estimates that to bridge the global infrastructure gap including the 1 to 1.5 trillion USD annual gap in developing countries requires both enhanced financial and technical support."	Rejected. a) UN 2030 Agenda Agreements that came into effect in 2015 - the Addis Ababa Action Agenda Financing for 2030 Development Article 14 speaks of bridging the global infrastructure gap including the $1 trillion to $1.5 trillion annual gap in developing countries. Citation can be found https://sustainabledevelopment.un.org/content/documents/2051AAAA_Outcome.pdf	Government of United States of America	U.S. Department of State	United States of America
19981	77	44	77	44	taking into account	Editorial. The section is revised	Thapelo Tsheole	Botswana Stock Exchange	Botswana
59279	78	6	78	9	Provide power sector investment estimates from IEA for all developing regions, not just Africa.	Noted. The section includes figures required to finance the energy investments to limit to 1.5 degrees.Rationale for including Africa: a) The section has been updated with recent figures confirming sub Sahara Africa as a region lags behind all regions in terms of progresss on UN SDG 7 Energy Access Indicators towards 2030. Citations evidence include: a) https://www.who.int/news/item/07-06-2021-global-launch-tracking-sdg7-the-energy-progress-report b) clean cooking indicators as summarised at https://rdcu.be/cpdMS. c) UNFCCC Paris Agreement Article 4(6) recognises the special circumstances of LDC and SIDs nations whilst Decision 2/Article 3 of the UNFCCC Copenhagen Climate Finance Accord notes the particularly vulnerable as Africa, LDCs and SIDs. The section has included Africa, LDC and SIDs nations. d) The section does provide discussion in the context of SDG and Climate Investments	Government of United States of America	U.S. Department of State	United States of America
87005	78	7	78	10	It is widely recognised that developing countries have under8 developed local capital markets to different degrees – with bond markets still very much at a nascent 9 stage in many countries particularly in Africa (Mu et al. 2013; Berensmann et al. 2015; Essers et al. 10 2016; Du and Schreger 2016; Dafe et al. 2017). P Amend "under-developed" to "developing countries have local capital markets at different stages of development"	Taken into account. The section is revised	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
87007	78	13	78	14	These offer 13 opportunities in terms of a greater diversification of funding sources, access to local currency funding 14 and in some scenarios addressing home bias effects in financing costs. Amend to: "These offer 13 opportunities in terms of mobilising long term capital, greater diversification of funding sources, access to local currency funding important for debt management 14 and in some scenarios addressing financing costs"	Taken into account. The section is revised	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59281	78	15	78	15	Delete "being seen as"	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America
82223	78	15	78	31	As part of their portfolio many pension funds (local and foreign) now invest in bonds and equities in developing countries that have developed bond and stock markets. Such investments might find placings in green bonds but these are limited in many low-income countries. Some of the not-so green bonds are simply labelled as 'green' under the 'greening labelling.' This is similarly to labelling food products as organic when there is nothing organic about it.	Taken into account.	Smile Dube	California State University, Sacramento	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82483	78	15		18	"institutional investors are being seen as a source of LT capital"… ? ==> "are being seen" seem to mean there is an alternative understanding but this is not explained. The notion of "artificial shortening of time horizons" should be mentioned here, leading so-called "long-term investors" to actually have much shorter involvment into eg firms through their assets, managed through external mandates most of which being typically 3yrs. The assertion in terms of long time horizon is challenged by many publications, incl. below, cf extract from Chenet 2019 (Planetary Health and the Global Financial System. SSRN Electron. J. https://doi.org/10.2139/ssrn.3537673) cf references therein (this paragraph has strongly influenced the Chapter.Finance's section on time horizon of the recent Dasgupta Report on the Economics of Biodiversity (2021) "Box 1. The central problem of financial market short-termism While carbon pricing can be seen as a good "back to the future" economic tool in theory, in practice it has been hard to implement and has yet to correct the inefficiency of markets towards climate change at the required global scale. Climate-related risk disclosure, which is supposed to help markets identify and price the real risk, is a more recent approach around which there is much expectation, but which may also suffer from a fundamental problem related to price: how can financial decision-making take into account a distant signal and price it unless it is material? As noted above, time scales involved in planetary health are multiple, and like climate change, can range from centuries and beyond. On the finance side, generalized short-termism has long been acknowledged and criticised, especially since the last crisis. Leaving aside high-frequency trading, it appears that there is also a time horizon mismatch at the practitioner level – not only for supervisors and regulators – that certainly makes climate change and planetary health difficult concepts to get on the radar of financial institutions. Typical turnover of investment portfolios is about 1-2 years (Bernhardt et al., 2017), most	Noted. The section has been recast in referring to diverse sources of capital and provides a discussion around the wide range of both short and long term climate and SDG projects which developing countries have to finance - from clean cooking solutions to mini-grids and regional decarbonised power pools and infrastructure	Hugues CHENET	University College London	France
59283	78	21	78	34	Numbers here would be more concisely presented in a table.	Noted. The section has been recast in giving general trends	Government of United States of America	U.S. Department of State	United States of America
46415	78	37	78	44	Other limitations for institutional investors might be (financial) regulation, e.g. capital buffers, and prohibition to invest into infrastructure. Please add these limitations as well.	Noted. The fiduciary constraints are already acknowledged into the section with discussion provided on both direct/indirect ways to invest in inftrastructure	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
70907	78	40	78	46	From what is stated here, I would again assume that there is a strong argument to be made in favour of carbon pricing so to increase risk-return perspectives and to assure that allocation of funds does not go to fossil industry	Noted. Carbon pricing is discussed in Chapter 15 and the section does provide some quantifying measures of levels of investment into fossil fuels	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
59285	78	46	78	46	Replace "non-government" with "nongovernmental"	Editorial. noted	Government of United States of America	U.S. Department of State	United States of America
59287	79	3	79	3	Replace "representing" with "with invested assets of" if that is correct.	Editorial. noted	Government of United States of America	U.S. Department of State	United States of America
59289	79	3	79	3	"as of 31 March 2020 has 3,038": Use past tense for historical numbers and move the date to the end of the sentence.	Editorial. noted	Government of United States of America	U.S. Department of State	United States of America
59291	79	7	79	15	Fine to provide this information on Africa, but do not omit similar information for other regions. A table format would be best for this.	Noted. The section has been updated and recast with examples reflected across all developing country regions including Africa	Government of United States of America	U.S. Department of State	United States of America
59293	79	9	79	9	Replace "whilst" with "while" throughout	Editorial. noted	Government of United States of America	U.S. Department of State	United States of America
59295	79	19	79	23	Discussion should not just focus on energy.	Taken into account. Section has been recast with reference to climate and SDG investments including examples for energy	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
87009	79	19	79	25	We should provide a summary of the ZOD-FOD-SOD dLCM bring down the cost of capital to help the reader 1, derisking through efficient investment vehicles through co-ordination & standardisation and scaling up (eg one stop shop project preparation facilities which embed early stage support derisking to kick start "bankable projects"; SPVs/securitation to achieve economies of scale); 2. derisking/improving project credit profile by embedding AAA MDBs/IFIs partners technical partner: improve counterparty risk; 3. derisking via guarantees/credit enhancement (sovereign guarantees/cross-border guarantees/multilateral-supraguarantor); 4. derisking though transparency strategies to address information asymmetry: a) bond labelling as established in dLCM FOD table 15.8/9 and also covered in 15.6.6 [green bond labelling], b) bond verification and certification [eg Green Bond/Climate Bond Standards v3 defines three types of reporting; allocation-eligibility-impact compared to "draft EU Green Bond Standard" that defines only two types of reporting allocation-impact] as established in dLCM FOD 15.8/15.9 c) bond listing on stock exchanges as established in dLCM FOD 15.8/15.9 in international/local exchanges as appropriate d) public sector finances transparency/debt transparency - measure, monitor, report by embedding UN National Statistical Systems to develop official public sector finances meeting international best practise standards IFRS/IASB standards; 5. development of local capital markets - build and extend yield curve benchmarks - to support local currency borrowing (manages FX risks) 6 Bond credit rating 7. Co-financing partnerships	Taken into account. The section is revised	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59297	79	24	79	27	What are the three phases? Clearly outline with consistent formatting for review.	Taken into account. The section has been recast with additional clarification	Government of United States of America	U.S. Department of State	United States of America
59299	79	26	79	28	Did the ODI report focus only on public sector projects funded by development assistance organizations or did it include private sector projects?	Taken into account. The section has been recast with additional clarification - 2018 ODI report included both private and public in the survey of 150 project preparation facilities as summarised at the citation at https://odi.org/en/publications/clean-energy-project-preparation-facilities/	Government of United States of America	U.S. Department of State	United States of America
19095	79	35	79	39	Climate, Finance, and Sociology: Broaden 'local institutional investors'. Common parlance looks at national entities, particularly pension funds. Broaden the view to sub-national entities. Let us illustrate. Perhaps the first listed project bond by a corporate in Africa was CPV Power Plant No.1, South Africa (2013). The primary investment is a solar plant. And the special purpose vehicle (SPV) included equity from a community trust. That sociological dimension is crucial for long-term project finance. And we could motivate the sociological dimension by looking at the dynamical system comprising the state, market, and society. To control that system, society must be accessed. Seen that way, de-risking means drawing in society and we need to see more society-motivated green projects in Africa.	Taken into account. Strengthening responses through partnership with location based entities including local community is is included in the section and the SPM messaging	Fred Amonya	Lyciar	United Kingdom (of Great Britain and Northern Ireland)
59301	79	35	79	35	List countries in alphabetical order throughout unless some other order is explained. Examples should not be limited to African countries.	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America
20443	80	1	80	1	Figure 15.11 needs better explanations. Start from explaining what's on the y-axis.	Noted. Improvements to explation included	Tommi Ekholm	Finnish Meteorological Institute	Finland
59303	80	1	80	1	Figure not needed. Delete it.	Rejected. The figure helps to illustrate the interplay between derisking, project phases, bond refinancing and timehorizions institutional investors participate.Improvements have been made to providing explanation to the diagram as requested by other stakeholders	Government of United States of America	U.S. Department of State	United States of America
59305	80	4	80	4	Delete "style"	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America
59307	80	11	80	11	"or" should be "and"	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America
59309	80	13	80	13	Delete "are said to" throughout this report.	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
81579	80	20	84	8	A useful paper with an Asian regional development context is: Tolliver, Fujii, Keeley and Managi (2021). "Green Innovation and Finance in Asia", Asian Economic Policy Review, 16(10), 67-87. For Latin America, see the following paper: Ketterer, Andrade, Netto, and Haro (2019). Transforming Green Bond Markets: Using Financial Innovation and Technology to Expand Green Bond Issuance in Latin America and the Caribbean. Inter-American Development Bank. Another paper, which could be useful for the discussion on developing green bond markets is: Tolliver, Keeley and Managi (2020). "Drivers of green bond market growth: The importance of Nationally Determined Contributions to the Paris Agreement and implications for sustainability", Journal of Cleaner Production, 244: 118643.	Accepted. Citations included	Peter Phelps	University of Leeds	United Kingdom (of Great Britain and Northern Ireland)
51241	80	22	80	25	All players in developing markets should ensure that specific bond instrument know-how is available to them early in the procurement process. This normally requires the appointment of a specialist adviser as typical PPP financial advisers may not have direct experience of bond financing. This could be done through the relationship with current guarantee providers, or through an international commercial or investment bank with project bond issuance experience. The reliance on third party experts with such experience is critical not only in the due-diligence, structuring and negotiation stage at the onset of the project, but also in terms of ongoing monitoring of the project aimed at ensuring that the financing and legal covenants are complied with by the issuer. Infrastructure projects are highly technical and specialized, and project-financing involves significant close monitoring – neither of which capabilities at present, reside with the local institutional investor markets or their contracted fund managers. For that reason, it is also highly encouraged that the institutional investors are not the only investors in a single lending tranche as they do not currently possess the in-house project finance or bond structuring expertise to perform the due diligence and perform the activities associated with such investment. A partnership in this regard could take many forms and could include domestic, regional or international banks who have the necessary technical capabilities to carry out due-diligence and monitoring of the projects.	Accepted. The section has been updated to illustrate the diverse range of co-investment partnerships including banks such as MDBs covered in literature evidence	Gregor Paterson-Jones	www.gregorpatersonjones.com	United Kingdom (of Great Britain and Northern Ireland)
59311	81	5	81	5	Delete "with burgeoning populations"	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America
59313	81	6	81	6	Replace "developing country universe" with "developing countries"	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America
87013	81	13	81	15	Building a government yield curve. - a. update to include new IMF technical note for "developing country universe" (emerging, developing, low income, middle income etc) building bond markets https://www.imf.org/en/Publications/analytical-notes/Issues/2021/03/12/guidance-note-for-developing-government-local-currency-bond-markets b update to include IFC Green Bond technical assistance programe - https://www.ifc.org/wps/wcm/connect/Industry_EXT_Content/IFC_External_Corporate_Site/Financial+Institutions/Priorities/Climate_Finance_SA/GB-TAP/ "entire developing country universe" (emerging, developing, low income, upper middle income, lower middle income etc)	Taken into account. The section is revised	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
87021	81	13	81	13	Cross reference all the bond discussion in chapter 15 to bond market development dLCM 15.6.7 - nature-linked-debt interest bonds/carbon-remediation-debt-interest payments-Paris MRV, catastrophe bonds, social impact bonds, GDP linked-bonds, green bonds, bluebonds, climate-debt swaps, sustainability bonds, gender bonds	Taken into account. The section is revised	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59315	81	18	81	18	If it is important to mention these other kinds/uses of bonds, they each need to be explained	Taken into account. Section has been recast with clarifying components	Government of United States of America	U.S. Department of State	United States of America
59317	81	20	81	22	Financial terms need to be explained.	Noted. Section updated with clarifying explanations	Government of United States of America	U.S. Department of State	United States of America
59319	81	28	81	29	Delete "as part of a sequenced reform process" since not necessarily the case.	Noted. Updated to with language to reflect this as a possible option	Government of United States of America	U.S. Department of State	United States of America
59321	81	33	81	33	Circular phrasing: "liquid secondary market contributes to the reduction of liquidity risk"	Editorial. Section recast	Government of United States of America	U.S. Department of State	United States of America
59323	81	34	81	34	Does not only apply to long-term government securities.	Taken into account. Section recast	Government of United States of America	U.S. Department of State	United States of America
59325	81	45	81	45	Delete: "The universe of developing countries is diverse."	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America
59327	81	47	82	1	Unclear why this is relevant for climate finance.	Taken into account. Section updated with clarifying explanations	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
59329	82	7	82	22	Is all of this general information on bond market development necessary? It is not climate-specific.	Taken into account. Secton updated to provide clarifying explanations on the opportunity for climate finance in strengthening responses and existing efforts in bond markets and financial services development	Government of United States of America	U.S. Department of State	United States of America
59331	82	8	82	9	One or multiple bonds?	Taken into account. Section recast	Government of United States of America	U.S. Department of State	United States of America
87011	82	23	82	25	Fiscal incentives and role of securities exchanges in development of local capital markets Expand dLCM FOD detail to add ASEAN Bond Market experience? Philippines-based energy company AP Renewables issued a PHP10.7bn (USD226m), 10-year, senior secured Certified Climate Bond to finance the Tiwi-MakBan geothermal power The ASEAN Infrastructure Fund (AIF) is a multilateral fund established by ADB and ASEAN members to help mobilise regional savings, including foreign exchange with co-financing by ADB fundsreserves, to fund infrastructure projects Green Lending https://www.nasdaq.com/articles/ifc-steps-up-green-lending-in-asia-2021-03-05 http://www.ammc.ma/sites/default/files/Press%20release-%20the%20%20AMMC%20publishes%20guidelines%20on%20Gender%20bonds%200503202 1_0.pdf	Taken into account. The section is revised	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
5575	82	29	82	29	Replce Renewable by "low carbon sources"	Taken into account. secton has been recast	Michel SIMON	Retraité/ Pdt d'association	France
59333	82	33	82	33	Is the number for green bonds?	Taken into account. Section updated with clarifying explanations	Government of United States of America	U.S. Department of State	United States of America
51243	82	39	82	41	Matching the PPP process with the bond issuance process: Government PPP units will need to adjust the timelines and process of the current PPP process to cater for the different project bond timeline (compared to traditional senior debt). Timeline: For bonds to be a realistic proposition for bidders to consider as a financing source, the PPP units should seek to set itself up with the correct enabling environment this would include making a clear reference and detailed reference to the Project Bond financing availability to the bidders in the tender documentation, providing additional time in the timetable for credit ratings, preparation of the bond placement documentation, and pre-work marketing the bonds with investors and finally regulatory compliance, and managing the timetable against the credit rating process is important, as seeking a pre-rating can only start once the deal structure and a final rating can only be sought once the project documentation is virtually finalized (execution documents are available for inspection).	Taken into account.	Gregor Paterson-Jones	www.gregorpatersonjones.com	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
51245	82	45	82	49	Practical implementation challenges: Several more practical challenges exist which require further investigation: a.Placement certainty or underwriting: Historically, even when a public bond issue has been more difficult to sell than the arrangers had anticipated, as a reputational matter, the bond lead managers have habitually purchased the unsold bonds (i.e. the bonds are therefore underwritten) for their own account, in the hope of re-selling them later; even though they had no contractual obligation to do so. In the emerging market context, underwriting the issue might well fall to the guarantor or indeed the major investor itself – the structure and implementation of this arrangement needs further investigation. Often neither the local pensions funds nor a potential guarantor would have the appetite or mandate to do this. b.Controlling creditor: Project Finance often requires quick turnaround from investors on project issues. In developed markets, this would normally be done by a controlling creditor who represents the bond investors – many years ago this was the monoline insurer to the issue. Pension Funds in SSA for example might not have the wherewithal or desire to perform this. Contractually, in a guaranteed transaction without a controlling creditor, the decision-making authority would lie with the bond trustee. However, in practice, bond trustees will rarely make any decision without consultation with and indemnification from bondholders. This process is impractical in the context of a project financing in which many decisions may be required in a short period. This might suggest that the guarantor and or other syndicate lenders such as banks might want to assume such a role in a project bond issuance in an emerging markets such as SSA; given the nature of the market – it is more perhaps more likely that development finance institutions (DFIs) and MDBs would be more willing to take this role. c.Funding for upfront work: it is unlikely that a bidder would consider starting the investigation of project bond funding independently given the myriad of regulatory and financing complexities. It would therefore require pre-structuring to a large extent and a high degree of investment certainty from the buyer(s) of the bonds to muster interest. In addition, the ratings process does not necessarily guarantee a positive rating. It is unlikely the bidders	Taken into account. Section updated with examples including MDBs/IFI partners	Gregor Paterson-Jones	www.gregorpatersonjones.com	United Kingdom (of Great Britain and Northern Ireland)
52913	83	20	83	20	…Cape Town made use of "use of".. The second "used of" should be dropped.	Editorial. Noted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
29605	83	28	83	31	This looks like a form of carbon trading, please clarify.	Taken into account. Section updated	Government of Norway	Norwegian Environment Agency	Norway
70909	83	28	83	31	It would be good to also provide here a link with CDM that under the Kyoto Protocol has served as such a CRA, with mixed results. It would be good to learn from mistakes in the past…..	Noted. The section has been recast	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
59335	83	31	83	32	Explain "centralised cooperative carbon remediation asset (CRA) institution".	Editorial. The section has been recast and updated	Government of United States of America	U.S. Department of State	United States of America
59337	83	46	83	46	Delete "controlling trillion USD"	Editorial. The section has been recast and updated	Government of United States of America	U.S. Department of State	United States of America
59339	83	46	83	47	Unclear connection to climate finance: "… points to mining sector debt and revenue transparency in bolstering domestic resources for infrastructure development and curbing illicit finance."	Editorial. The section has been recast and updated	Government of United States of America	U.S. Department of State	United States of America
29607	83	49	84	1	If possible, please elaborate on how this picture looks like if you only count the incremental costs of the projects as climate finance.	Noted. The climate finance - such as the Copenhagen Accord could be used in several ways including grants to fund the technical assistance and feasibility of the projects as part of concessional financing for the project. The climate finance can also be used to provide concessional finance tosupport development of green bond markets	Government of Norway	Norwegian Environment Agency	Norway
59341	84	4	84	4	Delete "Other analysts". Replace "refer to" with "recommended".	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America
59343	84	5	84	5	Rephrase: "Some have pointed"	Editorial. Noted	Government of United States of America	U.S. Department of State	United States of America
81841	84	10			This section should be complemented with a section on monetary-fiscal cooperation as well as taxation (corporate, welath, high income) as financing approaches.	Noted. The section is revised. Due to limited space, it wasn't able to include all details	Elena Hofferberth	University of Leeds	Switzerland
82971	84	17	86	43	Isn't this for Chapters 5 and 6.	Taken into account. To avoid overlapping, the section removed detailed information and reduced the length significantly	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
19983	84	19	84	19	small s instead of capital S at "some"	Editorial. revised	Thapelo Tsheole	Botswana Stock Exchange	Botswana
52915	84	19	84	19	… Some of which… "S" should be lower case.	Editorial. revised	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
59345	84	23	86	43	This level of detail fits better in chapters on energy and transport, rather than climate finance. This chapter should briefly describe these business models and focus on the financing implications.	Noted. Thank you for your comment. The section shortened the contents and briefly mentioned it.	Government of United States of America	U.S. Department of State	United States of America
72343	84	31	84	31	Please substitute "(JRC 2020;...)" with "Economidou, M., Todeschi, V. and Bertoldi, P., Accelerating energy renovation investments in buildings, EUR 29890 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-12195-4 (online), doi:10.2760/086805 (online), JRC117816", available at https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/accelerating-energy-renovation-investments-buildings.	Taken into account. Thank you for your suggestion. However, the section includes "Moles-Grueso et al. 2021" instead of "JRC 2020"	bertoldi paolo	european commission	Italy
70911	84	38	84	38	EU-28 - to note Brexit.	Noted. Thank you for your comment	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
82485	84		90		all section 15.6.8 is a bit hard to connect to the rest of the chapter. While it is a key message to highlight that finance is not an end goal per se but a potential enabler and massive structural changes in the economy are indispensable, it is a bit too superficial to address this topic in such a short chapter. Plus it seems almost all points quickly mentioned in this section are "positive" without mentioning the many inconvenients and backlashes (first on climate but beyond on non-climate nature-related threats currently highlighted in the quickly evolving environment about e.g. autonomous cars and new business models)	Noted. Thank you for your comment. Despite of limited space, acknowledging new business models and financing appraoches is important.	Hugues CHENET	University College London	France
351	85	9	85	9	cleaner air and less pollution are the same	Taken into account. Revised "cleaner air"	Sandro Fuzzi	ISAC CNR	Italy
72345	85	15	85	36	The role of aggregators for explicit demand response and the barriers they face in accessing the electricity markets is described in Bertoldi P, Zancanella P, Boza-Kiss B.; Demand Response Status in EU Member States; EUR 27998 EN; doi:10.2790/962868. Now after a third wave of EU legislation for electricity markets opening in the EU, most of the EU countries are opening their markets to aggregators and demand response. Demand response in also part of VPPs.	Noted. Thank you for your suggestion. However, due to limited space, it wasn't able to include the suggested literature	bertoldi paolo	european commission	Italy
59347	85	16	85	16	Define "prosumers"	Taken into account. Term 'prosumer' is removed, and the section is revised. "Peer-to-peer (P2P) electrictiy trading. Producers and consumers …"	Government of United States of America	U.S. Department of State	United States of America
77899	85	27	85	36	California's grid operator (CAISO) has a "self generation incentive program" that allows disaggregated providers of demand response flexibility to bid into the day ahead power market as a capacity provider, which has enabled an open-source framework for a variety of business models and actors, e.g. aggregating smart thermostats to reduce load during peak load periods, or more basically issue SMS-text message alerts to consumers to manually depower devices during peak load conditions in return for a financial incentive.	Noted. Thank you for your suggestion. However, due to limited space, the examples are removed from the chatper	Alex Rau	Climate Wedge LLC	United States of America
85903	85	28	85	32	Suggest updating this data: 1100 systems were installed as of September 2020. Figures quoted mix participant benefits and system benefits. Not clear where 20% of demand figure comes from. 8/MWh and 90 million p.a. figures quoted should be Australian dollars, and are benefits to all customers. The 30% of the total energy bill is the saving to participants in the VPP. The reference should be to Frontier Economics, not Economics, F.. See updates on this project here: https://www.cefc.com.au/media/0yhhelr3/25-ap-vpp-p88-90.pdf https://www.cefc.com.au/case-studies/australia-s-largest-vpp-to-benefit-sa-social-housing-tenants/ https://arena.gov.au/news/australias-largest-virtual-power-plant-ramps-up-in-south-australia/	Noted. Thank you for your suggestion. However, due to limited space, the examples are removed from the chatper	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
59349	85	37	85	48	Blockchain has already been mentioned and is relevant here. See, e.g., https://www.osti.gov/biblio/1524316	Noted. Thank you for your suggestion. Due to limited space, it wasn't able to include more discussion in detail	Government of United States of America	U.S. Department of State	United States of America
76665	86	1	86	21	Some community-ownership models enable individual participants to own assets with lower levels of investment, but others keep the assets in communal trust (through, for example, consumer cooperative models, foundation-owned models, or nonprofit enterprise models. (See, for example, Kelly, Marjorie, and Thomas M. Hanna. "Democratic ownership in the USA: a quiet revolution." International Journal of Public Policy 15, no. 1-2 (2019): 92-110; Hinton, Jennifer, and Donnie Maclurcan. "How on Earth: Flourishing in a not-for-profit world by 2050." arXiv preprint arXiv:1902.01398 (2019).)	Taken into account. Thank you for your suggestion. The literature is included.	Donald Maclurcan	Post Growth Institute; Economics department, Southern Oregon University; Institute for Sustainable Futures, University of Technology Sydney; Shumacher Institute	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
76667	86	11	86	12	As 'community ownership' is, by its very nature, not-for-profit, equity investments are only possible via other not-for-profit stakeholders (Hinton, Jennifer, and Donnie Maclurcan. "A not-for-profit world beyond capitalism and economic growth?." Ephemera 17, no. 1 (2017): 147.). That is to say, the words "communities' equity contributions might prove insufficient" are misleading, and might be better replaced with "the ability of communities to raise the financing needed might prove insufficient". It may be important in this section to distinguish 'community-owned' energy projects from community energy projects (the latter of which can involve private equity, the former of which relies on debt mechanisms and non-tradeable member investments - in the case of some consumer cooperatives).	Taken into account. Thank you for your suggestion. The literature is included.	Donald Maclurcan	Post Growth Institute; Economics department, Southern Oregon University; Institute for Sustainable Futures, University of Technology Sydney; Shumacher Institute	United States of America
43307	86	18	86	21	The drawbacks of microcredit practices should be recognized and discussed, see for example Aitken (2013, D&C) or Federici (2014, SAQ)	Noted. Thank you for your comment. Due to limited space, it wasn't able to include more discussion in detail	Daniele Tori in	The Open University Business School	United Kingdom (of Great Britain and Northern Ireland)
59351	86	22	86	22	Replace "PAYG" with "PayGo"	Editorial. Pay-as-you-go (PayGo)	Government of United States of America	U.S. Department of State	United States of America
87019	86	22	86	22	For the final draft we should consider linking Ex Sum- sub-Sahara Africa energy access to [PAYGO and storage models] and fintech narrative Here are some examples we should consider: PayGO & Storage https://www.pv-magazine.com/2021/02/22/storage-and-payg-critical-to-deployment-of-african-off-grid-renewables/ Fintech Partnerships - https://techcrunch.com/2021/03/15/flutterwave-and-paypal-partner-to-allow-african-merchants-to-accept-and-make-payments/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAEKBMf9GY-wljm4mUVgRruvOePFrTZ-IXHF6qSdJ0Eauwn7upagajFgD_5AhK7hRaLYFFuJsfhwwlyIoLlmjg-zR7-6pd2C9qA2XjiMVHQmAFnR8tBylyykMYpSjK8VUmb9MKMB0nI3OutaHTDzzb1R_LzSvLjLYoObGAxO4xCr2 $200m mobilised by Fintech Flutterwave across 33 Africa countries https://www.finextra.com/newsarticle/37641/africas-flutterwave-banks-170-million-in-fresh-capital Given the vast Africa terrain (approximately China, India, Europe, USA combined as summarised on page 20 - "Africa Energy Outlook 2014 - World Energy Outlook Special Report" https://webstore.iea.org/download/direct/416?fileName=WEO2014_AfricaEnergyOutlook.pdf - 15.6.6 points to the role fintech and blockchain technology platforms can play in progressing UN SDG goals. We should consider tying up the narrative in our section to UN SDG 7/energy access?	Taken into account. (internal comment) The section has been revised based on the discussions between LAs. Due to limited space, it wasn't able to include all details	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59353	86	34	86	35	Suggest deleting: ""The published and grey literature on PayG has not provided any comprehensive grounded picture of how PayG contributes in achieving sustainability transformations.""	Accepted. The section is revised	Government of United States of America	U.S. Department of State	United States of America
59355	86	43	86	45	Perfomance contracting is another option that should be referenced.	Taken into account. Performancing contracting (ESCO, UESC in US) is mentioned as an example in 15.6.2.	Government of United States of America	U.S. Department of State	United States of America
287	86	44	0	0	15.6.8.2 NbS very relevant, should be raised higher and given more of a profile, also cross reference with CH17 WG2	Taken in account	David Viner	Green Investment Group	United Kingdom (of Great Britain and Northern Ireland)
12113	86	44	88	33	Whilst nature-based solutions, which include some measures that may remove carbon are addressed, there is no consideration of CDR nor CCS financing at all. In the context of the required 100 GtCO2 to 1,000 GtCO2 removals by 2100 requirement (See IPCC SPM SR 1.5, part 3), this is an important omission from the text. How incentives might be constructed and what types of financial instruments might be appropriate or be required to secure CDR at scale in just, equitable and affordable ways is a critically important agenda. Ref COFFMAN, D. M. & LOCKLEY, A. 2017. Carbon dioxide removal and the futures market. Environmental Research Letters, 12, 015003. https://iopscience.iop.org/article/10.1088/1748-9326/aa54e8	Taken in account	Paul Rouse	Carnegie Climate Governance Initiative (C2G) - The Carnegie Council for Ethics and International Affairs	United Kingdom (of Great Britain and Northern Ireland)
51781	86	44	86	47	The definition given and used here for nature-based solutions doesn't match the definition given in the Annex A Glossary and used in Chapter 7. This is very confusing and should be avoided.	I used exacly the same definition in the glossary (IUCN's definition).	Florin Vladu	UNFCCC Secretariat	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
87015	86	44	86	46	15.6.8.2 Nature-based solutions including REDD+ We should help the reader by cross referencing the bonds to the bond market development in section 15.6.7 ? We will need to updte dLCM final draft narrative with nature-debt-linked bonds discussion - for example - Pakistan likely to be the first country https://www.bloomberg.com/news/articles/2021-02-25/first-sovereign-nature-bonds-get-lift-from-world-bank-backed-hub. Paris MRV carbon credits-carbon remediation-debt/interest payments option	Need to discuss the cross-reference with 15.6.7	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
86481	87	3	87	5	An important element in the discussion of NBS is Payment for Ecosystem Services (PES). I believe that the text should include a discussion on the potential of PES and especially related to public and sovereign finance, and as part of climate negotiaions at UNFCCC COPs. A great example is the valuation of necessary efforts by the Brazilian government to preserve the Amazon rainforest, which is a a global strategic asset for both climate and biodiversity. A discussion of the potential for an agreement for example at G20 level to provide stable, yearly PES to the Brazilian government in exchange to protect the Amazon rainforest while giving up development plans in the region (which are often both unsustainable and inconsistent with valuable management of Agro-Ecosystems) would be very useful.	Added PES, while not have much space to discuss details on PES discussion.	Lorenzo Campus	Ca' Foscari University of Venice, Italy	United States of America
82227	87	20	87	47	The emissions from deforestation and forest degradation is one of the most critical causes of climate change and reductions in biodiversity especially among countries that border the Equator. However, there are no good mechanisms available to reduce these emissions especially since REDD+ is accompanied burning large parts of the forest. The failure to attract private funding to reduce or stop REDD+ limits the amount of conservation in these countries. Often these countries issue credible threats to continue deforestation until they can be compensated adequately for not clearing the forest. Evenn if they were investments in this area, it is not clear whether any outside organization can prevent the country from violating the arrangement as the forests are sovereign territories.	Included in the challenges of REDD+.	Smile Dube	California State University, Sacramento	United States of America
51785	87	24	87	24	The reference to carbon markets must be a mistake. The emission reductions reported by REDD+ countries are currently not considered in any carbon markets. Consider also that decision 14/CP.19 considers further verification modalities could be required for inclusion of REDD+ in market-based mechanisms (paragraph 15), which has never been discussed further.	Added the explanation of the term REDD+.	Florin Vladu	UNFCCC Secretariat	Germany
51787	87	25	87	25	It is difficult to see why it would be "limited" if finance is available for REDD+ implementation, which includes all phases of REDD+ in accordance with decision 1/CP.16, including results-based finance. For what should funding be provided in addition?	Described that most of the finance were allocated to readiness phase while there is a lack of sufficient finance in each phase.	Florin Vladu	UNFCCC Secretariat	Germany
51789	87	30	87	36	REDD+ projects are not recognized under the UNFCCC, unless they are part of a national REDD+ strategy. This is not the case for the projects in the voluntary carbon markets, and it should therefore be avoided to mix REDD+ that follows the Warsaw Framework for REDD+ with 'projects' that don't. This would require further separation and explanation.	Separated the REDD+ under the UNFCCC and the voluntary REDD+ under the voluntary carbon markets.	Florin Vladu	UNFCCC Secretariat	Germany
46417	87	32	87	32	Instead of; "In the voluntary carbon markets, the volume of offsets….", it should be written: In the voluntary carbon markets, the volume of carbon units .....", because not all of the voluntarily produced units are actually used as offsets.	Deleted and added new reference.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
46419	87	37	88	9	The displayed challenges of REDD+ are insufficiently differentiated and partly also outdated. REDD+ coordination on the supply and demand side has improved over the last 5 years - and also the predictability of the existing funds is a given. The main uncertainty is related to REDD+ in compliance carbon markets, which is still uncertain. The sentence with the formulation: "uncertainty in effectiveness of the use of REDD+ finance such as REDD+'s results-based payment approach does not guarantee an effective REDD+" does not make sense. Please revise. The risk and factors necessary to create an enabling environment are very heterogeneous among developing countries, so it should be stated that this leads to very selective investments by private investors, but a general statement that these factors need to be explored would be incorrect here. Please revise the sentence: "Moreover, some characteristics of REDD+ makes it difficult to involve the private sector, such as insufficient returns on investment that low carbon prices cannot close the gap (World Bank 2017); the evolution of REDD+ to focus on national approaches has discouraged projects, and REDD+ could be losing out on an investment vehicle that some private sector actors are familiar with (Lujan and Silva-Chávez 2018)." Suggested revision: "Broad private sector investment is often also contingent on sufficient returns on investments, which require higher carbon prices. While government programs have focused on national approaches, the private REDD+ investors focused on more familiar, less risky-perceived project approaches." The last years have seen increased appetite from the private sector in REDD+, including non-project based approaches such as ART / TREES, therefore the conclusion in terms of "there is discussion on exploring other finance opportunities for the forestry sector, such as building new blended finance models combining different funding sources like public and private finance." should be rewritten in the sense of "in order to be sufficiently robust and effective, there are increased efforts to embed REDD+ together with other finance opportunities for the forestry sector, such as building new blended finance models combining different funding sources like public and private finance."	Revised. Added the uncertainty regard to compliacen carbon markets.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
51783	87	48	88	2	While the label 'nature-based solutions' might be fairly new, the described concepts has been in use for decades, in particular in multiple-objective forest management. Suggest to rephrase this.	Reflected.	Florin Vladu	UNFCCC Secretariat	Germany
29609	88	1	88	3	Jurisdictional, not necessarily national. A reference to why this change is pursued should be included here (For example, to avoid leakages)	Deleted.	Government of Norway	Norwegian Environment Agency	Norway
29611	88	4	88	6	It should be added that the costs have been reduced substantially in recent years, ref to Norwegian support for open access to satellite data. See: http://www.fao.org/gfoi/news-events/news/detail/en/c/1310418/	Need the evidence that the costs are actually reduced.	Government of Norway	Norwegian Environment Agency	Norway
59357	88	4	88	4	Add "need for additionality" and "cost and complexity of MRV systems"	Additionality is included in the forest reference emission levels. Added the cost and complexity of MRV of REDD+.	Government of United States of America	U.S. Department of State	United States of America
29613	88	10	88	11	Please also consider taking relevant findings from the recently published report "Dasgupta review", or from the most relevant and recent studies that are referenced within that report, into account when you are making your assessment. In our view some of the findings in your chapter, especially regarding nature-based solutions and the comprehensiveness with regards to that specific term seems to differ somewhat between findings in that report and your findings. We believe your assessment will improve by including information from that report. See https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review	Reflected.	Government of Norway	Norwegian Environment Agency	Norway
59359	88	10	88	11	Delete speculative statement, especially for REDD+: "Nature-based solutions, including REDD+, are likely to be one of the most difficult sectors to attract private finance." Much depends on the potential for sale of carbon credits on the voluntary and compliance markets.	Deleted the sentence.	Government of United States of America	U.S. Department of State	United States of America
59361	88	21	88	22	This does not shed much light: "Nature-based solutions deliver different benefits to different stakeholders, and the level of finance and business models needed for different types of nature-based solutions varies."	Will look for more references.	Government of United States of America	U.S. Department of State	United States of America
84391	88	21	88	33	All the examples in this section refer to on-land solutions. It is important to capture examples from oceans to provide a more balanced picture given the significance of oceans in climate mitigation and resillience	Added the description on blue-nature-based solutions, but will add the more explanation on it.	Penny Apostolaki	Independent Experts / Current employment: Barclays Bank	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
29615	88	23	88	24	In our view such discussions are and should be broader. Please also consider taking relevant findings from the recently published report "Dasgupta review", or from the most relevant and recent studies that are referenced within that report, into account when you are making your assessment. In our view some of the findings in your chapter, especially regarding nature-based solutions and the comprehensiveness with regards to that specific term seems to differ somewhat between findings in that report and your findings. We believe your assessment will improve by including information from that report. See https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review	Reflected.	Government of Norway	Norwegian Environment Agency	Norway
59363	88	26	88	26	Add wetlands, peatlands, and mangrove restoration as examples.	Added peatland and mangrove restoration.	Government of United States of America	U.S. Department of State	United States of America
59365	88	31	88	31	Mention Stand for Trees and individual purchases of carbon offsets for travel as examples of crowd-sourced funding.	It is USAID program but unable to find the literature that explain the initative (only website).	Government of United States of America	U.S. Department of State	United States of America
41665	88	34	90	20	Schalatek 2015/2018 has been updated and can be found here and supports the text as it stands.	Added reference as suggested: Schalatek, L. (2020) Schalatek, L. (2020) Gender and Climate Finance, NOVEMBER 2020 Climate Finance Fundament 10. Heinrich Böll Stiftung Washington, DC.	Watson Charlene	ODI	Switzerland
59367	88	34	90	20	Suggest the development of a section on Finance and Energy Equity which would include this section. EJ is discusssed in several sections but would be easier to understand its connection to finance in a single section. Needs more, and broader, references however formulated.	Noted.	Government of United States of America	U.S. Department of State	United States of America
82229	88	34	88	47	Gender--responsive climate finance is a critical area that needs serious attention in most low-income countries where most agricultural production is undertaken by women. While the concept of a gender dividend makes a lot of sense, there is almost a universal preference for boys in many developing countries and this tends to minimize the positive contributions of women and girls. For example, India has millions of 'missing girls' due to selective abortion driven by the payment of dowry to parents of girls. That being the case, it would seem to make sense to deal with this issue at the sametime as dealing with gender-responsive climate finance.	Not sure how to deal with this comment. while interesting what is being recommended is beyond the scope of the remit for this section	Smile Dube	California State University, Sacramento	United States of America
87017	88	35	88	47	15.6.8.3 Exploring gender-responsive climate finance - example gender bonds which we may want to include and help the reader connect the narrative by cross-referencing to the bond market development in section 15.6.7: http://www.ammc.ma/sites/default/files/Press%20release-%20the%20%20AMMC%20publishes%20guidelines%20on%20Gender%20bonds%200503202 1_0.pdf	reference added; reference added; and reference made in text to gender bonds	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
59369	88	37	88	38	Need to explain how this source defined and measured this gender gap and the geographic and time coverage.	The percent of men and women with have an account as measured by the Global Financial Inclusion (Global Findex) database …see text…There are continuing regional and country specific variation: India 6%, Indonesia 51% and Kenya 51%. The middle east and North Africa 35% of women have accounts relative to 52% for men.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
59371	88	41	88	41	Vague and unattributed: "The concept of a gender dividend is also attractive to governments and institutions."	The World Bank estimates that the world could achieve a 'gender dividend' of $172 trillion by closing gaps in lifetime labor earnings between women and men (Wodon et al. 2020). The concept of gender dividend or gender -equality dividend is very broad covering action to linking issue of investing in reducing pernicious and pervasive gender inequality in labour market, public policy, education and health care and in access to decision making. Ultimately it is about promoting gender equality to health, economic growth and performance inclusive of working to ensure efficiency and diversity in financial markets. Thus, governmental actions and acknowledgement of the issues is quite varied and range from specific to general such as developed countries have on the importance and the significant benefits to be had from investing in gender equality across multiple dimensions that in the literature are discussed as part of the gender dividend. These include the US (Section 342 Dodd-Frank act (HR4173, p.166), UK (action to get more women on board, NYT 2020). Developing countries case studies include Brazil, Malawi, Rwanda, PNG (ESCAP 2021). Please see Wodon et. al 2020 World Bank Report, How large is the gender Dividend, Aquino Almeida et. al. (2020) and RBM 2021. Reference add can include. UNESCAP (2021). Harnessing the Demographic Dividend with a Gender Dimension in Papua New Guinea. Policy Brief 2021/01; Wodon, Quentin; Onagoruwa, Adenike; Malé, Chata; Montenegro, Claudio; Nguyen, Hoa; de la Brière, Bénédicte. 2020. How Large Is the Gender Dividend? Measuring Selected Impacts and Costs of Gender Inequality. The Cost of Gender Inequality Notes Series;. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/33396 License: CC BY 3.0 IGO.; Aquino Almeida, T., Cinthya Rachel Firmino de Morais and Antonio Carlos Coelho (2020). Gender diversity, governance and dividend policy in Brazil, Revista de Gestao. Vol. 27 No. 2, 2020 pp. 189-205 Emerald Publishing Limited e-ISSN: 2177-8736 p-ISSN: 1809-2276 DOI 10.1108/REGE-03-2019-004: George Ohene Djan1, Sun Zehou and Jonas Bawuah (2017) Board Gender Diversity and Dividend Policy in SMEs: Moderating Role of Capital Structure in Emerging Market. Journal of Research in Business, Economics and Management (JRBEM) vol 9, 2, ISSN: 2395-221: RBM/Partnership to end Malaria and	Government of United States of America	U.S. Department of State	United States of America
59373	89	14	89	18	Has OECD updated these estimates?	Noted. OECD 2021, argues that '(t)otal support to programmes dedicated to gender equality and women's empowerment as the principal objective remains relatively stable over time. In 2018-2019, it amounted to USD 5.6 billion per year, representing 5% of total bilateral aid, a slight rise from the prior period.' And, as noted in Harmeling 2020, 'a recent evaluation of European Commission development funding found that the percentage of ODA funding dedicated to strengthening gender equality remains very low, around 3% in the period of 2014–18. Harmeling (2020) argues that all G7 countries spend less than 10% of their support on adaptation programmes, which also pursue gender equality as a priority objective.	Government of United States of America	U.S. Department of State	United States of America
59375	89	25	89	25	What is LDCF?	Least Developed Countries Fund	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
59377	89	44	89	44	Explain what Gender Lens Investing includes.	Gender lens is an approach that 'explicitly incorporates gender factors into investment analysis and asset allocation decisions' (Ashburn 2020, Biegel et al 2017).) According to Ashburn 2020, generally, but not uniformly, gender lens investors - equity, fixed income and private investors – may pursue a wide range of strategies but some common elements may include 'investing in companies, funds, and other investment vehicles that consider gender issues/criteria,' such as: Women in leadership (WIL, women on the executive board and/or women in senior leadership positions, inclusive of positive screens such as 'gender mandate or quantified gender mandate'); Gender diversity (inclusive of the composition of a company's employee base to promote gender diversity at all levels of the company); Women founders and fund managers (such as investing in vehicles with female portfolio managers); Policies and practices (companies implementation /or implementing organizational policies and practices that advance gender equality (for example, gender pay equity); Women-majority enterprise; Products and services (investing in companies that provide products or services specifically tailored to the needs of and impact on women and girls as a consumer segment). Both WIL and gender diversity criteria tend to predominate in equities based GLI strategy and may be part of the gender criteria as part of several areas of its Materiality Map ('an interactive tool that identifies material disclosure topics across different industries' (SASB 2017/2018). Fixed income GLI strategy on the other hand involves tracking externalities that benefits the lives of women and girls such as investment in affordable housing etc. (Quest et al. 2016). Fixed income based GLI may also focus on the recipients of capital and the use of the proceeds of the investment. This can include resort to the application of The Wharton Social Impact Initiative's Four for Women-like policies' Impact on the Women 1. Representation (employs a large percentage of women at every level and in every unit of the company), Pay (pays its employees at least enough to avoid poverty, pays equally for equal work, and has no gender pay gap.), Health (supports and protects the health of the women it employees (and the men, too), and Satisfaction (provides satisfying working	Government of United States of America	U.S. Department of State	United States of America
59379	90	3	90	4	Energy and the environment is not a sector.	Referenced text section deleted	Government of United States of America	U.S. Department of State	United States of America
28029	90	5	90	5	Delete "divestment from fossil fuels".	Deleted. Done	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
31167	90	22	91	21	The current list of FAQs seems short and limited: Why not ellaborate here on other issues which have not been explicitely touched upon in the chapter - like: a) How do Green Bonds help to shift capital to climate investments? b) What are the prospects for Green Climate Funds as central funding instrument for global decarbonisation? c) For which global warming level should adapatation finance needs be estimated? d) How can the provision and operationalisation of public guarantees for a de-risking climate investments be expanded and accelerated? e) Is a lack of understanding of climate risks really a key reason for continued misallocation of capital into high carbon assets or maybe a lack of clear policy direction? f) How can the research field of climate finance be broadened and vitalised based on empricical research?	Noted. This FAQ section is for providing quick information, so due to limited space it was not possible to expand the FAQ section.	Jochen Harnisch	KfW	Germany
59381	90	22	91	21	The three FAQs at the end should be integrated into earlier discussions of related topics during layout. The third FAQ is largely incomplete.	Noted.	Government of United States of America	U.S. Department of State	United States of America
9391	90	23	90	40	Could an explanation of "climate finance" be integrated in this FAQ, please? I would not expect all readers to recall its definition in the UNFCCC context and the updated perspective from the Paris Agreement. Without this knowledge, it is rather difficult to differentiate climate finance in the sense of the UNFCCC and the respective financial flows from others that might also affect climate change mitigation and adaptation - especially because this report also argues that climate action should not be separated from activities that aim to meet other societal goals. An explanation could perhaps also be provided in FAQ 15.2 and these two FAQs be swapped (or merged).	Taken into account. Instead of FAQ, core terms are discussed in the 15.1 Introduction	Maike Nicolai	Helmholtz Centre Geesthacht	Germany
17805	90	23	90	40	FAQ 15.1) define "climate finance"?	Editorial. Instead of FAQ, core terms are discussed in the 15.1 Introduction	Jonathan Lynn	IPCC	Switzerland
85429	90	23	91	21	The FAQ is clearer than most other text but could also be improved by an editor without the "curse of knowledge". FAQ 15.1 is in essence "tell me more about climate finance" which is not a credible FAQ but probably what you want to talk about. Seems that your message in the first paragraph of 15.1 is: more investment is needed. In the second: financials flows should be redirected. In the third: we should make access to climate finance more equal ("Can you tell more?" the reader now thinks) and then something with the power and fuel sector and total amounts that I cannot decypher. I think it could reflect these messages clearer in the text and the headline. E.g. the 15.1 headline could be "Are we investing enough to meet the Paris Agreement?"	Editorial. Instead of FAQ, core terms are discussed in the 15.1 Introduction.	Auke Hoekstra	Eindhoven University of Technology	Netherlands

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
53553	90	31	90	31	6 trillion - indicate source	Section information added regarding source: [see 15.5.2]	Government of Switzerland	Swiss Federal Office for the Environment Federal Department of the Environment, Transport, Energy and Communications DETEC Federal Office for the Environment FOEN International Affairs Division	Switzerland
46471	90	38	90	40	FAQ 15.1: this sentence states that investments of 1.62 trillion USD exceed investment needs of 1.9 trillion USD. Please check (1.62 is smaller than 1.9)? We also caution to provide numbers that are highly uncertain this FAQ with indicating this uncertainty.	Accepted. Sentence has been revised: . The investment flows in the global power and fuel sector - accounting for approximately USD 1.62 trillion USD in 2019 – only slightly fall short of the investment needs attaining the sustainable development scenario- accounting for approx. 1.91tr USD yr-1 between 2023 and 2032.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
9393	90	42	91	11	As said in my previous comment - perhaps a clear explanation of the UNFCCC term "climate finance" and its connection to the Paris Agreement could be provided as part of this FAQ or FAQ 15. and 15.2 be merged. I suspect many readers might still think of "climate finance" as a financial support for developing countries. So the clarification will be helpful. In case authors would consider reworking these two FAQs, my suggestion would be to dedicate one to the definition and updated perspective and use the other one to expand on the role of the finance sector as a potential enabler for a transformation towards a sustainable future.	Taken into account. Instead of FAQ, core terms are discussed in the 15.1 Introduction	Maike Nicolai	Helmholtz Centre Geesthacht	Germany
37285	90		90		FAQ: Final numbers related to fulfil the long-term goals of the Paris Agreement are missing.	Noted. The following has been added: However current climate finance flows coming in significantly below average needs across all regions and sectors to reach long term goals of the Paris Agreement. Global yearly needs are estimated of around 6 trillion USD yr-1 [see 15.5.2]	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
37287	90		90		Referencing not complete	Taken into account. Thank you for your comment. Further works on referencing have been done.	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
79087	91	5	91	6	"Climate-related financial risk is still massively underestimated by financial institutions, financial decision-makers more generally, and also among public sector stakeholders, limiting the sector's potential of being an enabler of the transition" It is important to point out that the collective upsides of successful mitigation are underestimated as well. Reasons for this underestimation include an underestimation of the damages by neoclassical economists and the DICE model. Moreover, the benefits and costs of climate change are not investor- or company-specific, long-term, time-uncertain (i.e. it is not clear by when the risk of econmic collapse would occure within this century. It is also important to point out that finance to be succesful requires the incentives (carbon pricing) and regulation (replacement-manadates) to be in place that transform the real economy and improve the financial performance of climate finance.	Noted. This FAQ section is for providing quick information, so thie section does not contain detailed explanations and discussions	Young-jin Choi	Phineo gAG	Germany
46479	91	20	91	21	FAQ 15.3: please rephrase using every-day language in order for readers not educated in economy to understand (e.g. "viability gaps", "absorptive capacity")	Noted. Thank you for your information. However, the use of the terms that are used in the chapter is necessary for consistency	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
37289	91		91		"Major reason forfinancing gaps are?" – sentence not complete	Taken into account	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
15059	92	1	132	38	Many references are incomplete. There are multiple occurences of duplicate entries.	Accepted. Thank you for your comment. Addressed	Galina Hale	UC Santa Cruz	United States of America
85613	111	3	111	33	First author name is missing. There are many other references missing the first author.	Noted. Multiple literature from the same author	San Win	Environmental Conservation Department, Ministry of Natural Resources and Environmental Conservation	Myanmar
20423	116	18	116	18	McCollum, D. L., and Coauthors, please fix	Accepted. Corrected	Tommi Ekholm	Finnish Meteorological Institute	Finland
19841	126	8	126	8	Replace "Shislov" by "Shishlov" (also in the in text quotes)	Accepted. Corrected	Axel Michaelowa	University of Zurich	Switzerland

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
75539	132	45	133	5	In the section 15.6.8.2 Nature-based solutions including REDD+, it would be noteworthy that Yokohama City, Japan has installed the first-ever verified coastal and marine ecosystem-based carbon offset, or Blue Carbon credit. This practice should be mentioned as an innovative financial mechanism initiated by the sub-national entity. See Nobutoki M, Yoshihara T, Kuwae T (2018) Carbon offset utilizing coastal waters: Yokohama blue carbon project. In: Kuwae T, Hori M (eds) Blue carbon in shallow coastal ecosystems: carbon dynamics, policy, and implementation. Springer, Singapore, pp 321–346	Noted. Thank you for your suggestion. We considered your suggestion but not included due to limited space	Mai FUJII	Sasakawa Peace Foundation, Ocean Policy Research Institute	Japan
20039					The following reference shows that interest rates on personal loans are not necessarily lower for greener projects: Giraudet, L.-G., Petronevich, A., Faucheux, L., 2021. Differentiated green loans. Energy Policy 149, 111861. https://doi.org/10.1016/j.enpol.2020.111861	Noted. Thank you for your suggestion.	Louis-Gaëtan Giraudet	CIRED, Ecole des Ponts ParisTech	France
20041					The following reference shows that the leverage of energy efficiency subsidies in France is within 1-1.4 and the cost and emissions are reduced at a cost of€300-800/tCO2-eq: Giraudet, L.-G., Bourgeois, C., Quirion, P., 2021. Policies for low-carbon and affordable home heating: A French outlook. Energy Policy 151, 112140. https://doi.org/10.1016/j.enpol.2021.112140	Noted. Thank you for your suggestion	Louis-Gaëtan Giraudet	CIRED, Ecole des Ponts ParisTech	France
37291					General comments- 1)Financial risk associated with early retirement of coal plants, i.e. the burden on the people dependent	Taken into account. Thank you for your comment. Potential negative impacts are discussed in many different sections, including "Address knowledge gaps with regard to climate risk analysis and transparency" "Considerations on availability and effectiveness of public sector funding"	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
37293					on the coal mines and coal industry (they lose their wages and hence livehood).	Taken into account. Thank you for your comment. Potential negative impacts are discussed in many different sections, including "Address knowledge gaps with regard to climate risk analysis and transparency" "Considerations on availability and effectiveness of public sector funding"	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
37295					2) Quantification of financial loss to countries and individuals dependent on gasoline industries should be presented.	Taken into account. Thank you for your comment. Potential negative impacts are discussed in many different sections, including "Address knowledge gaps with regard to climate risk analysis and transparency" "Considerations on availability and effectiveness of public sector funding"	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
37297					3) Increase in unemployment due to stoppage of fossil fuels has to be addressed in terms of financial risk.	Taken into account. Thank you for your comment. Potential negative impacts are discussed in many different sections, including "Address knowledge gaps with regard to climate risk analysis and transparency" "Considerations on availability and effectiveness of public sector funding"	Arun kumar Nayak	Bhabha Atomic Research Centre Trombay Mumbai	India
39061					I was generally impressed by the discussion of the need to do a better job on addessing and quantifying financial risks--I agree that these are being consistently under-recognized. I would have liked to see a bit more discussion of the issues raised by TCFD and the whole quesiton of how climate risks should be identifies, categorized and disclosed--there is a lively discussion to be had here. But perhaps in anotrher document.	Taken into account. Thank you for your comments. Due to limited space, it is difficult to discuss those isseus in details, but those issues are discussed throughout the chapter	Robert Buhr	Green Planet Consulting Ltd.	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
55121					Replace the phrase "nature-based solutions" with "ecosystem-based approaches". The phrase "nature-based solutions" (NBS) was proposed in 2009 by the International Union for the Conservation of Nature (IUCN) to designate a broad category of actions employing natural elements to produce desired environmental effects. The expression doesn't designate pre-existing natural phenomena that lend themselves to descriptive definitions, such as chemical elements or biological species, but rather a set of human actions that can only be represented by a stipulative definition. To be effective, a stipulative definition of a policy tool such as NBS must have two properties: precision and legitimacy. The purported concept of "nature-based solutions" lacks both. First, there is no consensus about the nature and scope of such actions. For instance, some stakeholders advocate a broad approach whereby NBS designates any intervention employing living organisms to produce desired environmental outcomes, such as industrial forestry with improved tree varieties for carbon sequestration. Others defend a stricter approach whereby such interventions can only be called NBS if additional criteria are met, such as the use of a diversified set of native species instead of monocultures of engineered or exotic plant varieties. Second, the notion of "nature-based solutions" lacks legitimacy because its definition was never debated and agreed within the framework of a universal or nearly universal intergovernmental institution. Instead, repeated attempts have been made to impose this expression by technocratic fiat without the appropriate discussion in truly representative fora. In view of the above, Brazil requests that all references to "nature-based solutions" be replaced by the expression "ecosystem-based approaches" (EBA). The concept of EBA covers roughly the same semantic field as NBS, but doesn't have the aforementioned problems. As for precision, the meaning of EBA is extensively spelled out in Decision VII/11 of the Convention on Biological Diversity (CBD). The concept of EBA also has the requisite legitimacy since its definition is the result of extensive and inclusive discussions within the CBD, the most representative forum in this field, with the participation of almost all UN	Noted. Thank you for your comments, but the term 'nature-based solution' is used in the chapter	Government of Brazil	Ministry of Foreign Affairs of Brazil	Brazil
59383					There is not enough discussion of offsets and the interaction of markets and finance with offsets.	Noted. Thank you for your comments, but there is limited space to include discussions in detail.	Government of United States of America	U.S. Department of State	United States of America
59385					Need a section on carbon border adjustent.	Noted. Thank you for your comment, but there is limited space to add a new section on carbon border adjustment	Government of United States of America	U.S. Department of State	United States of America
59387					The rapid drop in wind and solar PV prices over the last decade make analyses from earlier than 2016 or so problemantic and in need of update.	Noted. Thank you for your comment. Recent studies are included in the chapter	Government of United States of America	U.S. Department of State	United States of America
59389					New reference that should be mentioned -- guidelines for national climate financing landscape assessment: https://www.climatepolicyinitiative.org/publication/guidelines-for-building-a-national-landscape-of-climate-finance/	Noted. Thank you for your suggestion. However, it wasn't able to add the literature due to limited space	Government of United States of America	U.S. Department of State	United States of America
59391					Reference to mention -- how development assistance organizations can help scale up private and public sector climate finance for clean energy, sustainable landscapes, and climate adaptation: https://pdf.usaid.gov/pdf_docs/PA00WB55.pdf	Noted. Thank you for your suggestion. However, it wasn't able to add the literature due to limited space	Government of United States of America	U.S. Department of State	United States of America
59393					Reference to mention -- roadmap for climate bond development: https://pdf.usaid.gov/pdf_docs/PA00WGJR.pdf	Noted. Thank you for your suggestion. However, it wasn't able to add the literature due to limited space	Government of United States of America	U.S. Department of State	United States of America
59395					Reference to mention on state of green business investment: https://www.spglobal.com/marketintelligence/en/documents/state_of_green_business_2021.pdf	Noted. Thank you for your suggestion. However, it wasn't able to add the literature due to limited space	Government of United States of America	U.S. Department of State	United States of America
59397					Reference to mention -- Clean energy lending toolkit for training banks: English: https://pdf.usaid.gov/pdf_docs/PA00JS5M.pdf French: https://pdf.usaid.gov/pdf_docs/pa00mmk8.pdf Spanish: https://pdf.usaid.gov/pdf_docs/pbaaf209.pdf	Noted. Thank you for your suggestion. However, it wasn't able to add the literature due to limited space	Government of United States of America	U.S. Department of State	United States of America
59399					In general, more attention is needed on financing for sustainable landscapes (AFOLU mitigation) and natural climate solutions for adaptation. Reference to add: https://www.ceres.org/sites/default/files/2030%20Investment%20Vision%20for%20NCS.pdf	Taken into account. Financing for Nature-based solutions are discussed in the chapter	Government of United States of America	U.S. Department of State	United States of America
59401					Add to references: Matek, Benjamin; Gordon Smith; Khadija Mussa; Eric Hyman; Santiago Enriquez; and Pablo Torres. 2020. Cost-Benefit Analysis of Wood and Charcoal Use for Household Cooking and Supply- and Demand-Side Alternatives for Lilongwe, Malawi. Washington, DC: Crown Agents USA and Abt Associates, Prepared for USAID. Similar USAID-funded cost-benefit analyses are in progress for Zambia and Democratic Republic of the Congo.	Noted. Thank you for your suggestion. However, it wasn't able to add the literature due to limited space	Government of United States of America	U.S. Department of State	United States of America

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59403					Correct definition of endogenous financial risk: "Endogenous risk is the risk generated and reinforced within the financial markets by the interaction of market participants, as opposed to exogenous risk which refers to shocks that come from outside the financial system. Market participants reacting to exogenous shocks such as news events can exacerbate the effect of those shocks by how they behave: for example, selling causes prices to fall, triggering further selling." https://www.risk.net/definition/endogenous-risk	Noted. The chapter already provides the meaning of endogenous financial risk.	Government of United States of America	U.S. Department of State	United States of America
59405					Updated information beyond a 2016 citation is needed on the problems and recent resurgence of EU voluntary carbon markets. See: https://www.ieta.org/Annual-GHG-Market-Sentiment-Survey; https://www.ieta.org/resources/Resources/GHG_Report/2020/IETA-2020 GHG-Report_WEB.pdf; https://www.bloomberg.com/news/articles/2021-01-19/europe-carbon-market-emissions-permits-set-price-records-in-2021?cmpid=BBD011921_GREENDAILY&utm_medium=email&utm_source=newsletter&utm_term=210119&utm_campaign=greendaily; https://www.ft.com/content/3d150d3d-9b10-4e94-990a-7d2dad1666f6; https://www.ft.com/content/ab7abf9f-d05a-4c0c-85d8-96a4c0727603	Taken into account. Recent literature are included in the section. Thank you for your suggestion, but it wasn't able to include the literature suggested.	Government of United States of America	U.S. Department of State	United States of America
59407					Note potential for remote sensing in monitoring emission offsets: https://carbon.nasa.gov/policy_speaker_16072020.html	Noted. Thank you for your suggestion, but this is beyond the scope of the chatper	Government of United States of America	U.S. Department of State	United States of America
59409					Important topic to add: Ending bilateral and multilateral development assistance and trade export promotion financing, and domestic tax policies contributing to development of fossil fuels, large-scale infrastructure, and forest land conversions that are major sources of GHG emissions and maladaptation.	Taken into account. The discussion on stranded assets throughout the chapter is widely discussed throughout the chapter	Government of United States of America	U.S. Department of State	United States of America
59411					Important topic to add: Establishment of GHG emission and climate risk disclosure requirements and standards for large international and domestic corporations and public investments.	Taken into account. Transparency and risk disclosure and assessments are discussed in the chapter	Government of United States of America	U.S. Department of State	United States of America
72577					There may be a benefit to distinguish some definitions within the broader concept of climate finance, eg direct climate financing (and mobilized financing) from indirect (e.g. removal of fossil fuel subsidies).	Taken into account. 15.1. Introduction' includes the subsections and a Box discussing the terms	Karan Capoor	World Bank	United States of America
80439					Maybe I have missed, it, but the does not seem to mention an often discussed candidate for helping to finance the transition: a global financial transaction tax (FTT), which could contribute significantly to the needed international climate finance. Highlighting the opportunities and challenges for a global FTT, which had been under discussion in some regions would make the report stronger. Some countries have already introduced it on national level, and it was discussed at some point on EU level. What not globally?	Noted. Thank you for your suggestion, but it is not included because it is difficult to include everything due to limited space.	Moritz Riede	University of Oxford	United Kingdom (of Great Britain and Northern Ireland)
81775					Economic growth is considered as purely desirable throughout the chapter. A more nuanced approach is be required, however. First, there is a lack of evidence for decoupling of material use and (fast enough) decoupling of GHG emissions from economic growth (cf. Hickel, Jason & Giorgos Kallis (2019). 'Is Green Growth Possible?', New Political Economy). Second, benefits from growth have been very unequal in the last decades, with the global bottom and middle benefitting much less than the top 1% (cf. Gallagher & Kozul-Wright. 2019. A New Multilateralism. Geneva Principles for a Global Green New Deal or Shared Prosperity. UNCTAD). It is not economic growth per se that should be taken as policy target social and environmental criteria, including wellbeing, need satisfaction, poverty reduction etc. GDP does not have to be mobilised as a concept. Another framing could be more beneficial to reach climate ambitions. In view of global current and historical inequalities regarding contributions and affectedness of climate change, differentiated growth trajectories should be envisioned, with slowdown and downscaling in the global North and sustainable growth in the global South (cf. Jason Hickel (2018): Is it possible to achieve a good life for all within planetary boundaries?, Third World Quarterly). The feasibility of 'degrowth' has been shown in a number of studies, e.g. D'Alessandro et al. (2020) Feasible alternatives to green growth. Nature Sustainability	Taken into account. The Just Transition and inequality are widely discussed in the chapter.	Elena Hofferberth	University of Leeds	Switzerland

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81777					The approach towards climate finance seems to be strongly oriented towards mobilising and facilitating private financial investment, if necessary through public institutions creating better enabling environments. Strenghtening public spending capacities should receive more emphasis. This should include a discussion of new means such as direct government financing through fiscal monetary cooperation as well as taxation (corporate, high wealth and income). Elected governments rather than private commercial institutions should be the central agents to govern a quick and comprehensive enough low-carbon transition. There are risks involved in the continued financialisation of the economy. These include governments and other public institutions becoming mere enablers of private commerical initiatives, including privatisation of profits and socialisation of risks as well as a general dominance of financial gains over public good. cf. Yannis Dafermos , Daniela Gabor & Jo Michell (2021): The Wall Street Consensus in pandemic times: what does it mean for climate-aligned development?, Canadian Journal of Development Studies / Revue canadienne d'études du développement ; Bortz, Pablo & Annina Kaltenbrunner. 2017. The International Dimension of Financialization in Developing and Emerging Economies. Development and Change 49(2): 375–393.	Taken into account. Thank you for your comments. The importance of public-side discussed in the chatper, and Dafermos et al (2021) is included in the chatper.	Elena Hofferberth	University of Leeds	Switzerland
81779					The role of the global financial system as barrier to address climate change should be appreciated. This should be reflected in the assessment of commercial approaches to climate finance. Proposals for a redesign of the global financial architecture as such should be included. cf. Pettifor, Ann (2020). Rebuild the ramshackle global financial system. Nature Sustainability 582 : 461.	Taken into account. The chapter already includes various discussions on the role of financial systems and actors.	Elena Hofferberth	University of Leeds	Switzerland
81781					Financialisation is a key development of the global economy in the last decades, yet it is only addressed one single time in the chapter. It should be considered more comprehensively, given its effects on all actors in the economy, as well as its contribution to greater inequality and instability. Bortz, Pablo & Annina Kaltenbrunner. 2017. The International Dimension of Financialization in Developing and Emerging Economies. Development and Change 49(2): 375–393. Costas Lapavitsas (2013) The financialization of capitalism: 'Profiting without producing', City, 17:6, 792-805, Pettifor, Ann (2020). Rebuild the ramshackle global financial system. Nature Sustainability 582 : 461.	Noted. Thank you for your suggestion, but it is not included because it is difficult to include everything due to limited space.	Elena Hofferberth	University of Leeds	Switzerland
82201					The 'unburnable carbon' problem is real as a global issue since there is 1.5C to 2C target. While these targets require an assessment of the losses that have to be accounted for, fossil fuel energy sources that are unburned in particular regions will nece	Taken into account. 15.6.1. Section contains the discussion on Carbon Stranded Assets, including unburable carbon. "However the geographical distribution of potential stranded fossil fuel assets (also called 'unburnable carbon') is not even across the world due to differences in production costs (McGlade and Ekins 2015)."	Smile Dube	California State University, Sacramento	United States of America
86085					Very limited coverage of theoretical work on transition risk and macroprudential coverage (e.g. Di Dio et al. WP 2020; Campiglio, Dietz, Venmans WP 2020; Carattini, Heutel, Melkadze NBER WP 2021) or empirical research (e.g. Carattini and Sen GRI WP 2019; Sen and von Schikfus JEEM 2020). I understand that this literature is expanding fast, but the entire section looks already outdated. Clearly not ideal for an IPCC chapter.	Taken into account. The revised chapter includes up-to-date literature and works on transition risks, macroeconomic contexts and macroprudential regulations	Carattini Stefano	Georgia State University	United States of America
86705					Please check UK Pensions Schemes Act 2021, it may be the first translation into law of the work of the TCFD (International Task Force on Climate Related Financial Disclosure). Section 124 of the Act has the effect of requiring pension fund managers to understand and manage the impacts of their assets on climate change, and the risks to their assets of climate change policy. See www.legislation.gov.uk/ukpga/2021/1/section/124/enacted. Following the Act, Government is already consulting on implementation, aiming at a 'significant portion' of mandatory requirements being brought forward to 2023. See https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/955950/taking-action-on-climate-risk-pensions-consultation.pdf	Noted. thank you for your suggestion. Due to limited space, the literature is not included	Mark Hinnells	Ricardo Energy and Environment	United Kingdom (of Great Britain and Northern Ireland)

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86707					In the UK, the new Pensions Schemes Act may have a significant impact on airport management. This could be a useful text box as an illustration: •Manchester Airport Group (MAG) owns Manchester, East Midlands and Stansted Airport. MAG is owned 35.5% by Manchester City Council, 29% by the 9 Metropolitan Boroughs of Greater Manchester and 35.5% an Australian firm IFM Investors which is itself owned by 27 Australian Pension Funds. https://www.magairports.com/investor-relations/corporate-governance/corporate-structure/. Manchester City COuncil has declared a climate emergency and aims at net zero (see https://secure.manchester.gov.uk/info/500002/council_policies_and_strategies/3833/climate_change/2). IFM Investors also has a net zero target https://www.ifminvestors.com/about-us/media-centre/archive-us/!news/2020/10/11/ifm-investors-targets-net-zero-by-2050-us. Yet Stansted is seeking to increase its capacity from 35 to 43million passengers a year and thus carbon emissions. •Bristol airport is owned by Ontario Teachers' Pension Plan www.bristolairport.co.uk/about-us/who-we-are/bristol-airport-ownership The same Pension Fund now owns London City Airport as part of a consortium, along with Birmingham airport, and two other European airports. OTPP is committed to net zero https://www.ai-cio.com/news/ontario-teachers-joins-net-zero-climate-pledge-2050/. Bristol airport is seeking consent to expand, London CIty recently achieved planning consent to expand. •Heathrow airport is 10% owned by Universities SUperannuation scheme. The airport is seeking consent for a thrid runawy. In each fo these cases there is a tension between a recent legislation, commitments to net zero, and plans for expansion which imply additional carbon emissions.	Noted. Thank you for your suggestion, but it is not included because it is difficult to include everything due to limited space.	Mark Hinnells	Ricardo Energy and Environment	United Kingdom (of Great Britain and Northern Ireland)
86903					Chapter 15 Anchor Comments 1. Our Chapter 15 literature review highlights that development of local capital markets/dLCM - as a "developing country universe" policy option - has to be aligned with "nature" in the different geographical locations. The dLCM ecosystem includes bond markets, financial and insurance sectors with diverse players - at different stages of development. dLCM requires support from sovereign/cross-border guarantees, technical assistance, boost to the $100bn climate financea year and has a central role to play where most of the climate investments are needed. We should be helping the reader connect with the narrative by cross-referencing to dLCM 15.6.7 bond market development where we discuss bonds. 2. Does the dLCM placement - at the end of the chapter help anchor our readers to the narrative? 3. Our ZOD-FOD-SOD cycle established dLCM as a policy option for the "entire developing country universe" irregardless of how the countries that make up that universe are described in literature or in the the ARG6 WIII report (UN categories, emerging, developing, emerging markets, frontier markets, SIDs, LDCs, LLDCs etc). 4. dLCM is not a policy option for "Africa and LDCs" as incorrectly amended dLCM 15.6.7 "SOD editing process". Africa&LDCs face greatest costs/risks: needs, instruments and effectiveness of financing issues are common to developing country universe. dLCM is a policy option for the entire developing country universe and captured as one of the blueprints in UN agreements for developing countries. 5. Our ZOD-FOD-SOD literature analysis established dLCM as a "developing country universe" policy option recognised in a number of "international developing country universe frameworks". Examples of important international frameworks): - UN Addis Abbaba Action Agenda on Financing for Development https://www.un.org/esa/ffd/wp-content/uploads/2015/08/AAAA_Outcome.pdf article - UN Roadmap for Financing the 2030 Agenda for Sustainable Development https://www.un.org/sustainabledevelopment/wp-content/uploads/2019/07/UN-SG-	Taken into account.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
86925					2019). "Also, most of 10 the developing countries NDCs are conditional upon international support for capacity building (Pauw 11 et al. 2020)." Suggest cross-referencing to Paris MRV Support for developing countries summarised at Paris Agreement "MRV support" . Paris Agreement refers to technical assistance and capacity building. 3. https://www.wri.org/publication/mrv-101-understanding-measurement-reporting-and-verification-climate-change-mitigation	Taken into account.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)

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86931					"new green asset classes and financial products can attract the attention of capital markets and support the scale up of financing by providing standardised investment opportunities which can be well integrated in existing investment processes (15.6.6), stronger focus on the development of local capital markets can help mobilizing new investor groups 13 and to some extent mitigate home bias effects (15.6.7)" "stronger focus on the development of local capital markets can help mobilizing new investor groups and to some extent mitigate home bias effects (15.6.7)" - We should amend to for 15.6.7 development of local capital markets: a) potential to mobilise diverse sources of long term capital b) potential to use capital markets instruments to structure standardised investment vehicles for scaling up	Taken into account.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)
86955					Section 15.6.5 Widen the focus of relevant actors: Role of communities, cities and sub-national 35 levels To scale climate investment, 4 a systematical understanding of the preconditions to mobilizing high-potential financing instruments at 5 the national and subnational levels is necessary.	Taken into account.	Nokuthula Dube	Africa Energy and Finance	United Kingdom (of Great Britain and Northern Ireland)