

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
12943	0	0	0	0	This chapter will benefit from a focused discussion on conflicts and their resolution between central and regional aspects of climate change. For example, if a central land-based mitigation strategy runs contrary to a regional land-use policy, an impasse develops.	Accepted - Issues of coordination across different units in a federal system will be covered in 13.2 and 13.3	Prashant Goswami	Institute of Frontier Science and Application	India
12959	0	0	0	0	It is not clear why only UK and China are considered to discuss climate change institutions. Either clear rationale for this should be provided or the discussion should have greater coverage.	Taken into account - We will look to examine other cases as well, and reduce the space allocated to UK and China, as well as explain why these two are discussed in more detail.	Prashant Goswami	Institute of Frontier Science and Application	India
15421	0	0	0	0	should the citations in the brackets put in ascending chronological order?	Editorial	Simone D'Alessandro	University of Pisa	Italy
42519	0	0	0	0	More practical cases can be presented from national and local practices	Noted	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
42521	0	0	0	0	The Chapter in general has much room for improvement including additional sections, cases, literature, lessons and discussions incorporated to come up with a comprehensive version of it.	Noted. Cases and boxes to be added.	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
42529	0	0	0	0	Mentioning of various consortium and institutional networks growing in this field and how they are attempting to make collective attempts to make climate resilience could also be mentioned	Rejected - the chapter relies on academic sources rather than new research, and these may not yield a full list of institutions and consortia	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
42531	0	0	0	0	This is somewhere needs to be clearly articulated that there are significant differences emerged in various types of national policy developments and climate governances in different types of countries (such as the policies developed in Scandanavian countries may have significant differences to many Asian cities, high population mega cities in Asia and so forth).	Taken into account - A core theme of the chapter includes the need to be attentive to national context. For example, Sec 2 discusses that there is no single template for climate institutions across countries. This theme will be similarly emphasized in other sections	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
42533	0	0	0	0	There are good examples of national policies shaping up countries like South Korea can be mentioned	Noted - we will examine scope for inclusion of additional examples from other countries, subject to the availability of literature	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
13415	0	24	24	25	no comments	Noted	Mohyeldeen Taha	University of Bahri	Sudan
13417	0	24	152	25	. The report is very comprehensive, articulated and well structured, however, only on the recommendation I do suggest to include/highlight the climate change nexus security and peace agreements in particular in the developing countries.	Rejected - this suggestion focuses on international cooperation which is beyond the scope of the chapter	Mohyeldeen Taha	University of Bahri	Sudan
13873	0	0			There is no 'Indigenous' reference in this chapter; however, opportunities exist to include Indigenous governing bodies and/or partnerships. Indigenous inclusion should be considered systemically in this FOD. The reversal/reform of oppressive colonial laws is required. The imposition of colonial laws currently limits the full participation of Indigenous governing bodies in climate decision making. Providing space at decision making tables and enhancing co-benefits derived from climate action for Indigneous people could be framed as a policy or governance mitigation measure.	Noted - there is brief discussion of this in Sec 13.5	Bridget Doyle	Tsleil-Waututh Nation	Canada

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16401	0				In Chapter 13, please consider adding a section describing global military emissions and national policies to limit these. Globally, the military sector both as a driver of manufacturing, transport and food provisioning emissions and a key to their mitigation. Likewise, global war diminishes the human potential for a sustainable and just future, such that increasing alliances globally for the purpose of climate mitigation may reduce the military sectors of all countries and lead to further benefits.	Rejected - The approved outline does not call for a specific section on military emissions. Also, Ch 13 does not examine emitting sectors specifically, including the military. The prospects and possibilities of wars and their implications are related to Ch 14. We will examine whether there is specific literature linking the military and climate change.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
16403	0				In Chapter 13, consider adding a section that describes the increasing risk of nuclear arms proliferation as new countries acquire nuclear power, and the potential as well for a new international mechanism to control this risk. See, for example, Goldemberg, J., 2009. Nuclear energy in developing countries. Daedalus, 138(4): 71-80. Notably missing from plans for adopting nuclear power in a widespread fashion to address climate change is a new international mechanism that would identify the most nuclear-arms-proliferation-resistant pathway and require that this pathway be followed. The current Non-Proliferation Treaty was not adopted to address climate change, and its utility is not up to the task. For example, Saudi Arabia is presently developing facilities for nuclear materials enrichment to fuel its planned new nuclear power program, and this may be a pretext for nuclear arms production. As nearly 30 new countries are now attempting to adopt nuclear power, thereby doubling the number of nuclear-power countries globally, the risk of arms proliferation increases, and this increased risk ought to be addressed cogently in this chapter.	Rejected - Proliferation and the points in this comment are more appropriate for Ch 14 on international cooperation.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
16405	0				In Chapter 13, please consider adding a section related to hot dry rock geothermal energy and the potential for government subsidy programs to fund oil and gas companies to transition to the geothermal industry, thereby leading a transition in the energy sector. Plant cost is mostly upfront, and funding provided by developed countries might be used to install geothermal power generation in developing countries to help decarbonize their energy sectors, while at the same time facilitating oil and gas companies to transition their assets to increase drilling capacity for hot dry rock geothermal. National mechanisms to enable this process would increase the rate of transition, and could be covered in this chapter.	Rejected - A discussion of specific energy options belongs in Ch 6. Ch 13 does not have the scope to cover specifics of sectoral policy although we do focus in general terms on the importance of sectoral policies as a category of action for climate mitigation	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of

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33175	0				It is still not clear how national climate policy guide and help individual, household and local communities as a whole to contribute to climate change mitigation and adaptation. There are still lacks in all walks of life approaches in national level climate policies. Local governmental organisations are not trained and not aware of how to implement long-term climate change mitigation and adaptation. In many developing countries, climate change policies are still paper based and remained in the desk, they are lack in collaboration between horizontal and vertical administration. It seems that climate change imitation and adaptation are the jobs of some environmental groups in against involvement of all professionals. There are still lack of participation from all walks of life particularly from construction companies, engineers and large scale development implementing stakeholders.	Noted - no specific suggestion is made. However, the chapter will highlight capacity issues (Sec 2 and 3) and the role of different groups such as environmental groups (Sec 5)	Edris Alam	Rabdan Acadmey	United Arab Emirates
34537	0				This seems a strong and interesting chapter with a thoughtful exec summary; consequently I prioritized attention to other chapters, apart from brief comments on parts of section 13.5. Perhaps, it could consider or use in framing more explicitly two core themes flagged in Chapter 1,: (i) the need for climate policy to be embedded within the wider socio-political context of sustainable development, which differs in implications at different stages of economic development; and (ii) the fact that transitions, needed across multiple sectors, can be usefully understood in terms of 3-level frameworks (generally termed micro, meso and macro), and their interactions, whether viewed from socio-technical or (broadened) economic perspectives. See also possible suggestion on Taxonomy.	Noted - A new Sec 13.8 explores in more detail the embedding of policy in sustainable development. Secs 13.9 and 13.19 engages with the ideas of transition.	Michael Grubb	UCL - Institute of Sustainable Resources	United Kingdom (of Great Britain and Northern Ireland)
34539	0				Also to flag here a comment to Chapter 11, most relevant to your 13.5.3.6 but perhaps more broadly: one specific suggestion is that the authors collectively consider more deeply how to approach the issues around carbon leakage, investment and 'border adjustments'. First, this could usefully be coordinated with Chapters 12 (discusses leakage estimation) and 13 (which has a section on BCAs) and/or 14. In Ch.11 it is located in a section on carbon pricing, which indeed is how almost all the literature addresses it, though the issue could arise from other policies which may raise costs on mobile production activities. It would be useful to clearly distinguish the principles, notably, consumption-based measures and border carbon levelling, which are in principle non-discriminatory, vs potentially discriminatory trade measures. It could be useful if possible to set in wider context of trade and climate relationships. Pleas to see reference to Mehling et al, worth checking and citing the development of this work as now published in leading law journal: Mehling, M., Van Asselt, H., Das, K., Droege, S., & Verkuijl, C. (2019). Designing Border Carbon Adjustments for Enhanced Climate Action. American Journal of International Law, 113(3), 433-481. doi:10.1017/ajil.2019.22 It may be worth raising at WG-III level how AR6 should approach this issue across chapters.	Noted - We flag these issues in Sec 13.7	Michael Grubb	UCL - Institute of Sustainable Resources	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
37583		0			Overall, the executive summary is repetitive, as it has been pulled together from multiple sections that use similar concepts. Particularly the more sociological passages discussing norms, culture etc (while important) are vague, and some could be combined (eg p7 lines 6-12, p5 lines 30-39)	Editorial - thank you for the suggestion	Michiel Schaeffer	Climate Analytics	Netherlands
46757		0			Please consider the findings regarding co-benefits presented in the major review Mikael Karlsson, Eva Alfredsson & Nils Westling (2020) Climate policy co-benefits: a review, Climate Policy, DOI: 10.1080/14693062.2020.1724070.	Noted - thanks for the useful reference	Mikael Karlsson	KTH Royal Institute of Technology	Sweden
4151		1	1	1	1 This is a significant improvement on AR5, Ch 15, WG3 - it draws on a much wider literature, particularly outside economics, technology and modelling. Well done!	Noted with thanks	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
4153		1	1	1	1 Overall - 1. the sections are still not sufficiently well integrated with one another; 2. concepts and terms are not used with sufficient precision and there is a good deal of drift in how they are used across the sub-sections - where possible, more policy relevant terms should be defined in this chapter and in the Glossary; positive statements (how the world is) and normative statements (how the world should be) are regularly intertwined, and should be kept apart where possible; the Executive Summary is a good start, but is not yet a summary of the whole chapter.	Noted - we will take these comments forward for the SOD	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
36797		1		1	Many of the contributing authors appear to be from the USA or UK. Would it be possible to increase the diversity of contributors? Surely many people from around the world can add input on the subject of the chapter	Noted - efforts are underway to bring on a more diverse range of authors	Zinta Zommers	United Nations Office for Disaster Risk Reduction	Germany
44693		1	1	83	36 This is already an excellent, well-structured chapter, but there's one element that's surprisingly missing: the emergence of net-zero (GHG) emissions targets on all levels (national governments, cities, companies) which took off after SR1.5 and often present itself as being derived from IPCC calculation (yet often confusing CO2 and GHG, and often using the misleading term 'climate neutrality'). Ch4 (4.2.4) has a full list of announcements (although they should have a closer look at the credibility of such announcements). I think that ch13 cannot afford to be silent on "net zero", but looking at your structure, it is not easy to find a good place for it. It probably should go into 13.4, but it wouldn't fit into the established structure. So maybe put it in a box there? You should also coordinate with ch4 who does what	Noted - this is a very useful suggestion. Although literature is thin, we have included a brief discussion to net zero in 13.9	Oliver Geden	German Institute for International and Security Affairs	Germany
11065		1	1	83	40 It seems that you have disregarded some relevant research, particularly on assessment criteria, policy mixes and interactions.	Noted - we will seek to expand the search, although the reviewer has not provided specific suggestions	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain

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24303	1	1	83	70	In general, I thought that the chapter could have been divided in four: one chapter/section on national policy, one chapter/section on regional/provincial/state policies, and one chapter/section on cities and civil society and one on multi-level/international governance. As it stands now, it attempts to cover a lot of ground, which explains the length and that some of the literature assessment are complex and confusing at times, especially when it comes to confidence statements about the importance of, for instance, framing or norms, which often play differently at various levels or specific policy instruments, each level of government have access to different set of policy instruments, with important differences between countries. I thought the overall chapter was the most interesting of the report but find myself wondering quite a few times at what levels or for which actors did the observations made about the literature apply to.	Rejected - the chapter structure is partly shaped by the approved bullets and a simple scale based organisation may not be the best way of covering all topics in our view. However, we will take account of the suggestions regarding confidence statements, audience and so on.	David Houle	Environment and Climate Change Canada	Canada
28631	1	1	100	50	Thank you for the very easy to read and educational chapter.	Noted	CHRISTOPHER BATAILLE	IDDRI.ORG/SIMON FRASER UNIVERSITY	Canada
9661	1	1	100	70	Because some regions have different backgrounds related to the emergence of the same problem, integrated and comprehensive planning is difficult to try when only relying on the coordination path, it must be sought through development pathways that tend to force. For example, the cause of low water debit in the Jakarta City area will be different from the cause of low water debit in the Gunung Kidul region of Yogyakarta, in the Jakarta city area the reduced water flow can be caused by reduced green land and the buffering of river flow while in the Gunung Kidul area the lack of water discharge is inevitability caused by topographic characteristics, so that in the planning related to handling steps it might not be integrated. Thus, dealing with global climate issues must prioritize a global approach as well, and must tend to force.	Noted - no clear suggestion for revision of the chapter. We have engaged with the idea of development pathways, particularly in 13.8	Taufiq Ramdani Karim	University of Mataram	Indonesia
18877	1	0	152	23	Very good chapter. However, although I know that this chapter is devoted to national and sub-national action, I find it clamorous that there are so few examples of the European Union, which is an international reference and leader in climate action policies. There are many sections in this document that could highlight the policies e instruments boosted by the EU and then, emulated elsewhere. My comments below, most of them, go into this direction.	Noted - thank you for the suggestion. We will actively seek to provide more references to the EU, notably in Sec 13.2, and 13.6	Esther Badiola	European Investment Bank	United States of America
13393	1	24	152	25	. The report is very comprehensive, articulated and well structured, however, only on the recommendation I do suggest to include/highlight the climate change nexus security and peace agreements in particular in the developing countries.	Rejected - this is perhaps more pertaining to CH 14.	Mohyeldeen Taha	University of Bahri	Sudan
32693	1	14			add Germany to Contributing author Karoline Rogge: "Karoline Rogge (United Kingdom/ Germany)"	Accepted subject to IPCC standard practice	Karoline Rogge	SPRU, University of Sussex	Germany
4197	2	15	2	19	This material (and s13.4 more generally) is quite general. It would work better if it was moved up the chapter, towards the beginning. It should also be connected better with other sections the whole section reads too much like a separate 'chapter within a chapter')	Noted - we will consider the specific suggestion on moving the section up subject to the flow of the chapter, but the connection with other sections will be addressed	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)

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32599	4	1	4	17	Climate governance also needs to focus on the metric of time, including how long it takes to implement a policy or technology, and how long it takes for the policy or technology solution to provide climate benefits in terms of avoided warming. Molina M., et al. (2009) Reducing abrupt climate change risk using the Montreal Protocol and other regulatory actions to complement cuts in CO2 emissions, Proc. Nat'l. Acad. Sci. 106(49):20616–20621. This metric will help focus attention on climate responses that can slow feedbacks and tipping points over the next critical decade or two as we approach 1.5C or more of warming, and twice that in the Arctic. Molina M., Ramanathan V., & Zaelke D. (2018) Climate report understates threat, Bulletin Atomic Scientists (9 October 2018).	Accepted. This point will be addressed in Section 13.9. It is also discussed in 13.2	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
32601	4	1	4	17	In addition to the metric of speed, it would be useful to include a discussion of the revenue side of carbon taxes and other economic instruments, as how much money is raised and how it is used (for example, for additional climate mitigation or adaptation, or returned to taxpayers as a "dividend") may be even more important for ensuring fast mitigation that the dampening impact the tax may have on the climate emissions of those taxed.	Noted - will be considered in Sec 13.6	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
28037	4	1	4	45	Please add an Executive Summary point stating that most of the effective laws and commitments instituted to address the climate crisis worldwide to date are based on 100% renewable energy laws. Specifically, 61 countries, 14 U.S. states/territories/districts, 155 U.S. cities, 250 international cities, 13 U.S. counties, 221 international companies have committed to 100% renewable energy. These laws are summarized here: https://web.stanford.edu/group/efmh/jacobson/Articles/I/100PctCommitments.pdf . There should also be a section in this chapter devoted to the movement to 100% renewables.	Noted - Thanks for the suggestion. A table examining policies across different sectoral and other approaches, including RE, efficiency and so on are part of Sec 13.6.	Mark Jacobson	Stanford University	United States of America
42883	4	2	4	2	"climate-related activity" is somewhat vague, it could refer to many topics other than policies and institutions. I would suggest changing to something like "policy activity"	Noted - we take this as a general comment on consistency in terminology	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
28141	4	4	4	5	Change to available literature does not provide for a complete assessment of the impact	Noted - no specific suggestion is offered.	Damalie Akwango	National Agricultural Research Organisation	Uganda
4149	4	5	4	5	The 'it' presumably relates to the policies, not the literature?	Editorial	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
28143	4	5	4	7	Consider including the view that available guidelines and policies have not been put into action especially in Sub-Saharan Africa	Rejected - Literature does not adequately back up such a definitive statement	Damalie Akwango	National Agricultural Research Organisation	Uganda
42887	4	8	4	8	Are "legislation, strategies, and targets" considered sub-sets of policy?	Noted - we will clarify these definitions. Legislation and strategies are not considered sub-sets of policies	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)

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42885	4	8	4	31	The second and third paragraphs do not mention the word policy and do not define institution nor the difference between policy and institutions.	Noted - these paragraphs address the institutional sub-sections; policies are addressed later in the ES. Definitions are in the main chapter and the glossary and are not repeated in the chapter and definitely not the ES for space reasons.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
42889	4	8	4	31	Multiple references are made to national policies and institutions. Is the EU considered "national" in these references, given its substantial body of policy & institutions?	Noted - this is an important point and we will change the language to reflect the special case of the EU	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
4157	4	10	4	10	"reversed course" - what does this relate to? Legislation?	Noted - yes, it refers to legislation, we will make the language more clear	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
25945	4	11	4	15	the difference between the two measurement units (coverage of global emissions by climate legislation vs proportion of emissions covered by legislation) is not so clear. Given the key importance of the Executive Summary and especially of its first lines (which are likely to be the most widely read part of the chapter by the public), I strongly suggest the authors to clarify this passage.	Noted - we will clarify the language	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
30289	4	14	4	15	With what number are you comparing the 82%? What is behind this reversal?	Accepted - the text describing these trends has been made simpler	Bert Metz	European Climate Foundation	Netherlands
40387	4	14	4	15	"However, there were also reversals, as the proportion of emissions covered by legislation or strategy decreased from a high of 82% during this period." This sentence appears confusing when juxtaposed against the data presented in the previous sentences in the same paragraph. Moreover, this sentence does not mention the "low", i.e. decreased to which percentage point from 82%? This part in the Exec Sum. is taken from Page 11, Lines 36-39, where the data is clearer.	Accepted - the text describing these trends has been made simpler	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
42611	4	15	4	15	It would be more informative if the new % of emissions covered (i.e. 69 %) were included	Accepted - the text describing these trends has been made simpler	Vivian Grudde	Climate Change & Transformation Advisory (Freelancing)	Germany
4159	4	18	4	18	"aggregate effect" - on what? Emissions?	Accepted - the text describing these trends has been made simpler	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
4167	4	18	4	19	There is an emerging literature on (climate) policy innovation which should be cited. It seeks to differentiate between different dimensions of policy innovation (e.g. adoption of policies; diffusion of policies; effects of policies). In other words, it seeks to go beyond single empirical observations / case studies to arrive at a bigger picture understanding, noting the general, underlying processes. Authors include Boasson; Huitema; Jordan.	Noted - this literature is relevant, but perhaps not to this section of the ES, which deals with institutions	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)

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6191	4	18	4	20	Crucial too is the need to explore the level of (in)coherence in these institutional provisions and interventions, which might be counter productive, redundant, and may lead to several unaddressed gaps.	Noted - we will explore whether literature exists that allows us to make this point	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
4161	4	21	4	21	"dedicated national institutions" - defined as what? Some examples would be helpful.	Noted - we will clarify the language	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
31863	4	21	4	21	Shouldn't it be "national and sub-national institutions"?	Rejected - this bullet focuses on national; the next one on sub-national	Ashok Sreenivas	Prayas (Energy Group)	India
42891	4	25	4	25	Mention of "postive feedback loop" could include reference to 13.10.3, which discusses policy feedback.	Noted - we will make sure cross references are comprehensive	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
42893	4	25	4	25	Does "support by interests" refer to interest groups?	Noted - we will clarify the language	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
42617	4	28	4	28	institutions THAT are shaped // alternatively different word order?	Editorial - noted	Vivian Grudde	Climate Change & Transformation Advisory (Freelancing)	Germany
6193	4	30	4	31	most of these institutions assume a top-down mechanism in the application of mitigation targets - reflections on more bottom-up processes should be considered.	Noted - Many other bullets discuss 'bottom up' mechanisms including sub-national actions and sectoral actions	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
3267	4	31	4	31	In order to add clarity the following wording is suggested: There is limited evidence that NDC processes help stimulate institutional formation at national governance level.	Noted - thank you for the suggestion, which we will consider	Klaus Radunsky	retired from Umweltbundesamt	Austria
37589	4	32	4	37	In addition to mentioning the diversity of sub-national/municipal actors, probably worth making clearer reference to cooperation and coalition-building, particularly between urban actors eg. C40, covenant of mayors, ICLEI. It does so in the main body, but this should be referenced in the executive summary	Noted - thank you for the suggestion. This is discussed in 13.3	Michiel Schaeffer	Climate Analytics	Netherlands
24279	4	33	4	34	Enumeration of subnational actors should include the term 'provinces', a regional administration present in over 70 countries, some of them very active in terms of climate change policy (for instance, in Canada, the provinces of British Columbia and Quebec).	Noted, thank you for the suggestion	David Houle	Environment and Climate Change Canada	Canada

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28145	4	33	4	35	Include Academia	Noted, thank you for the suggestion. The text has been substantially revised	Damalie Akwango	National Agricultural Research Organisation	Uganda
37587	4	35	4	39	Inclusion of private sector actors in this section seems slightly uncertain - needs some recognition that businesses respond to different incentives than national/sub-national governments. This is brought out somewhat more in the main body text (p 27, lines 6-17). Overall there is limited reference to the private sector as autonomous from policy - investor-led but widely used initiatives like UN Global Compact, CDP, DJSI are all good places to start	Noted - we will consider discussion of the private sector across the chapter	Michiel Schaeffer	Climate Analytics	Netherlands
4163	4	38	4	38	The term 'subnational action' is used too broadly. It should be used with more precision.	Noted - we will consider use of this term	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
39899	4	38	4	40	Add after "... policy instruments.": "..., its effectiveness is contested." Reason: Empirical evidence regarding the effectiveness of sub-national action is negative, see Michaelowa and Michaelowa (2017)	Noted - this appears to pertain to issues of leakage in particular, which will be discussed in 13.7	Axel Michaelowa	University of Zurich	Switzerland
30291	4	38	4	45	A weak point of subnational action is that targets are formulated in a vague manner, making it difficult to measure what has been achieved and that follow-up on set targets is often not monitored. See for example the NSA chapter in EGR 2018. It is important to reflect this in the conclusions.	Noted - we will consider how we reflect ES points on sub-national action	Bert Metz	European Climate Foundation	Netherlands
4569	4	41	4	45	Challenges also include raising finance for cities and increasing their creditworthiness. Creditworthiness is a vital step in ensuring cities can finance the infrastructure they need to reduce their carbon emissions and become more resilient to the effects of climate change. Action plans providing technical assistance on revenue and debt management, improved expenditure control and asset maintenance, capital investment planning, as well as transaction planning, structuring, and execution are essential to make cities sustainable.	Noted - we will consider these comments in the revision	Leonardo Barreto	Austrian Energy Agency	Austria
4571	4	41	4	45	City-level action must also be supported by national policies enabling cities access to sufficient resources and knowledge and guaranteeing sufficient coordination between city administrations and regional/national authorities. For instance, National governments can support local governments with leveraging of private capital through municipal debt financing	Noted - these are issues of multi-level governance which will be discussed in Sec 13.2 and 13.3	Leonardo Barreto	Austrian Energy Agency	Austria
15351	4	41	4	45	Challenges also include raising finance for cities and increasing their creditworthiness. Creditworthiness is a vital step in ensuring cities can finance the infrastructure they need to reduce their carbon emissions and become more resilient to the effects of climate change. Action plans providing technical assistance on revenue and debt management, improved expenditure control and asset maintenance, capital investment planning, as well as transaction planning, structuring, and execution are essential to make cities sustainable.	Noted - we will consider these comments in the revision	Simone D'Alessandro	University of Pisa	Italy

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15353	4	41	4	45	City-level action must also be supported by national policies enabling cities access to sufficient resources and knowledge and guaranteeing sufficient coordination between city administrations and regional/national authorities. For instance, National governments can support local governments with leveraging of private capital through municipal debt financing	Noted - these are issues of multi-level governance which will be discussed in Sec 13.2 and 13.3	Simone D'Alessandro	University of Pisa	Italy
4169	4	42	4	43	The transformative vs incremental distinction is a valuable one and relates to the whole of Chapter 13, not just sub national action.	Noted - This issue is picked up in 13.2, 13.6, 13.8 and 13.9	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
14735	4	1	8	20	The chapter presents a lot of useful material, and addresses many aspects of the policy landscape, but it lacks GUIDANCE: "what should we do better?" messages. The Lead Authors are doing a good job of drawing upon a lot of reference material and presenting a major academic piece of work, but it needs to go further and present more in the way of good practice to guide policy-makers and other stakeholders. Give more practical examples. Provide context, not just theory. In some parts of the executive summary, it does draw out the "best practice" but in others it just passively states the current state of play. I suggest that the messages for each sub-section be reviewed and strengthened to clearly present: actionable "good practice" examples, the key common pitfalls to avoid, any persistent/significant gaps in skills, knowledge, evidence that the authors consider a key priority for countries / the IPCC to address. Important to capture the "areas for future work", of course.	Accepted - we will try to sharpen the messages and provide more directly policy relevant information	David Glen Thistlethwaite	Ricardo	United Kingdom (of Great Britain and Northern Ireland)
24281	4	1	8	20	The use of confidence statements seems to be inconsistent throughout the executive summary. Some paragraphs include several while many do not include any at all, despite the fact that the current direction of the literature provides opportunities to make confidence statements. Also, some confidence statement are applied to what is in fact, several separate lines of evidences from different literatures that should be considered independently. Please see examples below.	Noted - the ES has been re-written tot take account of this and other points	David Houle	Environment and Climate Change Canada	Canada
25953	4	1	8	20	My general comment is that the Executive Summary is well written but very dense: it highlights many different aspects and tends to repeat sometimes a few concepts. I understand that each paragraph corresponds to a section of the report. However, the authors might want to consider focusing on a smaller number of issues in the Executive Summary and/or aggregating some paragraphs that deal with similar concepts.	Noted - the ES has been re-written tot take account of this and other points	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
43021	4	1	8	20	there are too many points in the Excutive summary	Noted - the ES has been re-written tot take account of this and other points	christophe cassen	CNRS-CIRED	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
32593	4	2	8	20	Climate governance at all levels of government, including national and sub-national, needs to focus not only CO2, but also the other climate forcers, including the SLCPs and sinks, as well as approaches (technologies and policies) that can remove climate pollution from the atmosphere, including CO2 and methane. Climate governance also needs to focus on the metric of time, including how long it takes to implement a policy or technology, and how long it takes for the policy or technology solution to provide climate benefits in terms of avoided warming. Molina M., et al. (2009) Reducing abrupt climate change risk using the Montreal Protocol and other regulatory actions to complement cuts in CO2 emissions, Proc. Nat'l. Acad. Sci. 106(49):20616–20621. This metric will help focus attention on climate responses that can slow feedbacks and tipping points over the next critical decade or two as we approach 1.5C or more of warming, and twice that in the Arctic. Molina M., Ramanathan V., & Zaelke D. (2018) Climate report understates threat, Bulletin Atomic Scientists (9 October 2018).	Noted - we have considered non CO2 forcers in 13.6, and the dimension of time has been considered in 13.2, and 13.9 in particular	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
5803	4	32	14	32	subnational and urban actors-> subnational and non-state actors	Noted - no specific suggestion	Taedong Lee	Yonsei University	Republic of Korea
14913	4		152		Please include and elaborate on the now missing Climate Change and Air Pollution integration of policies through SLCP (short-lived climate pollutants) for each there is peer reviewed literature.	Noted - there is discussion of linkages to air pollution and other objectives, particularly in Sec 8	Valentin Foltescu	UNEP/CCAC	India
16369	4	1			In the Executive Summary of Chapter 13, consider adding a paragraph on the military sector both as a driver of manufacturing, transport and food provisioning emissions and a key to their mitigation. Likewise, global war diminishes the human potential for a sustainable and just future, such that increasing alliances globally for the purpose of climate mitigation may reduce the military sectors of all countries and lead to further benefits.	Rejected - the structure of the report does not enable a distinct section, and the ES is organised around sections	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
37585	4	1			lack of focus in ES on how national and subnational governance addresses or can address the need to address the mitigation gap and the need for transformational action as identified in IPCC SR and also mentioned in chapter.	Noted - There is discussion of this issue in 13.2, 13.3 and 13.9	Michiel Schaeffer	Climate Analytics	Netherlands
35157	4	4			in climate related activity, substitute the latter with policy; and in number of policies, substitute with interventions. In that same line, (3) change has with encompasses.	Noted, thank you for the suggestion. The text has been substantially revised	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5459	4	15			An example of what is meant by 'indirect' legislation would be useful. In one sense all legislation impacts emissions. Do you mean indirect emissions reduction legislation such as that on renewables for example?	Accepted - Note that later in the sentence it states indirect implies actions that have the effect of reducing emissions.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
35065	4	19			It is relevant to add the word "policy" before frameworks. This because, there can be frameworks that may not necessarily be mandatory or adopted as policy.	Rejected - the phrase is not limited to policy frameworks. However, we will clarify the point	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
35159	4	21			Instead of "can enable", which may sound repetitive, enhance is a term that can better address the idea of strengthening mitigation action.	Editorial - the text has been substantially revised	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
35161	4	31			The last phrase of the third paragraph "There is limited evidence that NDC processes help stimulate institutional formation (13.2.2)" is not a result of the discussion in the referred section. That is to say, the discussion included in point 13.2.2 leads the reader to believe the opposite (see page 15 and 16).	Noted - thank you for the close read and we have ensured consistency with the text.	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
35163	4	32			In line 32, I recommend changing the word urban after "Subnational and.." This, because planning and zoning (issue addressed there), includes rural and or conservation areas in the municipalities. "Local" includes cities, municipalities and other more broadly intended local authorities responsible for management of zoning and territorial development.	Noted - the text has been substantially revised	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
13799	4	35			Working both at university and a think tank, I tend to think that within civil society think tanks also play a significant role in bridging science and policy regarding climate action, and in fact there are several references to think tank research, to which I would add some more in my comments	Noted - no specific suggestion	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
5461	4	41			Some mention of co-benefit as a concept might be useful here (re. air pollution).	Noted - co-benefits and synergies are discussed in various places in the revised ES	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
43631	4	41			arguably not only in the Global South. Air pollution drives CARB, with notable interplay with climate issues. Air pollution is one of the issues driving the movement to car-free cities.	Noted	Felix Creutzig	MCC Berlin	Germany
4165	5	1	5	1	The "impact" of subnational action - what does this relate to? Emissions? Or the number of policies adopted? Or financial resources committed?	Noted - this pertains to emissions	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
30293	5	1	5	7	This is confusing. It is crucial to make a distinction between the result of current commitments by NSAs (very limited) and estimates what could be achieved if commitments are made by a much larger number of NSAs (significant reduction potential, but highly speculative). It is not helpful to say that estimates vary widely, that is confusing the matter. See UNEP EGR 2018 NSA chapter.	Noted -	Bert Metz	European Climate Foundation	Netherlands
38167	5	4	5	4	I guess the 9149 cities you are referring to are Covenant of Mayors signatories. If this is the case, then you should know that signatories of the Covenant of Mayors are not necessarily cities, instead they are local authorities. An actually, most of the signatories are small villages located in Spain and Italy, see for reference: https://publications.jrc.ec.europa.eu/repository/bitstream/JRC92694/Idna27110enn.pdf	Noted - the text has been substantially revised	Yamina Saheb	OpenExp, Ecole des Mines de Paris	France
42613	5	4	5	4	Mention that these are 9,149 cities worldwide and not in the US, otherwise it is unclear	Noted - the text has been substantially revised	Vivian Grudde	Climate Change & Transformation Advisory (Freelancing)	Germany
44337	5	4	5	5	I suggest to mention the new GCoM aggregation report 2019 with most updated figures on emissions reductions in the GCoM cities. Available at https://www.globalcovenantofmayors.org/impact2019/	Noted - thank you for the suggestion	BERTOLDI PAOLO	European Commission	Italy
39901	5	4	5	6	Add after "... in 2011": "Crediting mechanisms have enlarged the reach of market mechanisms beyond single jurisdictions and reduced overall mitigation costs." Reasons: The link of carbon taxes and emission trading schemes to crediting systems such as the CDM has led to cost-effective mitigation.	Rejected - this issue will be discussed in Sec 13.6	Axel Michaelowa	University of Zurich	Switzerland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
37591	5	8	5	8	Some policy-prescriptive language: eg. principles of justice are 'insufficiently' incorporated in climate change framing and action. The language in the main body is less normative (pg 22, line 43): Frequently principles of justice are not incorporated in climate change framing and action	Noted - the text has been substantially revised	Michiel Schaeffer	Climate Analytics	Netherlands
28147	5	11	5	12	Consider including inequity to read as follows; potentially inequality and inequity effects	Noted - we will consider the point	Damalie Akwango	National Agricultural Research Organisation	Uganda
30295	5	11	5	13	What are you saying precisely here? What kind of negative impacts on equality have occurred and have been analysed? What does the reference to poverty, inequality and corruption mean in this context?	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
37945	5	11	5	15	Policies can worsen inequality (of income/wealth) and also exacerbate inequities (resulting from differential access to capital, resources, education, employment, care, etc.) This valuable paragraph largely relates to inequities. The rich have more adaptive capacity whether they live in rich or poor countries.	Noted - the text has been substantially revised	Patricia Perkins	York University	Canada
4171	5	16	5	16	how is climate governance being defined as here (and indeed the whole chapter)?	Noted - we explicitly refer to the glossary which defines climate governance	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
30297	5	16	5	18	the first part of the headline statement is elaborated in the underlying text (very extensively), but the second part of the headline statement not, while that is an intriguing statement. If it is true that national circumstances/ systems/ cultures have no major impact on targets, strategies and measures, why pay so much attention to them then? The headline statement could then be reversed by saying that targets, strategies, systems, etc have no major influence (and are therefore no excuse for inadequate action).	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
4573	5	16	5	24	Climate and energy governance require breaking silos across policies and sectors, across government departments, with stakeholders and the public, and cross-border	Noted - there is support for this view from the literature but the commentator makes no clear proposal.	Leonardo Barreto	Austrian Energy Agency	Austria
4579	5	16	5	24	Integration of strategic planning and reporting on the implementation of climate and energy policies is important for a sound climate governance and evaluation of climate policy	Noted - this is explored in Sec 13.2	Leonardo Barreto	Austrian Energy Agency	Austria
5805	5	16	5	24	add NDC in national climate governance	Noted - Added in Sec 13.2.2	Taedong Lee	Yonsei University	Republic of Korea
15355	5	16	5	24	Climate and energy governance require breaking silos across policies and sectors, across government departments, with stakeholders and the public, and cross-border	Noted - there is support for this view from the literature but the commentator makes no clear proposal.	Simone D'Alessandro	University of Pisa	Italy
15361	5	16	5	24	Integration of strategic planning and reporting on the implementation of climate and energy policies is important for a sound climate governance and evaluation of climate policy	Noted - this is explored in Sec 13.2	Simone D'Alessandro	University of Pisa	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
25947	5	16	5	24	I found this paragraph less clear and a bit inconclusive: it results in a long list of climate-institutional features and factors that may influence climate governance. Similar considerations apply to other paragraphs of the Executive Summary (e.g. p.13-8 Lines 6-13) that make a list of rather generic (and somehow expected) indications which in my view do not provide very useful insights to the reader.	Noted - the revised ES develops tighter and more policy relevant conclusions	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
12303	5	16	5	25	Stating that countries' political systems, material endowments, culture and traditions do not determine domestic climate targets, strategies and measures is a strong statement for which there is diverging evidence. It also reads slightly strange when contrasting it to line 25 that 'features of national political systems can have implications for climate policy processes'. Recommend either nuancing the first statement or clarifying the language (is the emphasis on determining v. implications?)	Noted - the text has been substantially revised	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
15417	5	18	5	18	delete an extra comma: "(medium evidence, medium agreement,)" to "(medium evidence, medium agreement)."	Editorial - accepted	Simone D'Alessandro	University of Pisa	Italy
6195	5	18	5	20	Yes, but these cultural institutions are highly dynamic, and rapidly changing - with some witnessing a breakdown. This has effect on the behavior and actions of agents. Equally, the cultural institutional dispensation contributes to shape gender issues and roles in climate action (see: Nchu, I.N.; Kimengsi, J.N.; Kapp, G. Diagnosing Climate Adaptation Constraints in Rural Subsistence Farming Systems in Cameroon: Gender and Institutional Perspectives. Sustainability 2019, 11, 3767).	Noted - no clear suggestion for revision	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
25949	5	18	5	24	I did not understand the terms in italics indicated in parentheses. The same applies to the following pages (elsewhere you also use the term "high confidence" p.13-7, line 38, which introduces an additional term beyond "evidence" and "agreement"). You probably refer to the degree of evidence in the literature and agreement among different studies? In any case, this is not necessarily self-explanatory to the large public, unless you explain it more explicitly. Maybe the meaning of the terms in these parentheses is explained elsewhere in the Report. However, many people will want to read a specific chapter rather than the whole report, hence in my view it is important that the meaning of these parentheses is explained the first time they are introduced in the chapter.	Rejected - we use standard IPCC uncertainty language	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
28149	5	19	5	19	Contribute to shape what, there is missing information	Noted - the text has been substantially revised	Damalie Akwango	National Agricultural Research Organisation	Uganda

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
24283	5	19	5	20	The confidence level about the observation that norms, frames, institutional logics contribute to shaping which climate actions are seen as good or appropriate is 'limited evidence, medium agreement'. I believe that it should be 'medium evidence, high agreement' on the basis of the published studies on the topic. On the impact of framing in the context of climate change policy, Rabe (2004) (Statehouse and greenhouse: The emerging politics of American climate change policy) (not included in the bibliography) and followers (the study as about 500 citations) made that case convincingly in the context of US states, local governments, Canadian provinces, and for international organizations. There is also a growing literature on climate change policy and 'framing effect' at the individual level through experiment. While the literature is still emerging, with many papers still making the journey from conferences to publication, these studies, in general, support the idea that how to idea of climate change is introduced influences support for a variety of climate action. Of course, the statement also refers to other literature, including on norms, world views, and traditions, which make the assessment more complicated. Ideally, they would be broken down in several statements with their own confidence intervals. On norms, the relevant literature would include Raymond (2016) (Reclaiming the Atmospheric Commons: The regional greenhouse gas initiative and a new model of emissions trading, MIT Press) (not included in the bibliography) and other contributions (all pointing to the importance of pre-existing norm of moral conduct in the formation on view on climate policy). On worldview and climate actions, the literature on cultural theory would be the most relevant (e.g. Hulme, 2009, Why We Disagree about Climate Change: Understanding Controversy, Inaction and Opportunity). From a public policy, we probably know a bit less on the impact of tradition on support for climate actions.	Noted - thank you for the additional references and the suggestion to re-think the uncertainty language. We have modified the uncertainty language	David Houle	Environment and Climate Change Canada	Canada
24285	5	20	5	24	The statement "climate governance may be influenced by sector-specific regulatory traditions, traditional approaches to the application of scientific information in policy-making..." would also need to be unpacked, with separate confidence statements for each of this literature. For instance, the business and climate policy and regulatory regime literature seem to be the most relevant to the 'sector-specific regulatory traditions'. (ex. Macdonald, 2007 Business and Environmental Politics in Canada)(not in bibliography). These literature are adamant that existing regulatory regimes and state-business relationship is a major constraint to climate action. On this specific point, the appropriate confidence interval I think would be medium evidence, high agreement. Also, not sure what traditional approaches to inclusion of scientific information in policy making are. There is however a literature on the science and policy linkages but that would be independent from the sector-specific regulatory/business and environmental politics literature (in terms of journals, debates, etc.).	Noted - the text has been substantially revised	David Houle	Environment and Climate Change Canada	Canada
4173	5	25	5	25	It would be useful to start by acknowledging the general finding in the existing literature (democracies perform better than non democracies) before bringing in the various nuances and qualifications to this general argument.	Noted - the text has been substantially revised	Andrew Jordan	Tyndall Centre	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
6197	5	25	5	29	This also depends on the state of growth and development of a country - some seek to prioritize poverty alleviation over climate investments (such as green infrastructure and clean energy)	Noted - the importance of national context has been emphasized in the revision	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
12305	5	25	5	29	Please consider adding more key features from the literature than simply veto points and electoral systems. One missing factor is pluralist vs. corporatist systems.	Noted - the text has been substantially revised, and these specifics are not discussed in the ES	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
24287	5	25	5	29	I believe there is an opportunity to add a confidence statement to the assertion that national political systems have implications for climate policy processes. In this context, national political systems would include both electoral and party systems. Taking into consideration the literature on climate change policy and both party system and electoral system, I would argue that there is 'limited evidence, medium agreement' overall. If a statement is added specifically on the example cited, proportional representation impact on climate policy, the statement could be 'medium evidence, high agreement' based on the published literature on the topic (I found later that this what the authors have also recommended on page 13-24 line 46-48, so we are in agreement here). In FPTP systems, emerging literature on the impact of minority governments and climate action (with mixed evidence at the moment, governments more cautious but greens can sometime play a bigger role and obtain more ambition).	Noted - the text has been substantially revised, and these specifics are not discussed in the ES	David Houle	Environment and Climate Change Canada	Canada
42895	5	28	5	28	The point on "veto points" is a bit unclear, how exactly are they salient? They may make adoption more difficult but might also make dismantling of existing climate policies more difficult, e.g. Gravey and Jordan 2016 "a greater number of potential veto players can also be expected to bedevil attempts at retrenchment" (1181) in context of EU environmental policy more generally, doi http://dx.doi.org/10.1080/13501763.2016.1186208	Noted - the text has been substantially revised, and these specifics are not discussed in the ES	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
30299	5	28	5	29	What does this mean?	Editorial - we will aim to write this more clearly without jargon	Bert Metz	European Climate Foundation	Netherlands
12307	5	30	5	39	It would be helpful to add the relevance of pluralist vs. corporatist systems of interest aggregation for climate policy here. It would also be useful to add party ideology as a factor that also navigates specific climate governance contexts and explains similar outcomes in differing contexts.	Noted - the text has been substantially revised, and these specifics are not discussed in the ES	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
30301	5	30	5	39	This looks like a very complicated way to say that the design and adoption of climate policy happens in the context of the political economy of a country, which means that issues of access to decision makers, the mobilisation of public pressure, etc play an important role. Rewrite the paragraph	Noted - we have written this in a manner that reflects the underlying literature. There are specific aspects of the political economy of the country that matter. We take the point it comes across as complex language and will seek to make it more accessible.	Bert Metz	European Climate Foundation	Netherlands
15419	5	32	5	32	delete an extra comma: "(medium evidence, medium agreement).)" to "(medium evidence, medium agreement)."	Editorial	Simone D'Alessandro	University of Pisa	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4175	5	40	5	40	"impact" is now (helpfully) unpacked - this important point should be made much earlier in the chapter. Note the discussion in the literature between those that argue that impact emissions is (ultimately) the most important dimension of impact vs those that argue that this is reductionist / a very tough criterion to apply/test for.	Noted	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
30303	5	40	5	42	Yes, good to know. But what policy makers need is guidance on what policies are effective under what circumstances. That is what I would like to see in the executive summary.	Noted - other reviewers have appreciated the explicit emphasis on multiple evaluation criteria, which suggests we should retain this point but build on it.	Bert Metz	European Climate Foundation	Netherlands
35211	5	40	5	42	It should more clearly be identified that policy instruments can be evaluated according to their political feasibility. Feasibility alone as an assessment criteria is not specific enough to reflect this specific dimension of feasibility.	Noted - we will reconsider whether and how we use 'feasibility'	Llewelyn Hughes	Australian National University	Australia
11885	5	40	5	43	Please consider to include information about combined effects from other drivers than climate change, eg. Pollution. It would also be helpful if you could include information about policy instruments across sectors that influences climate policy instruments.	Rejected - we address combined effects in other parts of the chapter. This point is about evaluation criteria	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
38169	5	40	5	43	According to OECD drafting standard, a paragraph should include at least three sentences. Also long sentences such as the first are difficult to understand for non-native English.	Editorial - thank you for the guidance	Yamina Saheb	OpenExp, Ecole des Mines de Paris	France
30305	5	43	5	43	I think it is more interesting to emphasise the prevalence on incoherent policy packages, where some policies undermine the aim of climate/ sustainability policies	Noted - we will consider this suggestion	Bert Metz	European Climate Foundation	Netherlands
25275	5	44	5	46	Delete "They artificially increase ... reduce emissions.", as reference to inefficient subsidies that encourage wasteful consumption should be made.	Rejected - this statement is consistent with the underlying literature. The argument against including it is not clear .	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
30307	5	44	5	46	Add numbers here for remaining fossil subsidies and the trend over time and do mention that countries have committed over and over to phase them out.	Noted - Numbers are contested and complicated making it hard to reflect them appropriately in the ES and so they are discussed in the underlying section	Bert Metz	European Climate Foundation	Netherlands
3021	5	44	6	2	To ensure balanced assessment must mention that subsidies to fossil fuel consumption and production can help enhancing energy access in some developing countries.	Noted - there is some discussion of this issue in the underlying text in 13.6	Mustafa Babiker	Aramco	Saudi Arabia
38171	5	44	6	2	Investment protection of fossil fuels lock countries in carbon. See for reference: https://www.openexp.eu/sites/default/files/publication/files/modernisation_of_the_energy_charter_treaty_a_global_tragedy_at_a_high_cost_for_taxpayers-final.pdf	Noted - thank you for the reference	Yamina Saheb	OpenExp, Ecole des Mines de Paris	France
4177	5	44	6	14	There is a growing literature on the the popularity / political support for different policy instruments that should be cited here e.g. Bernauer; Lachapelle etc.	Noted - thank you for the suggestion	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
30309	5	46	6	2	Move to a separate paragraph and reserve this para for the fossil fuel subsidies	Editorial - thank you, we will consider this suggestion	Bert Metz	European Climate Foundation	Netherlands

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
43633	5	3			In 2050, the potential of a combination of urban planning and fuel taxes (or on urban scale: city tolls) is to deliver about 23% reduction in urban-scale energy use (and thus GHG) emission compared to BAU. See Creutzig et al 2015 PNAS.	Noted, thank you for the suggestion	Felix Creutzig	MCC Berlin	Germany
35165	5	4			Clarify if the 9,149 cities are in the same country as discussed earlier (The US).	Noted	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5463	5	8			Exolicit mention of human rights as well as justice would be useful here. The impacts of climate change on human rights (and not just justice, which tends to be seen in distributive or procedural terms) has been widely addressed, not least by UN special rapporteurs such as John Knox.	Noted - the text has been substantially revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
35207	5	14			Clarify that the mention is made to lower income countries. For example, Denmark is a low emissions country and does not fit into the case under discussion.	Noted - the text has been substantially revised	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5465	5	23			And by social movements framing of the issue (by both 'sides')	Noted - the text has been substantially revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
13801	5	27			Well, proportional representation works in both directions, also increasing the risks for climate revisionists and energy populists to win seats	Noted - the text has been substantially revised	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
5467	5	40		43	Other important values are missing, such as proportionality, flexibility/adaptability, legal certainty, precaution, polluter pays	Rejected - these evaluation criteria focus on assessing policy, and were arrived at through a deliberative cross chapter process. While more can be added, tractability would become an issue.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
32743	5	42			Change 'policy packages' into 'policy mixes', in line with with section 16.3 and the predominant literature (and add link to that section); would also suggest to add credibility: "For policy mixes, coordination, coherence, consistency and credibility are also important evaluation criteria. {13.5.2; 13.6.3}"	Noted - we will consider this suggestion	Karoline Rogge	SPRU, University of Sussex	Germany
40395	6	3	6	3	"Economic or market-based instruments" is mentioned. Will it be better to use "carbon pricing instruments"? Reasons: (a) The next sentence mentions emissions trading and carbon taxes. (b) "Economic" instruments are far wider than "market-based instruments". (c) carbon taxes are not market-based instruments. The next paragraph mentions "emissions pricing". The same terminology could be used also. i.e. "emissions pricing instruments".	Rejected - we use terminology that has been agreed for consistent use across chapters	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
38173	6	3	6	7	What matters is not the number of sectors covered by economic instruments. Instead what policy-makers need to know is the effectiveness of these instruments in reducing emissions	Noted - we would suggest that both matter and are worth discussing to the extent information is available	Yamina Saheb	OpenExp, Ecole des Mines de Paris	France
30311	6	6	6	7	Add specific elements that make these policy instruments more effective	Noted - the revised ES includes specific points for different instruments	Bert Metz	European Climate Foundation	Netherlands

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
24291	6	8	6	11	A confidence interval could be provided for the affirmation that technological and performance standards are less economically efficient than carbon pricing. I would suggest (medium evidence, high agreement).	Noted - the text has been substantially revised	David Houle	Environment and Climate Change Canada	Canada
30313	6	8	6	11	What is missing here is the message that regulatory instruments are by far more effective for application to long-living assets (buildings, cars, household appliances, etc) or to technologies that are still far from a competitive cost level, while they are crucial for achieving long term targets. Economic instruments are not effective for these situations because the price signal would have to be unrealistically high. This is a crucial element of policy instrument choice.	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
38175	6	8	6	11	As shown by the COVID19, economic instruments complement regulatory ones and not the opposite.	Noted - no clear suggestion is provided	Yamina Saheb	OpenExp, Ecole des Mines de Paris	France
35213	6	10	6	11	The inclusion of the phrase "Both tend to be less economically efficient than emissions pricing." biases one dimension for assessing policy instruments. Efficiency is an important, but not obviously the most important, dimension through which policies should be assessed. While carbon pricing is economically efficient, for example, it is commonly unfeasible politically. A better statement would be that regulatory instruments maximise different dimensions through which policy instruments can be assessed.	Noted - the text has been substantially revised	Llewelyn Hughes	Australian National University	Australia
11137	6	11	6	11	Should not omit the benefit of the performance standards or technology standards. following sentences should be added, "however these policies can lead to long-term profitable gains in energy efficiency" (see lines 26-27, page 13-48 & lines 12-14, page 13-49)	Noted - the text has been substantially revised	Midori Sasaki	industrial organization	Japan
25277	6	11	6	11	Delete "Both tend to ... emissions pricing.", as this argument is not consistent with sustainable development issues.	Noted - the text has been substantially revised	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
24289	6	12	6	14	Overall, the literature on voluntary instruments, including voluntary agreements, concludes that they are mostly ineffective, at least in the North American context (see Rivers, Nic, and Mark Jaccard. "Canada's efforts towards greenhouse gas emission reduction: a case study on the limits of voluntary action and subsidies." International journal of global energy issues 23.4 (2005): 307-323). There might be a case of some voluntary agreements in European jurisdictions to be more effective, but my understanding is that they are based on the credible threat of regulatory action (which was not the case in the US or Canada in the 1990s and 2000s). The whole debate starts to be dated, but if a reference is made to the voluntary instrument, I would make clear that any impact they might have is conditional on them being implemented with a credible threat of more coercive action if the results are not achieved or as a complement to more coercive approach, ex. regulation or carbon pricing.	Noted - the text has been substantially revised	David Houle	Environment and Climate Change Canada	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
30315	6	12	6	14	This is too general to be of use. The point to be made on information instruments is that they can be effective only in combination with other instruments. Alone they cannot make much difference. And on voluntary agreements an important conclusion (also found in earlier IPCC reports) is that they are in most circumstance only able to generate very modest effects. Such specifics need to be in the Executive Summary as policy makers often ignore those important lessons.	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
47423	6	12	6	14	Fails to mention government investment in research and development to spur innovation, which is likely play an influential role in accelerating transition. Recent investments are increasing among many governments, including the United States.	Rejected - investment in R&D is covered in a different chapter	Kelly Wanser	SilverLining	United States of America
25279	6	14	6	14	Delete "divestment approaches"	Rejected - this is an emergent area of discussion we feel we should address	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
19901	6	15	6	37	The concept of "policy mixes" appears twice in the paragraph starting on line 15, and the paragraph starting on line 30. I suggest to create one specific summary paragraph for policy mixes and consolidate.	Noted - the text has been substantially revised	Jonas Schoenefeld	Institute of Political Science, Technical University of Darmstadt	Germany
30317	6	18	6	18	At the end of the sentence Add: "due to lower CO2 prices under the cap and trade programme"	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
30319	6	19	6	20	In the 2030 EU climate policy package the ETS has been given a more prominent role, by making other instruments (efficiency target, renewable energy shares) non-binding at member state level. This was done to limit the oversupply of emission allowances under the ETS, although many analyses pointed out that the renewable energy targets in particular had been been effective during the 2020 EU climate policy package in driving down emissions.	Noted - thank you for the suggestion	Bert Metz	European Climate Foundation	Netherlands
38177	6	19	6	20	This conclusion about ETS is rather surprising to me if we consider the EU ETS scheme which is the largest one. Curious to see the literature which provides this evidence	Noted - no clear suggestion	Yamina Saheb	OpenExp, Ecole des Mines de Paris	France
24293	6	21	6	21	Not sure of the meaning of the sentence: "Emissions 'leakages' notably is not a concern when a standard is implemented with a tax." While some climate policy packages might be better at addressing carbon leakage concerns, I do not know any policy packages that would completely eliminate it, including package relying mostly on carbon taxation/pricing.	Noted - the text has been substantially revised	David Houle	Environment and Climate Change Canada	Canada
3269	6	21	6	22	This sentence requires some rewording. E.g. However, there may be efficiency costs due to de facto different marginal abatement costs across sectors.	Editorial - we will clarify	Klaus Radunsky	retired from Umweltbundesamt	Austria
31613	6	21	6	22	typo: "However, there may have efficiency costs due to de facto different marginal abatement costs across sectors." have should be "be"	Editorial - thank you	Lisa Ryan	University College Dublin	Ireland
30321	6	21	6	24	It is not clear how "leakage" is defined here and it is not clear what the message of these sentences is and how this text is linked to the headline text.	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
31619	6	21	6	43	Suggest moving lines 21-24 out of this paragraph to be combined with paragraph beginning line 43. In line 43 "Emissions leakage" is defined so it does not make sense to discuss emissions leakage before this paragraph. There is also a little bit of duplication so the texts could be combined.	Noted - the text has been substantially revised	Lisa Ryan	University College Dublin	Ireland
31615	6	22	6	23	Language is unclear: "Leakage can also exist across jurisdictional scale" suggest "Leakage can also occur across jurisdictions".	Noted - the text has been substantially revised	Lisa Ryan	University College Dublin	Ireland
4179	6	25	6	27	How is the term 'policy integration' being used here? The (associated) literature on environmental policy integration should be mined for relevant typologies and conceptualisations (e.g. Dupont; Lenschow; Schout; Jordan)	Noted - the text has been substantially revised	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
4575	6	25	6	27	A case in point is the coordinated implementation of energy efficiency, renewable energy and climate policies in the buildings sector. Please make here a link to chapter 9 (buildings), if possible.	Noted - this is too specific for the ES	Leonardo Barreto	Austrian Energy Agency	Austria
15357	6	25	6	27	A case in point is the coordinated implementation of energy efficiency, renewable energy and climate policies in the buildings sector. Please make here a link to chapter 9 (buildings), if possible.	Noted - this is too specific for the ES	Simone D'Alessandro	University of Pisa	Italy
30323	6	25	6	29	This is too vague. What is the message to policy makers?	Noted	Bert Metz	European Climate Foundation	Netherlands
35215	6	25	6	29	This section is vague and should be reworded to be more specific, or augmented with illustrative examples.	Noted - the text has been substantially revised	Llewelyn Hughes	Australian National University	Australia
4577	6	30	6	33	Policy packages could, for example, couple policies on renewable energy and energy efficiency domains, where possible	Noted - the text has been substantially revised	Leonardo Barreto	Austrian Energy Agency	Austria
15359	6	30	6	33	Policy packages could, for example, couple policies on renewable energy and energy efficiency domains, where possible	Noted - the text has been substantially revised	Simone D'Alessandro	University of Pisa	Italy
31617	6	30	6	37	Efficiency, ie least cost, is not mentioned in this paragraph, nor is fairness or distributional effects included in the effectiveness sentence.	Noted - however no specific suggestion is made	Lisa Ryan	University College Dublin	Ireland
30325	6	32	6	33	"political feasibility" is not "another objective" such as development or reduced inequality. Political feasibility is a criterion for making a policy package effective.	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
4181	6	36	6	37	Define what is meant by exnovation and give some examples (in a Box?). For e.g. the phase out of coal; the phase out of petrol and diesel cars etc.	Noted - this is discussed in the chapter and the summary has been re-written	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
25281	6	36	6	37	Delete "Policy mixes can ... promoting low carbon pathways."	Rejected - this statement is supported and the argument against including it is not clear	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
30327	6	36	6	37	What does this mean?	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
5807	6	38	6	42	effects on fossil fuel employment	Noted - but there is no specific suggestion	Taedong Lee	Yonsei University	Republic of Korea

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
30329	6	38	6	42	This para gives contradictory messages. It looks like it wants to address the concern of fossil fuel producers, while at the same time giving the message that fossil fuel resource owners have to face stranded assets. Given the Paris climate goals phasing out of fossil fuels is inevitable and that definitely will lead to lower prices. That should be the message, preferably with numbers for the amount of fossil resources that will have to be left untapped. In terms of national policy that implies that governments should refrain from giving permission to new fossil fuel exploration and production. That is what this para should say.	Noted - we read the message in the paragraph as consistent and introducing the important idea of 'unburnable carbon'. The specific language has been re-written	Bert Metz	European Climate Foundation	Netherlands
11139	6	43	6	47	Texts in the executive summary is not policy neutral nor appropriate, and may violate IPCC neutrality. If there is little or no competitiveness affects, then why EU is to introduce border tax mechanisms ? EC report on EUETS says, "the risk of carbon leakage has been effectively addressed for those sectors regulated under the EUETS that are exposed to the risk of carbon leakage by granting free allowances, based on the emissions performance of the best installations under the system (benchmarks). ... In addition, since the price of carbon is incorporated in electricity prices and passed on to consumers, possibly becoming an indirect source of carbon leakage for some energy-intensive sectors, Member States have the possibility to compensate some electrointensive industries for the increase in electricity prices resulting from the ETS, provided they comply with EU State aid rules." (EC Carbon border adjustment mechanism Ref. Ares(2020)1350037 - 04/03/2020). Although ex post studies find limited or no leakage effects on carbon tax, it does not prove that introduction of these policies will not cause any leakage.	Noted - we appreciate the comment. The paragraph as written reflects the existing scientific consensus but does not explore implications, for example for border taxes. The text has been substantially re-written	Midori Sasaki	industrial organization	Japan
14733	6	43	6	47	Linked to the point about emissions leakage and a need to consider global impacts of mitigation policies .. this paragraph notes that emissions leakage has been modelled (mainly relating to trading schemes) but the accuracy of the estimates has been questioned. This uncertainty and need for better modelling of policy impacts beyond the national boundaries is VERY important to make and develop further in the report. We know that if we don't put all parameters into the equation, we get the wrong answer, and if there is a major part of policy analysis that is highly uncertain (or often just ignored entirely), then we will have lots of policy makers making bad decisions in lots of countries, which may help that country achieve a target under KP or PA, but is precious little help to address climate change. This report must highlight that evidence gap or uncertainty, and provide something useful as guidance, rather than just observe what is out there. Please move from passive to active, and state good practice.	Noted - the point about highlighting an evidence gap if it exists is well taken. The text has been re-written	David Glen Thistlethwaite	Ricardo	United Kingdom (of Great Britain and Northern Ireland)
30331	6	45	6	47	That is true with the modest ambition level of climate policies so far. With increased ambition the leakage issue will become more prominent, as is illustrated by the EU intent to implement a carbon border tax. This forward looking element is also very relevant.	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
31621	6	30	7	6	There is some duplication between paragraph starting line 30, p. 6 and line 6, p. 7. While I appreciate that each paragraph is linking back to separate sections in the chapter, perhaps they could be better combined in the Exec Summary.	Editorial - we will seek to avoid duplication	Lisa Ryan	University College Dublin	Ireland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
5469	6	1		2	Some mention of the risk of premature withdrawal of such beneficial subsidies might be useful.	Noted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5471	6	8			Regulatory instruments' - economic instruments covered in the previous para are also these. It may be better to state it as 'command and control regulatory instruments' (or perhaps 'non-market based ...')	Rejected - terminology has been agreed across chapters for consistency purposes	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5473	6	11			The may be less cost-effective (more accurate than economically efficient which implies Pareto optimality), but why single this out as the only value? They may, for example, be more effective (in terms of the value of effectiveness).	Noted - the text has been substantially revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5475	6	12		13	Often less compulsory would be better. That would enable labelling to be included in brackets as an example after informational.. Some labelling schemes are of course compulsory (eg energy efficiency labels on fridges etc in the EU)	Noted - the text has been substantially revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
43635	6	12			nudges might be added to the list here (Chapter 5 cossreference?)	Noted	Felix Creutzig	MCC Berlin	Germany
5477	6	21		22	Some idea of what is meant by 'leakage' here would be useful (a definition is provided at the end of the page but this is rather late and is not flagged as coming later - nor is it clear if this is the same meaning of leakage as the one used here). It can mean different things in different contexts. Also, to say a standard is implemented via a tax is confusing - they are normally seen as alternatives. Finally, typo - there may 'be', not 'have'.	Noted - the text has been substantially revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
32745	6	34			In line with comment on the specific section, would suggest to change wording from 'structural change and transformation' to 'structural and transformational system failures': "Key design elements of an effective policy mix are comprehensiveness – addressing market failures, structural and transformational system failures; balance – ..."	noted - we will align ES text with underlying text	Karoline Rogge	SPRU, University of Sussex	Germany
47425	7	1	7	5	The paragraph seems to conflate policy innovation and technology innovation. Overall it is difficult to determine what this segment is trying to say.	Noted - the text has been substantially revised	Kelly Wanser	SilverLining	United States of America
4183	7	3	7	4	The term policy innovation etc. This should be unpacked and used as a cross cutting theme. See above.	Noted - the text has been substantially revised	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
30333	7	3	7	4	I would not include that under "international knowledge spill-over" and therefore I question the mentioning of negative effects in the headline text.	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
35217	7	3	7	4	"Negative effects can arise through incentives to free ride on policy innovation by other countries." does not capture the full range of effects with spillovers from innovation. It should also be noted that positive spillovers exist in the form of reduced prices for low-carbon technologies by moving down the learning curve, or other effects, through policy innovation in other countries. This has been key in solar PV and increasingly windpower (on/offshore) in driving costs down to enable these technologies to compete on a non-subsidised basis, and should be recognised.	Noted - the chapter will decrease its focus on technology innovation, which is being addressed in other chapters	Llewelyn Hughes	Australian National University	Australia
37593	7	4	7	5	Free-riding is an inevitable element of technological/policy innovation - should it be described here as a 'problem'? If so, why?	Noted - the text has been substantially revised	Michiel Schaeffer	Climate Analytics	Netherlands

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
35219	7	6	7	8	I disagree with this sentence: "Effective implementation of mitigation and adaptation measures depends on policies and cooperation at all scales." Some policies can be effective in the absence of cooperation at all scales. Neither condition (i.e. cooperation & geographic scale) is necessary not sufficient for measures to be effective. The statement should be removed.	will be revised to reflect comment	Llewelyn Hughes	Australian National University	Australia
4581	7	6	7	12	Cases in point are the use of boats powered by solar PV as schools in the Mekong river, the use of water harvesting systems and building-integrated PV on buildings that are hurricane-proof, the use of green roofs on energy efficient buildings	Noted - the text has been substantially revised	Leonardo Barreto	Austrian Energy Agency	Austria
15363	7	6	7	12	Cases in point are the use of boats powered by solar PV as schools in the Mekong river, the use of water harvesting systems and building-integrated PV on buildings that are hurricane-proof, the use of green roofs on energy efficient buildings	Noted - the text has been substantially revised	Simone D'Alessandro	University of Pisa	Italy
30335	7	6	7	12	It looks as if the interaction between adaptation and mitigation policies was meant to be the issue for this paragraph. But the current text does not address that. I expect conclusions on "do's and don'ts" to optimise the interaction of adaptation and mitigation.	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
37595	7	6	7	12	Not very clear in the point being made here and could potentially be integrated with lines 30-39 on page 5	Noted - the text has been substantially revised	Michiel Schaeffer	Climate Analytics	Netherlands
16367	7	13	7	22	In the text related to adaptation and mitigation synergies, strongly consider including the military sector both as a driver of manufacturing, transport and food provisioning emissions and a key to their mitigation. Likewise, global war diminishes the human potential for a sustainable and just future, such that increasing alliances globally for the purpose of climate mitigation may reduce the military sectors of all countries and lead to further benefits.	Noted - we have not found references that help make this point	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
25951	7	13	7	22	<p>When discussing adaptation policies and their effects (here and/or in section 13.8) you might want to refer to the concept of “maladaptation” (IPCC, 2018), namely, self-protective strategies (Shogren and Crocker, 1991; Antoci and Bartolini, 2004; Antoci and Borghesi, 2012) which exacerbate environmental problems or shift negative impacts, risks, and exposure to other population groups or countries (Antoci and Borghesi, 2010; Antoci et al., 2015). Maladaptation is regarded as one of the global emerging environmental challenges (UNEP, 2019) and is attracting increasing attention in the literature (Barnett and O’Neill, 2010; Antoci et al., 2019) especially for its regressive distributive consequences that are in line with what you discuss in the Chapter (e.g. p.13-5 of the Executive Summary and section 13.3.5). A list of references on this issue is hereby added:</p> <p>Antoci, A., Gori, L., Sodini, M., & Ticci, E. (2019). Maladaptation and global indeterminacy. <i>Environment and Development Economics</i>, 24 (6), 643–659.</p> <p>Antoci, A., Borghesi, S., Russu, P., & Ticci, E. (2015). Foreign direct investments, environmental externalities and capital segmentation in a rural economy. <i>Ecological Economics</i>, 116, 341–353.</p> <p>Antoci, A., & Borghesi, S. (2012). Preserving or escaping? On the welfare effects of environmental self-protective choices. <i>The Journal of Socio-Economics</i>, 41 (2), 248–254.</p> <p>Antoci, A., & Borghesi, S. (2010). Environmental degradation, self-protection choices and coordination failures in a North-South evolutionary model. <i>Journal of Economic Interaction and Coordination</i>, 5 (1), 89–107.</p> <p>Antoci, A., & Bartolini, S. (2004). Negative externalities, defensive expenditures and labour supply in an evolutionary context. <i>Environment and Development Economics</i>, 9 (5), 591–612.</p> <p>Barnett, J., & O’Neill, S. (2010). Maladaptation. <i>Global Environmental Change</i>, 2</p>	Noted. Thank you for this suggestion. Maladaptation is a useful concept that should be discussed in Sec 8, but was unfortunately missed. We will note this for the next draft.	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
30337	7	15	7	21	I don't see how this underlying text elaborates the headline text. It seems the underlying text addresses the issue of adaptation, not the issue of adaptation-mitigation synergies. The text is also unclear due to the use of different terms (adaptation gap, adaptation deficit). Needs to be rewritten	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
35221	7	23	7	25	In addition to political orientation, trust etc., exposure to extreme weather events has also been found to have an effect on individuals' attitudes to climate change measures, but with decay effects (i.e. the strength of the effect of exposure to such stimuli weakens over time). These findings should be referenced.	Noted - we have not found references that help make this point, but will explore for the next revision	Llewelyn Hughes	Australian National University	Australia
30339	7	23	7	29	The issue of individual attitudes is important, but not as such. The key issue is that attitudes may be an obstacle to implementation of climate policies, but also that climate policies should try to change attitudes, behaviour and life-styles in order to meet the Paris climate goals. So this para should be reformulated and draw relevant conclusions from those perspectives	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
35223	7	23	7	29	There is an important literature on the use of "frames" to influence public opinion, including the implications of counter-framing. (i.e. if we assume individuals have imperfect information about climate change, then other actors can use frames to affect views on climate mitigation and adaptation. Further, stakeholders can engage in counter-framing. This best approximates the information environment facing individuals and should be referenced.	Noted - these issues are discussed (sometimes using the language of narrative) in Sec 2, 4, 8, and 9	Llewelyn Hughes	Australian National University	Australia
47427	7	23	7	29	It seems remiss not to refer to direct experience of weather and climate extremes and adverse effects of impacts. This is certainly a candidate for the strongest behavioral driver and recent changes in perception and motivation (at least in the US).	Noted - the text has been substantially revised	Kelly Wanser	SilverLining	United States of America
24295	7	33	7	35	As written, the sentence starting with "Although there is research that provide evidence of civic engagement..." is unclear and seems repetitive/tautological/contradictory: it contends that civic engagement work to both encourage and limit efforts to reduce carbon emissions while also encouraging pro-environmental behavior (reducing carbon emissions would be a pro-environmental behavior, no?)	Noted - the text has been substantially revised	David Houle	Environment and Climate Change Canada	Canada
25883	7	33	7	35	The sentence is confusing, especially the phrase "evidence of civic engagement working to encourage, as well as limit, efforts to reduce carbon emissions": it puts efforts to encourage and limit emissions on the same level, and I am not sure I understand what "civic engagement working to limit efforts to reduce carbon emissions": firms lobbying against climate policy? civil society movements such as the Yellow Vests in France? Or is this just that one word is missing in the sentence?	Noted - the text has been substantially revised	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
30341	7	33	7	35	This underlying text is more relevant as a message on civic engagement than the current headline text (which is too general).	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
30343	7	36	7	40	I miss the (important) role of the media in giving a platform to climate skeptics, which spreads doubt and slows down climate action. There should be ample literature to justify a clear statement on this aspect. That also would make the paragraph much more relevant. The current text mostly is deceptive.	Noted - this is included in the revised ES	Bert Metz	European Climate Foundation	Netherlands
30345	7	41	7	46	What is the success rate of these legal actions?	Noted - since many actions are ongoing, and this is a relatively recent trend, we have decided against specific numbers	Bert Metz	European Climate Foundation	Netherlands
5479	7	20			usually produce marginal impact of emissions' - should be: 'usually produce a marginal impact on emissions'	Noted - the text has been substantially revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5481	7	30		35	Some explicit mention/acknowledgment of young people (in the context of eg the climate strikes) might be a nice touch, and perhaps their representation of the future generation of citizens.	Noted - there is discussion of climate strikes etc in Sec 5, and a bullet on citizen action in the ES	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5483	7	38			The media.	No specific suggestion	Chris Hilson	University of Reading	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
30347	8	1	8	5	This is very abstract. Should this really be in an Executive Summary?	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands
32595	8	1	8	5	Climate governance also needs to focus on the metric of time, including how long it takes to implement a policy or technology, and how long it takes for the policy or technology solution to provide climate benefits in terms of avoided warming. Molina M., et al. (2009) Reducing abrupt climate change risk using the Montreal Protocol and other regulatory actions to complement cuts in CO2 emissions, Proc. Nat'l. Acad. Sci. 106(49):20616–20621. This metric will help focus attention on climate responses that can slow feedbacks and tipping points over the next critical decade or two as we approach 1.5C or more of warming, and twice that warming in the Arctic. Molina M., Ramanathan V., & Zaelke D. (2018) Climate report understates threat, Bulletin Atomic Scientists (9 October 2018).	Noted, we explore time dimensions, especially in Sec 9	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
32597	8	1	8	5	It is critical to select the path that can slow warming as fast as possible in the next decade or two, as the world moves toward clean energy and next zero emissions by 2050. As the IPCC Special Report on 1.5 explains, this must include cutting the short-lived climate pollutants (SLCPs). Cutting SLCPs can cut the rate of global warming by half in the near-term and by two-thirds in the Arctic. UNEP & WMO (2011) Integrated Assessment of Black Carbon and Tropospheric Ozone; Shindell D., et al. (2012) Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security, Science 335(6065):183–189.	Noted - discussion of acceleration is included in the ES and Sec 9.	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
42897	8	4	8	4	I would suggest including "institutions" in the sentence "Climate mitigation policies themselves" to be in line with the section and the scope of the chapter.	Noted - the text has been substantially revised	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
21023	8	6	8	6	add references about the authors discussing those "enabling conditions"	the ES does not use references - it shows which sections to look at and those sections have the references	MOUNIA MOSTEFAOUI	LMD - ENS-Sorbonne	France
30349	8	6	8	13	This issue is already covered in the para on page 5, lines 30-39	page 5, 30-39 is about is about climate governance actors and how they influenced policy processes and outcomes. This section is on enabling conditions - we will make clearer	Bert Metz	European Climate Foundation	Netherlands
4185	8	6	8	16	This whole paragraph is not well placed. Move it up the page?	Noted - the text has been substantially revised	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
35225	8	9	8	13	The term "the strength of system regime" is vague and not commonly used. Regime has a distinct meaning within the specialist literature. It is unclear what "strength of system" means.	Noted - the text has been substantially revised	Llewelyn Hughes	Australian National University	Australia
30351	8	14	8	20	This is the 60000 dollar question: how to accelerate climate action. The current para does not provide any insight on how that could be achieved. A careful assessment of recent literature on how acceleration can be realised should allow for a useful set of conclusions that policymakers can work with. Niklas Hoehne would be a good person to beef-up section 13.10.4, on which this conclusion draws.	Noted - the text has been substantially revised	Bert Metz	European Climate Foundation	Netherlands

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
42899	8	14	8	21	There is not a reference to a section or sections in the final paragraph.	noted	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
35227	8	18	8	20	"on the beneficial role that intermediary actors or 'coordinating agents' (individuals or a group of people within organisations at multiple geographical levels) can play". This sentence should be removed. This is not a substantial finding within the literature on climate coalitions and accelerating climate mitigation through policy.	Noted - the text has been substantially revised	Llewelyn Hughes	Australian National University	Australia
44339	9	5	5	16	The adoption of the Paris Agreement and the submission of the NDCs has change the climate policy landscape since AR5. I suggests to add some reference to the SR 1.5 on the NDC lack of ambition.	Rejected. The NDC accounting with respect to ambition is covered in CH 4	BERTOLDI PAOLO	European Commission	Italy
4155	9	1	9	22	This big picture overview of the changing nature of climate is valuable and indeed should be greatly expanded (also in the Exec Summary). Since AR5 the landscape of climate governance has undenoably transformed and social scientists are still running to catch up with it (even leaving to one side the rather narrow disciplinary focus of the equivalent chapter in AR5). The increasing complexity of the wider landscape certainly challenges the authors of this chapter - I suggest this big point is openly acknowledged and faced up to, requiring significantly higher levels of inter disciplinary collaboration than has been the case thus far. Related to that, reference should be made to the (interdisciplinary) literature on polycentric climate governance because it attempts to get to grips with the whole landscape (rather than just parts of it)	Noted - the text has been substantially revised	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
42905	9	1	9	39	I would suggest putting references to sections at the beginning of paragraphs, because otherwise they are "buried" in the middle of the text and are less prominent.	Rejected. We are following IPCC style	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
4187	9	2	9	4	Would be useful to reflect a little bit more on the evolution of the whole landscape of governance (see above), perhaps using the term polycentric? The transformation of the whole landscape (more actors, action at more levels etc.) is a significant change since AR5 and should be flagged up more.	Noted. We have signalled changes in the landscape of climate governance but have tried to keep the language accessible	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
5735	9	2	9	4	It would be good if discussion in this section distinguished between local government in the sense of government operating at the local level and local government as a separate brach of government sitting below National, and state (provincial) government. Local government as a third tier of government has a distinct role to play. There is no clear separation between government acting at the local level and local government as a third tier of government. This distinction could be made clearer	Noted. We are focusing on the third tier of government in these statements	David Leary	University of Technology Sydney	Australia
42903	9	5	9	21	There is no reference to Section 13.3	Editorial - we have added this	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
42901	9	6	9	6	Formal governmental attention [...] has been formalised is repetitive.	Editorial - Addressed	Brendan Moore	University of East Anglia	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
34849	9	7	9	8	It is necessary to make a difference between north and south	Rejected - the distinction is implicit in the differing points of emphasis, but we do not think we can draw a blanket inference in the introduction	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
34851	9	10	9	11	Some news about the south reflect that these countries are motivated for financial flows and technology transfer, probably the south is not clear about the climate change policy	Noted - these distinctions are made in the sections that follow but we do not highlight them in the introduction	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
6199	9	11	9	11	...great importance to climate outcomes.	Editorial - thank you will change	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
35171	9	12	9	16	The messages included in this text are not clearly stated. I mean it is clear that public or state institutions are key to climate policy implementation but the narrative can be enhanced.	Partially accepted - we are seeking to introduce the text here not provide messages. However, we will seek to write this more clearly.	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
34649	9	17	9	21	In this paragraph it is important to mention section 13.3.	Accepted	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
45105	9	17	9	21	The emphasis on the sub-national scale is an important point of emphasis since AR5. Referral may be given to Chapter 8.	Rejected - References are made in the section. For length reasons we do not refer to all the related chapters in this introduction	Siir Kilkis	The Scientific and Technological Research Council of Turkey	Turkey
46239	9	17	9	21	This paragraph ignores the fact that in many developing countries have federal governance structure and sub-national governments' climate actions are also driven by federal guidance and restrictions, and not just transnational initiatives.	Partially accepted - The text states "much" not all of the activity is driven by transnational action. However, we will further modify it to make clear this is by no means the only driver	Manish Kumar Shrivastava	TERI School of Advanced Studies, New Delhi, India	India
34651	9	19	9	21	It is important to mention that climate action has a particular synergistic role with local pollution, which is one of the most problematic issues in less developed countries and poorer areas in urban communities.	Rejected - This is information that is in the full section and may not need to be highlighted in the introduction. The broader points is made by reference to "local context"	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
35173	9	19	9	21	The message is not quite clear here. Ensuring, seems to be more appropriate than ensuing. Distribution needs an object at the end of the sentence.	Editorial. The text has been substantially re-written	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
31623	9	33	9	33	There is a grammatical error - replace "effect" with "affect"	Editorial - the text has been substantially revised	Lisa Ryan	University College Dublin	Ireland
5809	9	43	9	45	national policy in the Paris agreement?	Rejected - the query is not clear. The chapter focuses on all National policy, not specific to the Paris Agreement	Taedong Lee	Yonsei University	Republic of Korea

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
5737	9		9		The chapter could also contain clearer statements as to the impact of policy uncertainty. This has been a major problem in some jurisdictions such as Australia. See for example the discussion in Leary D 'The Australian Renewable EnergyTarget scheme: a case study of the impact of uncertainty on a market-based mechanism' in Stoianoff, N Kreiser, L, Butcher, B, Milne, J & Ashiabor, H (eds), Green Fiscal Reform for a Sustainable Future Reform, Innovation and Renewable Energy, Edward Elgar Publishing, United Kingdom, pp. 187-203	Noted. This may not be entirely suitable for an introduction which sets the broad tone for the chapter	David Leary	University of Technology Sydney	Australia
35169	9	10			The content of this line is redundant. That is to say, climate legislation and institutios are primarily animated by climate change, so a better phrasing is recommended.	Editorial - We seek to make the point that we our scope is broader than legislation labelled as climate change legislation. We will make this clear	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5485	9	15			stakeholders (plural)	Editorial - thank you will change	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
35175	9	43			There are two mentions to national policies. Better phrasing is necessary here.	Editorial - thank you will modify	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
28151	10	13	10	13	change to be attentive of temporal aspects to with consideration of temporal aspects	We will consider this change	Damalie Akwango	National Agricultural Research Organisation	Uganda
4193	10	16	10	39	This discussion of the scope of the chapter is very helpful - more thought should be given to defining key terms and using them consistently throughout the whole chapter	Editorial - we will consider this input. We are constrained in space terms from including definitions in this introduction	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
38179	10	25	10	27	The focus should be more on lifestyles than on behavior change. The former requires changes in infrastructure which are policy driven and which influence behavior change. The latter focusses mainly on individuals which are usually locked in existing carbon intensive infrastructures. A good illustration of this is the use of bikes in cities. Without bike lines, citizens will not take a risk to bike in the middle of the road. However, if safe bike lines are made available, an important share of citizens change their behavior	Noted. This is a good point but our intent is to focus on both lifestyles steered by infrastructure and behavioural change, which could also be affected by infrastructure. We will seek to complement CH 5, which is setting the framework for WG 3 in this area and follow the IPCC glossary on usage of these terms.	Yamina Saheb	OpenExp, Ecole des Mines de Paris	France
15653	10	41	23	12	Local Content and participation building is absent from the discussion. One cannot talk of Institution and Governance without elaborating on local Content. Training and involving the nationals or citizenry to understand Climate Change and related issues helps greatly in the developing the right policies, legislations and eventual implementation of the right policies and legislations. More literature needs to be sought.	Noted. We interpret this comment in the context of capacity building and will seek to pay attention to this theme. A discussion has been added in Sec 2	Joseph Essandoh-Yeddu	Energy Commission	Ghana
35177	10	6			The sense of the last phrase can be better built to underscore enablers and solutions to barriers rather than on barriers.	Noted - the text has been substantially revised	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
5487	10	9			active behaviours (plural)	Editorial - will change thank you	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
35179	10	13			policies (can) should be designed to anticipate... "the temporal aspects of policy processes" is rather cryptic about what the temporal aspects are. Is this referring that policy can change?	Noted - the text has been substantially revised	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
35183	10	18			lines 18 and 19 need review, repeat terms. Does this text mean that policy impacts are now more relevant	Noted - the text has been substantially revised	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
35181	10	23			Tradeoffs is sometimes written as trade-offs. Please review the style to be implemented.	Noted - the text has been substantially revised	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
25885	10	28			What does "formal potential for effectiveness" mean?	Noted - the text has been substantially revised	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
16371	10	31			In Section 13.2 National institutions and governance, consider adding a subsection that describes the global military sector and its potential to lead mitigation across manufacturing and transport sectors, as well as in agriculture based on provisioning. Including this will strengthen the section and add clarity to the discussion.	Rejected. We do not believe adding a subsection on the military here is justified, as this section focuses on national institutions and governance directly salient to climate change. We will consider if there is some other location in the chapter where the role of the military may be appropriate to mention.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
35185	10	35			This phase seems to lack some conclusion or final idea.	Noted - will seek to make more specific	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
34653	11	10	11	12	I think it would be important to consider succesful stories in human history that can be replicated in this case. Succesful institutional and governance desing can be taken from succesful vaccine campaigns or multi-national efforts to face infantil diseases, among others.	Rejected - this is an interesting idea but length restrictions make it hard to achieve satisfactorily	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
5811	11	14	11	23	key components of clmate legislation?	Noted - the literature is relatively limited and it is hard to extract robust comparative lessons, but we have attempted to draw out lessons	Taedong Lee	Yonsei University	Republic of Korea
35189	11	15	11	17	The role of legislation is primarily to establish rights and obligations to public and private entities. This might not be well characterized in these lines, it appears as something that is nice to have, rather than something that is necessary to advance climate policy.	Rejected - The literature does not refer to climate legislation in the manner described in the comment. This is likely because climate legislation has a different role, more focused on enabling than other forms of legislation. The section covers the roles of climate legislation as written in the literature	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
25887	11	24	11	42	I feel the review of the different types of climate legislation needs to be made more specific. It would probably be useful to have a table summarizing the different categories considered, if possible with examples. I also wondered whether direct climate legislation included ratification of UNFCCC treaties and agreements, and hence if the "withdrawal of legislation in some countries" including the US withdrawal from the paris agreement, for example.	Noted - Direct refers to laws that are directly focused on climate change, not on ratification. We have tried to make the categories clearer in the text	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
35191	11	30	11	32	Again, there is a difference between law - legislation- and policy. This is clearly not well characterized here.	Partially accepted - the literature uses law and legislation interchangeably, and policies as a distinct category. We have followed this here	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
44669	11	30	11	32	Not sure if non-binding strategies belong into this section, since they usually don't take the form of legislation (although in the EU context they can, as 'indicative targets')	Partially accepted - non binding strategies are discussed in a new Sec 13.2.2.	Oliver Geden	German Institute for International and Security Affairs	Germany
40393	11	32	11	33	"Sub-national and urban"...Why only "urban"? Why leave out "rural"? Again line 43 mentions "urban poor". Why only urban poor?	Rejected - the comment does not refer to the listed page/line	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
31865	11	33	11	42	Parts of this para are not necessarily related to "climate legislation" per se. E.g. the parts about non-binding climate strategies, or adoption of emissions targets. So, it may be better to move this para up in the introduction, to give a flavour of the kind of changes that have taken place recently.	Partially accepted - non binding strategies are discussed in a new Sec 13.2.2 and are only mentioned briefly in 13.2.1 with regard to the numbers as compared to legislation	Ashok Sreenivas	Prayas (Energy Group)	India
31953	11	33	11	42	1) what are the reasons behind the change of numbers of (increase or decrease) climate legislation; 2) after 2021, the decrease of the emissions coverage caused by how many legistration change? 3) can the mechanisms analyzed in P.12 from line 8-20 explain the climate legistation change over time?	Partially accepted - The detail is in the underlying literature and for length reasons it is not elaborated here. The reasons given do provide explanations for why the number of legislations change over time but the literature is less specific about declines over time	HONGXIA DUAN	Institute for Environment and Sustainable Development	China
42619	11	33	11	45	In both paragraphs it is unclear exactly which emissions are covered - are these figures for world-wide emissions or of the emissions of the countries considered? e.g. "accounting for 16 % of emissions" could either be "accounting for 16 % of worldwide emssions" or "accounting for 16 % of these countries' national emissions"	Accepted. We will clarify. This is % of emissions of countries covered. But these are very close to worldwide emissions, since it is 194 countries.	Vivian Grudde	Climate Change & Transformation Advisory (Freelancing)	Germany
25697	11	44	11	47	Please specify which data base is of climate-relevant laws is used, with a reference. It might also be useful to include the methodology employed for collecting the data, and a statement on how comprehensive it is.	Noted. This is the LSE database. We will provde details within the bounds of space constraints	Renee van Diemen	WG III TSU	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
40391	11	14	17	22	The EU's approach and framework is missing in this section! The legislative and governance structure in the EU are unique in various ways. But it's very important too. There may be a Box on EU which may be referred in the main text.	Accepted. The EU approach is briefly discussed in a new Sec 13.2.2	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
1951	11			22	Section 13.2 is not conclusive, but readers should have a final section guiding how to explore opportunities of the existing drivers in their jurisdiction to enhance institutions and governance. Otherwise, the whole section is of little added value. In addition to that, SUMEX states "There is limited evidence that NDC processes help stimulate institutional formation.", However, this subject is hardly discussed in the section and it seems that such conclusion as it is highlighted in the SUMEX is not appropriate.	Noted. The literature is insufficiently developed to provide very clear policy relevant conclusions, A new Sec 13.2.2 attempts to discuss NDCs and their implications	Ronaldo Seroa da Motta	State University of Rio de Janeiro (UERJ)	Brazil
35187	11	6			Evaluation should be included here as it is the final section of the public policy cycle.	Text has been re-written to be less specific and the sentence in question has been deleted	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5489	11	29			space after 'operate'	Editorial. Accepted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
35193	11	33			The first climate change legislation - act- was issued in 2008 - actually included extensively in box 133(sic).1 . The document argues that in 2007, there were 32 countries with direct climate legislation. Refinement is due here.	Noted. The sentence here refers to any legislation that has climate change as an objective. By this definition, 32 countries had legislation by 2007. The UK was among the first (if not the first) omnibus climate legislation, but was preceded by other legislations. But we will double check this understanding. Thank you.	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
34655	12	1	12	7	In this section it is important to include pros and cons of the sectoral initiatives versus framework laws	Accepted. Text added	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
24297	12	4	12	5	Not sure to what literature is referring the distinction between framework and sectoral approach, citations would be helpful. Also, even if a comprehensive framework is adopted, it is unlikely that legislative and regulatory changes will not be needed. Most climate change policy instruments, especially ambitious ones, require legislative/regulatory changes (the adoption of carbon pricing is a very good example, introduce in broad framework documents, it necessitates in most jurisdictions the adoption of legislative changes to existing environmental legislation and detailed regulation, even in jurisdictions where broadly similar taxes were already implemented (on fuels for instance).	Noted. The sentence makes clear reference to Fankhauser et al 2015; Rumble 2019 as the basis for this statement. There is a larger literature on framework than sectoral laws. The para has been re-written to clarify the distinction and the supporting literature. Certainly subsequent detailed regulation is required to implement framework legislation. Often, depending on the system, changes in other legislation can be brought about within the ambit of the overarching legislation.	David Houle	Environment and Climate Change Canada	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
31867	12	5	12	5	It is not clear how a climate framework law can be effective and "have teeth" without also having to amend other laws. For example a GHG emissions target is likely to be unachievable without some mechanism to provide incentives or disincentives, which is quite likely to run foul of some existing laws.	Noted. The ripple effects of framework legislation will differ from legal system to legal system, and particular sectoral context. The text gives examples of countries where framework laws have different emphases and roles	Ashok Sreenivas	Prayas (Energy Group)	India
34853	12	8	12	9	This may not always be. For example, in Developing Countries (small economies) there are lags and other interests to promote climate legislation. Usually, the governments address their agenda on finance and technology transfer, but they are not thinking about binding commitments even when they have submit their NDC's	Rejected. The sentence state that landmark events are 'associated' with new legislation; this emerges from a large sample of countries. But clearly the sentence does not state it is true in every case.	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
4195	12	21	12	21	"There is limited evidence on the effectiveness of climate legislation" is generally true but this (important) point should be unpacked much more (here, or somewhere else).	Noted. The sentences that follow attempt to unpack this sentence. This has now been re-written with data from a new study	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
28153	12	27	12	28	Kenya's framework include on Climate Change Act focuses on creation of 28 institutional structure for mainstreaming climate considerations	Noted. The comment is incomplete and suggested action is unclear	Damalie Akwango	National Agricultural Research Organisation	Uganda
42907	12	30	12	30	Another challenge to assessing policy effectiveness is disentangling the effects of one instrument from the effects of other parts of increasingly complex policy mixes.	Noted. The reviewer is correct, but it is not clear if this point belongs here versus the section on policy instruments	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
34855	12	34	12	35	There is no reference to this figure in paragraph above.	Editorial. The figure is referred to on p. 11	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
40389	12	0	13	0	Fig 13.1 is too blurred, particularly the data below the bars. This figure could be given in landscape format for better visibility.	Noted, thank you for the suggestion. We have improved the resolution and edited the figure for clarity	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
14723	12	33	13	2	The graphs are very small, illegible and they have no visual impact. It is unhelpful to present the sector order in the bar charts as 4-3-2-1, with the tables presented 1-2-3-4. To improve the graphs and the impact - question - do you need to present the trend data for 2007, 2012 and 2017 for all sub-sectors? If not, then the message would be clearer if simplified, i.e. (1) present a pie chart for the 2017 splits for each region / region type (e.g. global, A1, NA1, AFRICA, ..) to show the different region/type approaches currently used, then (2) present an aggregated trend for the data: 2007 to 2012 to 2017. If you feel there are some key messages within the regional trends, then I suggest to present each region/region type as three pie charts (left to right, 2007 to 2017) which will show the size increasing (generally) left to right, as more policies are evident now, and also the changing split by type. You could do away with the tables altogether and have the numbers within the pie chart segments.	Noted. We have improved the figures	David Glen Thistlethwaite	Ricardo	United Kingdom (of Great Britain and Northern Ireland)
28925	12	34	13	1	This Figure 13.1. is very small, I think you can remove the table and better to make the panel more contrast and clear with bigger fonts of course	Noted. We have improved the figures	Marissa Malahayati	National Institute for Environmental Studies	Japan
12309	12	34	13	3	The tables, albeit useful, are too small and the resolution should be higher	Noted. We have improved the figures	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
28927	12	35	14	1	Where is the source of this figure?	Noted. We have added the source	Marissa Malahayati	National Institute for Environmental Studies	Japan
5491	12	2			versus around sectoral - delete 'around'?	Editorial. Thank you	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5493	12	12			A date for the UK Act would be useful (to show an eg of quite early action)	editorial. Noted thank you	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
13803	12	33			Some references would be welcomed here. A recent possibility comparing all these elements is: Alina Averchenkova (2019) Legislating for a low carbon and climate resilient transition: learning from international experiences, Elcano Policy Paper 3/2019 - 11/3/2019 http://www.realinstitutoelcano.org/wps/portal/rielcano_es/contenido?WCM_GLOBAL_CONTEXT=/elcano/elcano_es/zonas_es/cambio-climatico/policy-paper-2019-legislating-low-carbon-climate-resilient-transition Another on France is Rüdinger, A. (2018), Best practices and challenges for effective climate governance frameworks: A case study on the French experience. IDDRI, Studies N°03/18, May. A forthcoming third one comparing UK, Spain and France is Alina Averchenkova and Lara Lázaro Touza (2020): Legislating for a low carbon transition in Europe: Experiences in the UK, France and Spain, Elcano Working Paper, forthcoming	Noted. Thank you for the references. Many of these are used in the text above. The intent here is to summarise. But we will go through and check for use of all these. We have emphasized use of published literature where possible.	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
42909	13	1	13	8	The regional breakdown of Panel 2 on the right needs to be clarified; I interpret it as meaning e.g. that Europe a bit more than 5% of GLOBAL emissions, but it could be read to mean 5% of European emissions. Same with AI non-AI. I'd argue that showing the percentage covered *within* regions is more useful to the reader than % of global emissions, and would reduce confusion.	Noted. This is % of global emissions. We will make that clear. From an IPCC perspective, including some sense of regional contributions to global emissions is useful. The share as a % of each region is captured by the shading within bars.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
28723	13	10	13	23	What might be interesting to note from a Japanese case is that national climate policy implementation could remain weak unless climate policy has legally equal importance and status as energy policy; there is Basic Energy Act but no Basic Climate Act. Suggested reference: Kuramochi, T., 2015. Review of energy and climate policy developments in Japan before and after Fukushima. Renew. Sustain. Energy Rev. 43, 1320–1332. https://doi.org/10.1016/j.rser.2014.12.001	Noted. Thank you for the reference	Takeshi Kuramochi	NewClimate Institute	Germany
34857	13	10	13	23	These examples are related to big economies, it is important to mention how is the process to build the climate governance in small economies.	Noted. Agree that this is a gap but one that mirrors the literature. There is much more literature on the mitigation side in bigger economies because of their larger contribution to the problem'	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
46063	13	13	13	13	Reference to "annual carbon budgets" is incorrect. The UK CCA established a framework of five-year carbon budgets, as detailed in box 133.1.	Accepted. Thank you for the correction	Diarmuid Torney	Dublin City University	Ireland
18879	13	13	13	14	I very much like the example of the UK. But for completeness of information, somewhere in this paragraph, it should say that the UK climate act was consequence of the communication of the 20 20 20 Climate and Energy Package of the European Union in 2007 that spurred action across the EU (there are also other examples that could be mentioned). See here: https://ec.europa.eu/clima/policies/strategies/2020_fi	Noted. The re-written text spends less space on the UK example, in response to other reviewers' comments	Esther Badiola	European Investment Bank	United States of America
34657	13	24	13	24	It is not as important to have "dedicated" institutions as to have institutions with attributions that are relevant to their work. If not, they will have to compete with other institutions that have related attributions. For example, a dedicated institution on Climate Change that has to compete with the Energy Ministry in order to implement initiatives regarding clean energy generation creates conflict and reduces the chances of meaningful results.	noted. This is a point worth making. The re-written text emphasizes coordination across ministries	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
38047	13	35	13	37	Certain municipal networks, such as Alliance of Climate-Friendly Municipalities in Hungary may also contribute in preparation of local and regional climate change strategies and action plans (Pálvölgyi and Esses, 2019). Reference: Pálvölgyi, T. and, D. Esses, 2019. Regional characteristics of Deturope – the Central European Journal of Regional Development and Tourism Vol. 11 Issue 3, 93-109	Noted. This comment is more suitable to the section on sub-national action, now shifted to Sec 13.3	Tamás Pálvölgyi	Budapest University of Technology and Economics, Department of Environmental Economics	Hungary
25889	13	24	14	2	Would it be possible to include a more systematic review of existing dedicated institutions focused on climate change and their dates of creation?	Noted. The literature does not currently provide such a listing, and certainly not globally	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
15655	13	9	17	22	13.2.2 Variety of approaches to national institutions and governance Need to include discussions or references on Alternative Livelihood, particularly in developing countries. How some countries are transiting their affected labour in the extractive industry to a more eco-friendly jobs.	Noted. This theme has been picked up more in Sec 8 and 9	Joseph Essandoh-Yeddu	Energy Commission	Ghana
44341	13	9	17	22	it could be interesting to add a box or a section to the EU energy an climate targets (targets for 2020 and 2030) and a new carbon neutrality target for 2050 and the governance regulation with the request for NECPs to be submitted by MSs	Noted. We have a brief discussion of the EU approach in a new Sec 13.2.2	BERTOLDI PAOLO	European Commission	Italy
18849	13		43		In 1972, the Organisation for Economic Co-operation and Development (OECD) adopted the polluter pays principle. This principle expresses the central notion of environmental economics	Noted. There is no concrete suggestion	Michael Ugom	University of Nigeria, Nsukka	Nigeria
14247	13	9	77	12	The report here says that complaints have been brought to 'supranational tribunals' and then goes on to cite the UN Human Rights Committee and the Inter-American Commission on Human Rights. Neither of these are tribunals. I suggest replacing 'supranational tribunals' with 'international human rights bodies'	This is a mis-referenced comment	Annalisa Savaresi	University of Stirling	United Kingdom (of Great Britain and Northern Ireland)
37599	13	1			See comment on section 13.2.2 - ES and chapter lacks an analysis of success factors for national governance, including translating objectives into sectoral targets and actions, mainstreaming into sectoral policies, ratcheting up mechanisms, transparency, consistency of long and midterm targets with PA through link with scientific input/scenario analysis; stakeholder participation for broad buy in. While there is a useful and interesting assessment on enabling conditions for acceleration, this is not linked to the "success factors" for national governance to address the need for acceleration.	Noted. It is not clear that the literature provides such a clear and well documented and analysed list of success factors that cut across jurisdictions. Several of the suggested governance tasks are discussed in the section where the literature is available	Michiel Schaeffer	Climate Analytics	Netherlands
37597	13	9			section 13.2.2 lacks discussion of range of important elements of national governance, in particular translation of targets into sectoral targets and action (one study is mentioned but this is key for sectoral mainstreaming); ratcheting-up/Learning mechanisms, role of transparent scientific analysis basis e.g. scenarios to ensure consistency of long and midterm targets including with PA LTTG; role of stakeholder engagement for buy in. As well as effective Transparency (MRV) systems in place. See e.g. Climate Action Tracker Governance assessment, https://climateactiontracker.org/publications/climate-governance/	Noted. It is not clear that the literature provides such a clear and well documented and analysed list of success factors that cut across jurisdictions. Several of the suggested governance tasks are discussed in the section where the literature is available	Michiel Schaeffer	Climate Analytics	Netherlands
5495	13	14			After the Act was passed, fuel poverty has become' - replace after with since (or else it should be '...poverty became')	Editorial. Thank you	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5497	13	20			double dashes converting to single long	Editorial, thank you	Chris Hilson	University of Reading	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
33153	13				It is still not clear how national climate policy guide and help individual, household and local communities as a whole to contribute to climate change mitigation and adaptation. There are still lacks in all walks of life approaches in national level climate policies. Local governmental organisations are not trained and not aware of how to implement long-term climate change mitigation and adaptation. In many developing countries, climate change policies are still paper based and remained in the desk, they are lack in collaboration between horizontal and vertical administration. It seems that climate change imitation and adaptation are the jobs of some environmental groups in against involvement of all professionals. There are still lack of participation from all walks of life particularly from construction companies, engineers and large scale development implementing stakeholders.	Noted. No clear suggestion	Edris Alam	Rabdan Acadmey	United Arab Emirates
20295	14	1	14	6	The paragraph is a disgrace and trivialises the actions of Greta Thunberg. The statement “Inspired by the national school walkout against gun violence in the US that was organized after the Parkland School Shooting in Florida ...” is unreferenced, and even if true is an attempt to contextualise Greta’s actions with an act of extreme violence, perhaps inferring this action by Greta would not have happened (unlikely in my view) without this act of violence and deflecting the readers attention away from her noble cause. Her cause is demonstrated in her recent speech to the European Parliament (4th March 2020 https://twitter.com/LBC/status/1235189516518019079) – to which every member stood up and applauded for several minutes, whilst she sat down perhaps wondering why they would not base their policies on the science (a politician would have stood up and milked the applause). Personally, I believe that for a 17 year to deliver such an articulate powerful speech based on the science and to react the way she did (to their applause) by sitting down and looking bemused, puts us all to shame. Greta was inspired by the science and maybe could not understand the hypocrisy of the applause and why no one in the EU Parliament was willing able to take sufficient action to defend future generations (there are reviews of Greta’s motivation that can be found on the web as reference sources, as well as her own speeches). The next sentence is disgrace (tantamount to propaganda) trivialising the actions of Greta with the words “coordinating this tactic with skipping school.”. Demolition job complete – the author should be censured for the subjectivity of these words. Again Greta’s words can be found in her many speeches that describe why she did what she did. The movement that was evolved by a (in my view) largely peer response that empathised with her reasons for her actions (Habermass 1984 describes how such groups evolve into mainstream thinking and adoption). Trivialisation only works if there is something that is strongly engaging or emotive (sometimes a lie, diversion or exaggeration) and true (or appears to be	This comment is misreferenced	Paul Dumble	Paul's Environmt Lentd	United Kingdom (of Great Britain and Northern Ireland)
12311	14	4	14	39	This box is a useful addition, but could with benefit add points about the impacts of Brexit on the CCA from Farstad et al.(2018)	Noted. The box has been shortened in response to reviewer comments	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
34659	14	4	14	39	Although UK experience is very important and relevant to many countries in the world, it has to me consider that it can not be replicated in the majoroty of the countries for many reasons. I encourage to look for other succesful stories in less developed countris that have different institutional realities and include them as well. Perhaps not all the institutional design is remarkable in one country, but Mexico, Costa Rica and other countries have relevant stories to tell.	Noted. The box has been shortened, and discussion of other countries has been expanded. Unfortunatley we operte under the constraints of avaiilable literature, the UK has more literature (at least in English) than other countries. We welcome specific suggestions from reviewers as we are keen to expand the literature base. So far, we have shrunk the UK and China boxes and added more references to other cases.	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
31869	14	32	14	33	This will need to be reworded in the context of Brexit!	Noted. The box has been shortened, and discussion of other countries has been expanded.	Ashok Sreenivas	Prayas (Energy Group)	India
42911	14	32	14	35	Mention of the importance of the EU is discussed in the present tense, but with the uncertainty around Brexit and potential divergence between the EU and UK, it should be discussed in the past tense and a very brief mention of leaving EU added.	Noted. The box has been shortened, and discussion of other countries has been expanded.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
44671	14	44	14	46	The description seems a little outdated (as does the literature), because climate governance in Germany has evolved further, most notably with the recent creation of a 'Climate Cabinet', comprising the ministers of major departments, including finance. This should emerge in the literature soon.	Noted. We do not as yet see updates in the literature but will look for it in the next draft	Oliver Geden	German Institute for International and Security Affairs	Germany
24299	14	41	15	7	The discussion of emerging approach to coordinate climate policy within federal countries present an opportunities to discuss the case of emerging coordination in Canada, especially on the question of carbon pricing within federation (a policy that proved difficult to advance in the US). Now Canada has a comprehensive carbon pricing federal legislation, which mandates the adoption of carbon pricing at the provincial level. If provincial governments do not adopt carbon pricing, a federal carbon pricing regime is applied. Literature mentioning on the system is emerging but include Mascher, Sharon. "Striving for equivalency across the Alberta, British Columbia, Ontario and Québec carbon pricing systems: the Pan-Canadian carbon pricing benchmark." Climate Policy 18.8 (2018): 1012-1027; Ambasta, Anshula, and Jonathan J. Buonocore. "Carbon pricing: a win-win environmental and public health policy." Canadian Journal of Public Health 109.5-6 (2018): 779-781.	Noted. Space constraints have limited discusion of this point. Apologies. We will try to work it into next draft	David Houle	Environment and Climate Change Canada	Canada
47683	14	4	39		RE UK CCC - worth pointing out that this approach has been copied by NZ?	Noted. We have mentioned the New Zealand example	raphael Slade	Imperial College	United Kingdom (of Great Britain and Northern Ireland)
35195	14	1			The text in lines 1 and 2 need review, regarding developments under the Obama administration and more recently under the Trump administration, references are from 2013 the most recent cited here.	Noted. Thank you. New literature added	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5499	14	5		6	Usual practice is to have the year after the word Act.	Editorial. Accepted	Chris Hilson	University of Reading	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
5501	14	12			championed led - delete first of these	Editorial. Thank you	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5503	14	19		21	Not quite correct - legal accountability of the relevant government minister is still possible, even if less likely with the CCC itself (though, it should be added, not impossible there either). What turns out to be 'works primarily' is a bit crystal ball gazing?	Noted. After consideration, the original text has been retained	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5505	14	28			means not mean	editorial. Thank you	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5509	14	32		33	some mention of Brexit might be useful here (this was pre-Brexit).	Noted. Thank you. The box has been considerably shortened	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5507	14	38			perhaps in part be due - delete 'be'	Editorial. Thanks	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5511	14	41			Not just federal ones. The UK is not strictly federal and yet simialr issues apply in relation to devolved administrations.	Noted. We may not be able to use langauge that covers all specific cases	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
42913	15	1	15	4	The discussion of US policy seems to end with literature discussing the Obama administration, if this discussion remains an acknowledgement of a return to less federal level policy under the Trump administration should be acknowledged (not by using those terms, but more generally).	Noted. We have included updated references	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
18881	15	42	15	42	Paris COP 21 in 2015	Editorial, thank you	Esther Badiola	European Investment Bank	United States of America
25689	15	40	16	6	Please check linkages with Chapter 14, specifically 14.4.2.13 on the assessment of the Paris Agreement	Noted. We will do so	Renee van Diemen	WG III TSU	United Kingdom (of Great Britain and Northern Ireland)
25699	15	40	16	6	For readability, it might be useful to include an explicit link to Chapter 14 in these two paragraphs which address international factors that influence national decision-making. For example, a statement such as '(see Chapter 14 on international cooperation)', or the specific section in Chapter 14 that is relevant to this discussion, could be included here.	Noted.	Renee van Diemen	WG III TSU	United Kingdom (of Great Britain and Northern Ireland)
35197	15	2			Clarify side-payments. Are these even legal?	Noted. Thank you	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
13807	16	10	16	13	This discussion between market-centered and government centered approaches can be illustrated by the decarbonisation pathways literature, ie for the UK Foxon, T. J. (2013). Transition pathways for a UK low carbon electricity future, in: Energy Policy 52: 10-24. Also Geels, F., F. Kern, G. Fuchs, N. Hinderer, G. Kungl, J. Mylan, M. Neukirch and S. Wassermann (2016). The enactment of socio-technical transition pathways: a reformulated typology and a comparative multi-level analysis of the German and UK low-carbon electricity transitions (1990-2014), in: Research Policy 45: 896-913.	Noted. The point here is about how political institutions matter to different country approaches. We will look at the literature suggested. However, this section has been considerably shortened	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
35229	16	10	16	13	With reference to "In addition, the ability and established practice of governments to coordinate with firms in "coordinated market economies" versus the more laissez faire approach of "liberal market economies" may be salient in systematically inducing low carbon transitions (Lockwood et al. 2017; Finnegan 2019) ." The evidence in support of this assertion is weak and limited. The CME vs LME is also contested as a useful framework. This reference should thus be removed.	Rejected. The reviewer gives no reason why the assertion is weak. This section has also been shortened	Llewelyn Hughes	Australian National University	Australia
42983	16	22	16	22	no reference is attached to the capacity to generate and assimilate scientific and technical knowledge. At the French level, please note the work of Aykut S., Nadai A., Le calcul et Le politique Le Débat National sur la Transition Énergétique et la construction des choix énergétiques en France, Revue d'Anthropologie des Connaissances, 2019/4 about the role and place of computational practices in the production of long term low carbon scenarios (based on the French National Debate on energy transition, 2012-2013) and the linking with political changes (e.g consideration of 100% REN scenarios by the administration through these types of exercises).	Noted. Thank you for the suggestion. This paragraph has been re-written	christophe cassen	CNRS-CIRED	France
6201	16	23	16	23	ingredient in shifting... (delete double in)	editorial. Thank you	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
34859	16	23	16	23	typing error: double "in"	Editorial. Thank you	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
42981	16	23	16	23	remove repeted 'in'	Editorial, thank you	christophe cassen	CNRS-CIRED	France
35231	16	23	16	25	This section is on institutions, but the term "institutions" has a number of definitions. I suggest the text mention at least one of these. The definition of Douglass North is standard and could be employed here.	Noted. This term is defined in 13.2 intro with reference to the IPCC glossary	Llewelyn Hughes	Australian National University	Australia
31871	16	36	16	36	It would be a good idea to mention something specifically about coordination across different levels of government (e.g. federal, sub-national, and sub-sub-national etc.)	Accepted. There is additional discussion of coordination across scales, although this is also covered in new 13.3	Ashok Sreenivas	Prayas (Energy Group)	India

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10267	16	36	16	39	Generally a department of environment or an agency created for climate change does not have enough authority or powers to really drive a transition to low carbon economy. All the departments, especially the central agencies (e.g. finance department) need to be making significant changes in how they operate, taking into consideration the climate change mitigation/adaptation when making decisions.	Noted. It would help to have clear references to support this point. Some material has been added on this point	Aglaia Obrekht	Environment and Climate Change Canada	Canada
34831	16	36	16	47	The sentences does not have much wait. I will advise the authors should add more comments by stating the specific agencies and their postive relationships.	Noted. We have added more specifics	Onema Adojoh	Missouri University of Science and Technology, Rolla, USA	United States of America
13805	16	6			A good example that has delivered good results is the Iberoamerican Network of Climate Change Offices (RIOCC in Spanish: Red Iberoamericana de Oficinas de Cambio Climático), which works as a technical cooperation network but also provides socialization and diplomatic channels contributing to better coordination regarding climate change negotiations among iberoamerican countries.	Noted. However, this example is focused on negotiations rather than domestic policy, which is the focus of this chapter	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
13809	16	25			another good reference on that will be Meckling, J., Sterner, T. & Wagner, G. Policy sequencing toward decarbonization. Nat Energy 2, 918–922 (2017).	Noted. Thank you	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
35199	16	30			Energywende in Germany is one of the global most succesful examples of renewable energy deployment along with societal participation and the democratization of energy since the decade of the 80s. The text clearly does not acknowledge these important elements. Also, the reference to the US situation is outdated (2009). Much has changed since these references.	Noted. We will seek updated references.	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
13811	16	35			To include some literature on the global south (Morocco in this case) regarding the political economy of energy transitions, this World Bank paper could be cited: Zainab Usman and Tayeb Amegroud, Lessons from Power Sector Reforms. The Case of Morocco, Policy Research Working Paper 8969 http://documents.worldbank.org/curated/en/471511565200281012/pdf/Lessons-from-Power-Sector-Reforms-The-Case-of-Morocco.pdf	Noted. Thank you for the suggestion. The reference was not a very good match for the point being made, but we will seek to incorporate it.	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
13887	16	35			To include some literature on the global south (Morocco in this case) regarding the political economy of energy transitions, this World Bank paper could be cited: Zainab Usman and Tayeb Amegroud, Lessons from Power Sector Reforms. The Case of Morocco, Policy Research Working Paper 8969 http://documents.worldbank.org/curated/en/471511565200281012/pdf/Lessons-from-Power-Sector-Reforms-The-Case-of-Morocco.pdf Also my paper on the political economy tensions in Ecuador between conservation and development: Escribano, G. (2013): “Ecuador's Energy Policy Mix: Development versus Conservation and Nationalism with Chinese Loans”, Energy Policy, 57: 152–159	Noted. Thank you for the suggestion. The reference was not a very good match for the point being made, but we will seek to incorporate it.	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
35201	17	1	17	7	Some discussion is necessary regarding the role of bodies such as the Climate Change Council that has the ability to provide recommendations - albeit not necessarily binding - to the government. In Mexico, a mirror organization the Climate Change Council provides recommendations to the Federal Administration on climate policy and a different organization The Coordination of Evaluation conducts evaluation of the overall climate change policy framework.	Noted. Thank you for the suggestion. It would be helpful if specific literature could be suggested since otherwise it is hard to incorporate this suggestion	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5813	17	7	17	9	mention national policy for net zero 50 as the future goal	Noted.	Taedong Lee	Yonsei University	Republic of Korea
5815	17	23	17	24	barriers to form national institutions?	I didn't find any reference to barriers in p.17. Barriers from national institutions will be addressed in coordination with 13.2	Taedong Lee	Yonsei University	Republic of Korea
28155	17	23	17	24	<p>Include a box for Uganda,s to represent the least developed countries Progress / efforts on Climate Change and insert the following:Uganda, a signatory to the United Nations Framework Convention on Climate Change (UNFCCC, and a member of the Least Developed group of Countries,. Although Uganda has contributed least to the potentially catastrophic build up of the human-derived greenhouse gases (GHGs) in the atmosphere, Uganda recognizes the importance of fulfilling the commitments under the respective article of the Convention on Climate Change, particularly the aspect on the "common but differentiated responsibilities". (MWE, 2015)</p> <p>Uganda has made notable progress in adaptation in recent years:</p> <ul style="list-style-type: none"> • Uganda's National Adaptation Programme of Action (NAPA) was submitted to the UNFCCC in 2007; • Approved a National Policy for Disaster Preparedness and Management in 2010; • Developed her National Climate Change Policy and its Costed Implementation Strategy in 2012/13; • Has taken steps to integrate climate change into the National Development Plans, as well as in sectoral policies, plans and programmes; • Has produced climate change mainstreaming guidelines. • Some efforts have also been made in research, systematic observation, education, training, public awareness and institutional strengthening. • Specific activities have been developed on the ground to increase resilience, regarding, among others, agriculture, water and urban planning. • Developed a 10-year Climate Smart Agriculture Program (2015-2025) (MAAIF, 2015) 	Thankyou for your suggestion. We will think about this. It may fit better in the section which looks at mitigation and adaptation policy linkages	Damalie Akwango	National Agricultural Research Organisation	Uganda
5739	17	28	17	28	Does the term "subnational" as used in this context include Local government (i.e. city and municipal councils). See comments at 1 above about the need to distinguish.	Yes, it does. This was clarified in the first paragraph of section 13.3.2	David Leary	University of Technology Sydney	Australia

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
42623	17	29	17	31	I would propose an expansion of theoretical reasons as to why subnational and urban actors can (theoretically) have advantages in the climate policy sphere (some of these can be found later in the chapter, but I propose a listing up front - and then later an evaluation of what the empirical studies show): 1) Two reasons of a sheer theoretical nature: The first one being heteroscedasticity. The bigger the size of a group, the more difficult it is to predict the variation in its characteristics or to find one solution to a problem when there is a substantial amount of independent variables and actors. With climate change being a very complex issue in itself it seems reasonable that there is no one approach that suits all actors involved or that would necessarily lead to an optimal outcome (this view is really close to the findings conveyed in Ostrom (1990). Secondly, climate action at the local level may be more direct, contain fewer unknowns and be less complex in comparison to the state level. 2) Local politicians are likely to handle less complex negotiations or power issues than those present in international relations, and can therefore focus on their policies and on fostering partnerships. Local politicians are also directly accountable to their constituents. Given that it is more costly to target many mayors instead of one head of state, they may also for this reason be less prone to lobbying from certain actors. Anne Hidalgo, as of 2020 the mayor of Paris, does, however, note in a January 2018 interview in Le Monde that she has the impression that mayors are increasingly targeted by lobbyists as a result of their rising importance in climate change mitigation (Mandard, 2018). 3) This is a bit in line with what has already been written in the draft, but provides an additional perspective: Local governments have experience addressing environmental impacts within fields that are crucial to mitigation efforts like energy management, transport and urban planning through the Local Agenda 21 with issues of sustainable development (Bulkeley & Betsill, 2006). 4) Also in line with what is already mentioned, but also an additional perspective: not only	We revised and tighten the section and included the necessary references	Vivian Grudde	Climate Change & Transformation Advisory (Freelancing)	Germany
39903	17	38	17	40	Replace "In recent years ... Lankao et al. 2018)" by "In recent years, the role of subnational actors - including states, regions, cities, companies, investors, foundations, civil society organizations, and cooperatives - in climate change mitigation has drawn increased attention. While some researchers see them as critical players (Hsu et al. 2018; Romero-Lankao et al. 2018a), others (Michaelowa and Michaelowa 2017) see a limited effectiveness of their action." Reason: Michaelowa and Michaelowa (2017) assess 109 transnational initiatives based on four design criteria: existence of mitigation targets; incentives for mitigation; definition of a baseline; and existence of a monitoring, reporting, and verification procedure and find that only a very small share of the initiatives meets three ore more of the criteria. They thus conclude that given the low overall quality assessment, transnational climate governance initiatives cannot be expected to fill the "mitigation gap".	Noted. We will assess the text for the balance of evidence that subnational actors have substantial influence vs limited effectiveness, and reflect the literature appropriately.	Axel Michaelowa	University of Zurich	Switzerland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
43455	17	38	17	40	Expectations regarding consistent performance of subnational actors are mixed and there are serious issues in terms of transparency, comparability and tracking of efforts. Additional reference to consider: Chan, Sander, Idil Boran, Harro van Asselt, Gabriela Iacobuta, Navam Niles, Katharine Rietig, Michelle Scobie et al. "Promises and risks of nonstate action in climate and sustainability governance." Wiley Interdisciplinary Reviews: Climate Change 10, no. 3 (2019): e572.	Addressed in section 13.3.5	Matthias Honegger	Perspectives Climate Research GmbH	Germany
44343	17	40	17	44	it is recommended to cite the following paper: Giulia Melica, Paolo Bertoldi, Albana Kona, Andreea Iancu, Silvia Rivas, Paolo Zancanella, Multilevel governance of sustainable energy policies: The role of regions and provinces to support the participation of small local authorities in the Covenant of Mayors, Sustainable Cities and Society, Volume 39, 2018, Pages 729-739, ISSN 2210-6707, https://doi.org/10.1016/j.scs.2018.01.013 . (http://www.sciencedirect.com/science/article/pii/S2210670717313471)	Done	BERTOLDI PAOLO	European Commission	Italy
25897	17	25	20	3	A clear overview of what the existing literature has focused on so far would be welcome: how are case studies distributed geographically? Have some areas, actors or policies attracted particular attention? Where is knowledge lacking?	We had referred in section 13.3.2 to the geographical distribution of cases assessed. Still, wherever possible we explicitly referred to it.	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
2659	17	37	20	3	It is a pity that the approach for the national level developed in 13.2, i.e. presenting several representative cases, was not repeated for the subnational level. In particular, this might give the opportunity to present a case for a federal nation, namely the USA, and analyse how the states within this federation position themselves with respect to climate mitigation. Needless to add, the USA as a whole remain a very important actor in this domain and the case of USA institutions is a matter of keen interest beyond its illustrative value.	We already had attempted to present key trends and relevant cases. In the SOD, we are tightening our approach to better address this concern.	Philippe Waldteufel	CNRS/IPSL/LATMO S	France
35203	17	7			A discussion on the role of federal budgets for climate action is necessary here. A brief discussion on the UK climate budgets is introduced in this section; notwithstanding a specific federal budget discussion is warranted here. Mexico, Colombia, and other countries in the North and South have made progress in this instance. Thus, a mention is necessary.	Noted. This will be addressed in 13.2	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
24301	18	45	1	19	Additional literature on carbon pricing in the North American context for paragraph b). Most important examples to mention would be, in this order, WCI (California and Quebec) cap-and-trade and BC revenue-neutral carbon tax, and RGGI. While WCI California and Quebec cap-and-trade is the most important in terms of emissions coverage, the BC carbon tax is the first revenue neutral carbon tax adopted (and one of the only few in the world today). RGGI importance is that it represent a limited, in terms of coverage, but resilient cap-and-trade in the difficult polarized US context. Relevant literature includes the following work (not cited in the bibliography): Raymond, Leigh. "Policy perspective: Building political support for carbon pricing—Lessons from cap-and-trade policies." Energy Policy 134 (2019): 110986; Raymond, Leigh. Reclaiming the Atmospheric Commons: The regional greenhouse gas initiative and a new model of emissions trading. MIT Press, 2016; Rabe, Barry G. Can we price carbon?. MIT Press, 2018; Harrison, Kathryn. "A tale of two taxes: The fate of environmental tax reform in Canada." Review of Policy Research 29.3 (2012): 383-407; Houle, David, Erick Lachapelle, and Mark Purdon. "Comparative politics of sub-federal cap-and-trade: Implementing the Western Climate Initiative." Global Environmental Politics 15.3 (2015): 49-73; Bang, Guri, David G. Victor, and Steinar Andresen. "California's cap-and-trade system: diffusion and lessons." Global Environmental Politics 17.3 (2017): 12-30.	Done	David Houle	Environment and Climate Change Canada	Canada
24487	18	4	18	4	"Subnational climate change has increased in recent years" It misses a substantive.	Done	Thiago Garcia	Potsdam Institute for Climate Impact Research — PIK	Germany
28721	18	4	18	16	Suggest adding the following sentence: "Kuramochi et al. (2020) finds that individual commitments by subnational regions, cities and companies in ten high-emitting economies could reduce GHG emissions in 2030 by 1.2 to 2.0 GtCO ₂ e/year compared to current national policies scenario projections (31.6 to 36.8 GtCO ₂ e/year), if they are fully implemented and do not change the pace of action elsewhere. " Reference: Kuramochi, T., Roelfsema, M., Hsu, A., Lui, S., Weinfurter, A., Chan, S., Hale, T., Clapper, A., Chang, A., Höhne, N. (forthcoming) Transformation from the bottom-up: potential impact of region, city, and business commitments on global greenhouse gas emissions. Climate Policy. DOI:10.1080/14693062.2020.1740150	Reference included in performance section	Takeshi Kuramochi	NewClimate Institute	Germany
42627	18	5	18	5	Typo in citation (and all that follow in the text) of New Climate Institute (2019): GovernEment	Done	Vivian Grudde	Climate Change & Transformation Advisory (Freelancing)	Germany
15423	18	7	18	7	add a blank space: "year(The Climate..." to "year (The Climate..."	Done	Simone D'Alessandro	University of Pisa	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44345	18	8	18	11	In the GCoM only cities no companies are participating no compoanies. For the GCoM you can cite this papers which provides an overview: Paolo Bertoldi, Albana Kona, Silvia Rivas, Jean François Dallemand, Towards a global comprehensive and transparent framework for cities and local governments enabling an effective contribution to the Paris climate agreement, Current Opinion in Environmental Sustainability, Volume 30, 2018, Pages 67-74, ISSN 1877-3435, https://doi.org/10.1016/j.cosust.2018.03.009 . (http://www.sciencedirect.com/science/article/pii/S1877343517301288) and Albana Kona, Paolo Bertoldi, Fabio Monforti-Ferrario, Silvia Rivas, Jean François Dallemand, Covenant of Mayors signatories leading the way towards 1.5 degree global warming pathway, Sustainable Cities and Society, Volume 41, 2018, Pages 568-575, ISSN 2210-6707, https://doi.org/10.1016/j.scs.2018.05.017 . (http://www.sciencedirect.com/science/article/pii/S2210670717314762)	these papers are written by the EU Covenant of Mayors Secretariat and they do provide a solid overview of the EU Covenant (not the GCoM). However, the sentence that is being referred was modified to remove the clause about companies: "6,000 companies with at least US\$36 trillion in revenue and more than" and therefore it is no longer applicable.	BERTOLDI PAOLO	European Commission	Italy
5741	18	10	18	10	Typo correct "carbonn"	The registry is called 'Carbonn' with 2 'n's.	David Leary	University of Technology Sydney	Australia
15425	18	10	18	10	typos: "carbonn registry", there is an extra n	The registry is called 'Carbonn' with 2 'n's.	Simone D'Alessandro	University of Pisa	Italy
18883	18	10	18	10	Maybe of interest to mention too here the America's Pledge on Climate	Reference to the We Are Still In Coalition added (America's Pledge is the name of the group that reports on the progress of this coalition)	Esther Badiola	European Investment Bank	United States of America
34861	18	10	18	10	typing error "carbonn"	The registry is called 'Carbonn' with 2 'n's.	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
42625	18	17	18	18	I must strongly disagree here. Although this may be true for the older publications cited, especially the last years have brought change in this regard. Please see for example CDP's A List (which is not exhaustive, but already lists more than 40 cities with emission reduction targets): https://www.cdp.net/en/cities/cities-scores [which for 2019 is, according to my quick calculation, a 200 % increase regarding this list]. This methodological review of a C40 report does also list 144 committed GHG savings : https://www.c40.org/researches/global-aggregation-of-city-climate-commitments-methodology page A1-A2 // here the report itself: https://www.c40.org/researches/working-together-global-aggregation-of-city-climate-commitments	The sentence was modified "few cities outside of the Global North set quantified emission reduction targets....". We are able to quantify at least 6,000 subnational governments' targets who have also reported baseline emissions. Even though 93% of these are in Europe and many are smaller cities (less than 50,000 inhabitants), there are still quite a number and 'few' is probably not totally accurate. Most papers assessed agree with the statement. We will discuss this comment further within the Section 3 FOD group and the two below should be probably discussed within the group. Here is also an evidence from US: "The vast majority of state level CAPs (30 out of 32) set at least one target for GHG emissions reduction within their jurisdiction; however, sometimes the targets are tied to multi-state climate change planning commitments." - Alexander, S. E., 2020: Harnessing the opportunities and understanding the limits of state level climate action plans in the United States. Cities, https://doi.org/10.1016/j.cities.2020.102622 .	Vivian Grudde	Climate Change & Transformation Advisory (Freelancing)	Germany
10867	18	17	18	24	I'm not convinced that the statement regarding the lack of mitigation targets by sunational institutions is still true in light of the number of climate emergency declarations and strategies being developed by local and city governments. Although most of these are very new and programmes are being developed, many programmes have committed to achieving net zero carbon by 2050. Literature on this phenomenon is scarce because of its novelty but this paragraph should be updated to incorporate this development in subnational climate governance.	Given lenght constraints, I revised it as follows: Subnational mitigation policies are further developed than adaptation policies, with at least 6,000 subnational governments, mostly in the Global North, setting mitigation targetsFeel free to edit considering keeping the lenght. "few cities outside of the Global North set quantified emission reduction targets....". We are able to quantify at least 6,000 subnational governments' targets who have also reported baseline emissions. Even though 93% of these are in Europe and many are smaller cities (less than 50,000 inhabitants), there are still quite a number and 'few' is probably not totally accurate.	Ian Bailey	University of Plymouth	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
44347	18	17	18	24	A good overview of mitigation options adopted by cities, based on city reports (not plans) are described in the following paper: Palermo et al., 2020, Achieving the 1.5° emission reduction target: an assessment of climate change mitigation policies in cities, Sustainable Cities and Society (in the final round of comments), it is suggested to cite it here.	We cited in new SOD point b) of section 13.3.2.	BERTOLDI PAOLO	European Commission	Italy
15427	18	18	18	18	add a blank space: "targets(Bulkeley..." to "targets (Bulkeley..."	Done	Simone D'Alessandro	University of Pisa	Italy
18885	18	40	18	40	maybe here you wish to signal that fiscal and budgetary constraints are also drivers of the limited action in cities and sub-government levels	Done	Esther Badiola	European Investment Bank	United States of America
34863	18	41	18	42	It is important to mention, what is happening in Latin American countries.	We are already referring to these countries. In this SOD round we are trying to refer to them by region or country	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
25895	18	45	19	2	Maybe provide, if not the list of the 28 economic instruments, a clear reference where this list + the rationale for the classification can be found. And probably more background is needed regarding the highlighted examples on p. 19: why these three? Are they particularly studied (if so, indicate references)? Are they particularly successful?	The wording has been amended and the data have been updated according to the latest available WorldBank's State and Trends of Carbon Pricing 2020 report. The figure refers to the number of sub-national jurisdictions implemented carbon pricing initiatives (carbon tax, ETS or both carbon tax and ETS). The examples provided represent the most studied carbon pricing initiatives among different jurisdictions and types (i.e. regional ETS, regional carbon tax, city-wide ETS). The references have been provided for each example separately.	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
25893	18	4			I think a word is missing from "subnational climate change has increased..."	Done	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
5513	18	18			space after 'targets'	Done	Chris Hilson	University of Reading	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
5517	18	45			Twenty-eight economic instruments - should this be: 'Twenty-eight types of economic instruments'? (or is it literally 28 examples). Cf also p. 43, line 17 and 44 line 5 for cross-check - or are the latter more than just sub-national? In any event, this needs to be expressed more clearly as a sub-national example than it is now (in the wording and not just the numbers, if those numbers are indeed just sub-national examples)	The wording has been amended and the data have been updated according to the latest available WorldBank's State and Trends of Carbon Pricing 2020 report. The figure refers to the number of sub-national jurisdictions implemented carbon pricing initiatives (carbon tax, ETS or both carbon tax and ETS). It covers only initiatives on sub-national levels, contrary to the figures in other sections of the chapter referenced in the comment, which cover the number of carbon taxes both at national and sub-national levels.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
25891	18				The section should make a clearer distinction between public and private actors	Done	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
18887	19	2	19	2	Maybe of interest to add the definition of low emissions zones (Madrid, Florence, London...)	Local transport policy measures, such as regulatory restrictions, low emission zones, parking controls, delivery planning and freight routes, focus on traffic management and reduction of local air pollution but are also important for mitigating climate change. The references have been added. Identified quantitative studies, however, assess policy impact on health-related pollutants (NOx, PM) in different cities (e.g. Lisbon, London, Paris, etc.) but not on GHGs emission reductions.	Esther Badiola	European Investment Bank	United States of America
31873	19	10	19	14	Local governments may lack not only competencies in energy, but may also lack jurisdiction / locus and may not have the finances to undertake some changes.	Addressed in p.18 lines 38-39	Ashok Sreenivas	Prayas (Energy Group)	India
18889	19	15	19	15	I would add two additional strategies: (i) one is communication and awareness raising campaigns, citizens education... and (ii) the other is green procurement of public services and goods (increasingly the case in public events for example, schools, local care centers...)	Information programs and policies, which include communication and awareness raising campaigns, as well as government provision of public good, services, and infrastructure, which include green procurement of public services and goods, are included in the description of the types of mitigation policies at sub-national levels.	Esther Badiola	European Investment Bank	United States of America
15429	19	17	19	17	add a blank space: "2015)or..." to "2015) or..."	Done	Simone D'Alessandro	University of Pisa	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10869	19	22	19	22	It would be useful to mention the co-benefits approach driving elements of the development of smart eco-city initiatives in China. This could be referenced against some of the work of Federico Caprotti as part of the Smart Eco-cities in Europe and China project.	We refer to this in section 13.3.3 and cite some literature on China. We did not find Caprotti's reference but the issue of eco-cities belongs to the urban chapter	Ian Bailey	University of Plymouth	United Kingdom (of Great Britain and Northern Ireland)
15431	19	22	19	22	add a blank space: "Change(Beermann..." to "Change (Beermann..."	Done	Simone D'Alessandro	University of Pisa	Italy
37601	19	25	19	27	A missing political/electoral dynamic here - subnational actors are constrained in areas they can demonstrate leadership in, but climate provides opportunities and incentives for municipal leaders as a result of a) relatively higher placement of climate on list of urban voters' priorities (This dynamic is referred to later in the chapter (p. 73, lines 18-22), and b) relatively higher level of devolution for relevant policy levers (eg. mayors have limited power over health, skills, welfare, but relative autonomy on transport & infrastructure).	We refer to these issues in section 13.3.3 but didn't find references on electoral dynamics	Michiel Schaeffer	Climate Analytics	Netherlands
43023	19	25	19	43	Among the variety of drivers of subnational initiatives, it is also important to consider combination of policy support, of a tradition of mutualisation, and of its territorial implantation. cf Béatrice Cointe. Mutualising sunshine: economic and territorial entanglements in a local photovoltaic project. Local Environment, Taylor & Francis (Routledge), 2019, 24, pp. / Béatrice Cointe. Le tarif d'achat photovoltaïque comme outil d'innovation territoriale : l'exemple des Fermes de Figeac. Vertigo, Paris : Avancées cinématographiques, 2016, 16 (Volume 16 Numéro 1). 980-996/Nadaï Alain, Labussière Olivier, Debourdeau Ariane, Régnier Yannick, Cointe Béatrice, Dobigny Laure, (2014) "French Policy Localism: Surfing on 'Positive Energie Territories' (Tepos)", Energy Policy, Volume 78, March 2015, Pages 281–29, doi:10.1016/j.enpol.2014.12.005 http://dx.doi.org/10.1016/j.enpol.2014.12.005	Done	christophe cassen	CNRS-CIRED	France
44349	19	35	19	43	In the EU the participation in a transnational initiative promoted by the EU has been very important to attract small cities as described by Giulia Melica, Paolo Bertoldi, Albana Kona, Andreea Iancu, Silvia Rivas, Paolo Zancanella, Multilevel governance of sustainable energy policies: The role of regions and provinces to support the participation of small local authorities in the Covenant of Mayors, Sustainable Cities and Society, Volume 39, 2018, Pages 729-739, ISSN 2210-6707, https://doi.org/10.1016/j.scs.2018.01.013 . (http://www.sciencedirect.com/science/article/pii/S2210670717313471)	Done	BERTOLDI PAOLO	European Commission	Italy
25691	19	44	20	3	It might be helpful to link this paragraph (and maybe even the whole section on subnational policies) to Chapter 14 Section 14.5.10 on International co-operation at the sub-national and city levels, which also discusses transnational networks such as C40 and ICLEI	Done	Renee van Diemen	WG III TSU	United Kingdom (of Great Britain and Northern Ireland)
5515	19	6			programs plural	We only refer to one program	Chris Hilson	University of Reading	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
35205	19	17			However, mainstreaming climate change into clean air or other environmental policies, which are more mature, is still in its initial phases. Some countries are doing this by means of addressing short-lived climate pollutants.	Thanks, we did not include this because we did not find any reference.	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5519	19	19		20	I'd think city air pollution is one of the key co-benefits worth listing for India.	Included in section 13.3.3	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
42629	20	1	20	28	I propose that the following work is also considered for this section (as in Chapter 8): Pichler, P.-P., Zwickel, T., Chavez, A., Kretschmer, T., Seddon, J., & Weisz, H. (2017). Reducing Urban Greenhouse Gas Footprints. Scientific Reports, 7(1), 14659. It is the first work to provide a consistent method of measuring urban GHG emission footprints, which is an alternative to the traditional territorial or production approach of allocating emissions. This footprint does therefore not only include direct emissions from urban consumption activities, but also upstream emissions, that is emissions that arise from the global production chain of the goods and services purchased by the local consumer. Applying this method to four cities (Berlin, the territory of Delhi, Mexico City and the New York metropolitan area), Pichler et al. (2017) find that urban upstream emissions are on average of the same magnitude as territorial emissions. This implies that local governments can do more than what is typically assumed. They can have leverage, but for this they must not only focus on mitigating territorial emissions alone – here comes the potential to change norms (as in Nyborg, K. et al. (2016). Social norms as solutions. Science, 354(6308), 42–43.) and tastes (as in Colander, D., & Kupers, D., 2014: Complexity and the Art of Public Policy. Princeton University Press) into play.	This reference fits better in the urban chapter.	Vivian Grudde	Climate Change & Transformation Advisory (Freelancing)	Germany
46241	20	9	20	29	The literature has also underlined the significance of 'past exposure' to climatic events as a driver/facilitator of public support as well as of institutional capacity building for climate action at sub-national level. The literature focusing on cities has also pointed that individual leadership to plays an important role in the proactiveness of sub-national climate action. The extent to which national level guidance is followed by sub-national actors where they have flexibility/agency to innovate too depends on these factors.	We refer to this in section 13.3.3. We did not find references to back up the significance of past exposure	Manish Kumar Shrivastava	TERI School of Advanced Studies, New Delhi, India	India
4583	20	22	20	23	as well as affordability of solutions. Technologies that are not appropriate to the context of developing countries and follow best-practices of developed countries can be more expensive and may not address the needs of local people.	We addressed this in section 13.3.3	Leonardo Barreto	Austrian Energy Agency	Austria
15365	20	22	20	23	as well as affordability of solutions. Technologies that are not appropriate to the context of developing countries and follow best-practices of developed countries can be more expensive and may not address the needs of local people.	We addressed this in section 13.3.3	Simone D'Alessandro	University of Pisa	Italy
34865	20	22	20	23	This condition could be explained due to the capacity to make choice in the Global South. In some cases, these parties do not have the negotiation capacity.	We addressed this in section 13.3.3 but could not find literature to back the statement on negotiatinc apacity	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
34661	20	24	20	25	This is related with my observation n° 2. Local needs in terms of local pollution are usually less taken into account even though there are close ties to global emissions.	We included this in section 13.3.3	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
34867	20	25	20	27	The implementation of mitigations solutions in Developing Countries is according to economic development agenda, these countries are focusing on poverty reduction strategies. Only if mitigations solution contribute to reduce poverty or achieve "welfare", they could be enforced.	We addressed this in section 13.3.3	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
25701	20	30	20	30	A link to the Glossary would be useful here, as it includes a definition of multi-level governance.	We redrafted the section and suggest a definition of multilevel governance be included in the glossary	Renee van Diemen	WG III TSU	United Kingdom (of Great Britain and Northern Ireland)
18891	20	45	20	45	lack of regulations, lack of institutional capacity, ...	These factors are mentioned in lines 44-46	Esther Badiola	European Investment Bank	United States of America
37891	20	42	21	3	Multi level governance is not the only form of governance. See the land and climate report 7.7 Governance.	We redrafted this section and are not emphasising a multilevel governance approach	margot Hurlbert	University of Regina	Canada
25283	21	8	21	8	Terms such as "carbon society" not to be used.	I changed it to current energy regimes	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
20539	21	12	21	21	Even in developed countries, small and medium size companies (SMEs) are forgotten in the partnership of climate mitigation actions. However, an industrial association of large corporations can help SMEs by using a voluntary agreement. See an example of VA in Japan for M. Wakabayashi & T.H.Arimura(2016)"Voluntary agreements to encourage proactive firm action against climate change: an empirical study of industry associations' voluntary action plans in Japan," in Journal of Cleaner Production,112(4) pp.2885-2895,	Included	Arimura Toshi	Waseda University	Japan
25899	21	22	21	28	There is an emerging literature in the field of Science and Technology Studies on city planning "experiments", interrogating these new forms of local policy-making and infrastructure, which would be relevant here. See for ex: Brice Laurent, David Pontille. Towards a study of city experiments. Claudio Coletta ; Leighton Evans ; Liam Heaphy ; Rob Kitchin. Creating Smart Cities, Routledge, pp.90-103, 2019.	Included	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
34869	21	38	21	41	Additionally, in Developing Countries, the process to obtain financial resources is so expensive, long and complicated	We didn't find literature to back this up	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
44351	21	38	21	45	the paper by Melica et al., 2018 can be cited here as it discusses the the difficulties for smaller cities to collect data and elaborate climate action plans	Noted. We will seek to find this paper	BERTOLDI PAOLO	European Commission	Italy
5743	21	42	21	42	Delete space before full stop.	Done	David Leary	University of Technology Sydney	Australia
4585	21	42	21	44	Integrated energy and climate reporting at the local level is necessary but it requires addressing data gaps, building monitoring and verification systems and providing training to local authorities to build and manage these reporting systems and cooperate with each other	Done	Leonardo Barreto	Austrian Energy Agency	Austria

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
15367	21	42	21	44	Integrated energy and climate reporting at the local level is necessary but it requires addressing data gaps, building monitoring and verification systems and providing training to local authorities to build and manage these reporting systems and cooperate with each other	Repeated	Simone D'Alessandro	University of Pisa	Italy
24489	21	38			A mention should be included to the capacity related to adaptation, specifically the capacity to model local impacts. This capacity at the appropriate scale can result in effective actions and sensible prioritization of resource use for risk reduction.	Agree but our focus in this section is on mitigation, we will raise for the mitigation and adaptation lineage sections	Thiago Garcia	Potsdam Institute for Climate Impact Research — PIK	Germany
5521	21	42			close up space before full stop	Done	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
38181	22	6	22	6	See comment #8	Unclear. We do not know what the reviewer means by comment 8	Yamina Saheb	OpenExp, Ecole des Mines de Paris	France
42615	22	6	22	6	Mention that these are 9,149 cities worldwide and not in the US, otherwise it is unclear	Done	Vivian Grudde	Climate Change & Transformation Advisory (Freelancing)	Germany
44353	22	6	22	7	there is the new GCoM aggregation report 2019 with most updated figures on emissions reductions in the GCoM cities. Available at https://www.globalcovenantofmayors.org/impact2019/	Updated with new citation	BERTOLDI PAOLO	European Commission	Italy
15433	22	9	22	9	from "commitments(Khan and Sovacool 2016) ;" to "commitments (Khan and Sovacool 2016);"	Done	Simone D'Alessandro	University of Pisa	Italy
45107	22	9	22	10	The statement "higher ambition in climate mitigation commitments did not translate into greater emission reduction commitments" may be further clarified given the scope of the relevant references.	Significant changes made to this paragraph	Siir Kilkis	The Scientific and Technological Research Council of Turkey	Turkey
15435	22	12	22	12	add a blank space: "2016)found..." to "2016) found..."	Done	Simone D'Alessandro	University of Pisa	Italy
39905	22	22	22	24	Replace "Aside ... Michaelowa and Michaelowa 2017)" by: "Michaelowa and Michaelowa (2017) assess 109 transnational initiatives based on four design criteria: existence of mitigation targets; incentives for mitigation; definition of a baseline; and existence of a monitoring, reporting, and verification procedure and find that only a very small share of the initiatives meets three ore more of the criteria. They thus conclude that given the low overall quality assessment, transnational climate governance initiatives cannot be expected to fill the "mitigation gap"". Reason: The current wording is not consistent with the findings of Michaelowa and Michaelowa 2017.	Noted. We will examine the literature and report the balance of conclusions	Axel Michaelowa	University of Zurich	Switzerland
43457	22	22	22	24	I believe the referenced paper by Michaelowa and Michaelowa 2017 is a lot more critical than this suggests. Please revise accordingly.	We included the reference.	Matthias Honegger	Perspectives Climate Research gGmbH	Germany
5817	22	27	22	28	subnational place should be the focus of both mitigation and adaptation. See mitigation and adaptation nexus (Lee, T, Hyuk Yang, Anders Blok. In Print. Does mitigation shape adaptation? The urban climate mitigation-adaptation nexus. Climate Policy	This need to be addressed in the adaptation mitigation linkages section.	Taedong Lee	Yonsei University	Republic of Korea

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
18893	22	30	22	30	Maybe you wish to mention that this concept emerged strongly during the COP in Katowice in 2018	Noted. However, since this chapter is focused on national and sub-national, we are more focused on literature that looks at these issues at these scale than at the COPs.	Esther Badiola	European Investment Bank	United States of America
5819	22	30	22	42	scope (national, local) of the inequality?	Done	Taedong Lee	Yonsei University	Republic of Korea
15437	22	34	22	35	from "(procedural justice)(Reckien et al. 2018; Bulkeley et al. 2013; Bulkeley and Castán Broto 2013; Hughes 2013; Romero-Lankao and Gnatz 2019) ." to "(procedural justice) (Reckien et al. 2018; Bulkeley et al. 2013; Bulkeley and Castán Broto 2013; Hughes 2013; Romero-Lankao and Gnatz 2019) ."	Done	Simone D'Alessandro	University of Pisa	Italy
1953	22		22		Why inequality and justice issues are only covered within the subnational context?	This will be addressed throughout the chapter	Ronaldo Seroa da Motta	State University of Rio de Janeiro (UERJ)	Brazil
16729	22	30	23	12	<p>I liked this section. The title could be changed to "Inequality: environmental and climate justice".</p> <p>In order to complement the current text, you could consider some empirical studies of the actual contribution of environmental and climate justice movements to climate mitigation. Hereafter, I briefly introduce the Environmental Justice Atlas that has produced a map called Blockadia to document resistance against fossil fuels for Climate Justice.</p> <p>The environmental movement may be "the most comprehensive and influential movement of our time" (Castells 1997: 67), representing for the 'post-industrial' age what the workers' movement was for the industrial period. Yet while strike statistics have been collected for many countries since the late nineteenth century (van der Velden 2007), until the present no administrative body tracks the occurrence and frequency of mobilizations or protests related to environmental issues at the global scale, in the way that the World Labour Organization tracks the occurrence of strike action. Thus until the present it has been impossible to properly document the prevalence and incidence of contentious activity related to environmental issues or to track the ebb and flow of protest activity. Such an exercise is necessary because if the twentieth century has been the one of workers struggles, the twenty-first century could well be the one of environmentalists. An attempt to fill this gap has been carried out through the Global Atlas of Environmental Justice—a unique global inventory of more than 3000 cases of socio-environmental conflicts built through a collaborative process between academics and activist groups which includes both qualitative and quantitative data on thousands of conflictive projects as well as on the social response. See: https://link.springer.com/article/10.1007/s11625-018-0563-4</p>	Title changed. Noted thank you and considered	Federico Demaria	Environmental Science and Technology Institute, Autonomous University of Barcelona	Spain
37947	22	30	23	12	This important section relates mostly to inequity, not just inequality. It would be good to clarify the distinction.	Noted. We will also refer this to the glossary	Patricia Perkins	York University	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
40397	22	30	23	12	This section could touch upon issues of energy transition (towards greener and cleaner energy) which is often closely linked to climate policies, targets, NDCs etc. and also raise significant issues of justice and inequality (including rural electrification, rural electrification in India). The discussion could also combine climate change -energy access –SDG nexus. Some ready references: <ul style="list-style-type: none"> • DIANA RECKIEN, et al. 2017. Climate change, equity and the Sustainable Development Goals: an urban perspective. Environment & Urbanization. Vol 29(1): 159–182. • Dubash, N.K., Bradley, R., 2005. Pathways to Rural Electrification in India. Growing in the Greenhouse: Protecting the Climate by Putting Development First. World Resources Institute, Washington, DC. • Goswami, Anandajit and K R Bandyopadhyay, 2017. Exploring the nature of rural energy transition in India Insights from case studies of eight villages in Bihar. International Journal of Energy Sector Management, Vol. 11 No. 3, 2017, pp. 463-479. 	We cite some of these references and note that this needs to be addressed in other sections	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
34845	22	31	23	12	The chapter extensively reviewed national policies and institutions for climate governance. While it touches upon the issues of inequality and justice at page 22-23 it lacks discussion on to what extent the human rights implications of the mitigation actions are integrated in the national and sub-national policies. If the institutions are well equipped to deal with it. I recommend including a sub-para on this.	Noted. Sec 13.6 covers distributional effects of policies and we will seek to discuss this there. Human rights implications may be more direct for adaptation and potentially land use changes related to mitigation.	MOSTAFA MAHMUD NASER	EDITH COWAN UNIVERSITY	Australia
2661	22	43	23	12	Justice The 2nd sentence raises a question: which kind of source knowledge is it suggested implicitly to prioritize here, rather than scientific and technical expertise? More generally, I wonder whether this passage should stay as it is. The eference quoted to begin with recommends more or less to lead (wrongly!) people to believe that fighting global warming is the same thing as fightng the pollution. Next comes the statement relegating science and expertise in the shadows. The sentence ends by mentioning that inequalities and corruption have been found to aggravate inequalities, which is not surprizing. However scholarship is not reported to rcommend fighting corruption. Controversial statements certainly deserve to be present in IPCC reports; nevertheless rigor in reasoning is all the more necessary in such cases.	We don't mention air pollution at all. We revised the paragraph to indicate that according to scholarship covering multiple cities, technical expertise takes precedence over other forms of knowledge. We never recommended combating corruption.	Philippe Waldteufel	CNRS/IPSL/LATMO S	France
2663	22	43	23	12	Justice, followed The end of the first considered paragraph raises a question present in several chapters, typically when discussing the compatibility of mitigation efforts with SDG#1. Possibly it is useful to introduce time scales here. In any case, does not this issue deserve a dedicated cross chapter box to which everyone might contribute and later refer?	Noted. The chapter seeks to incorporate development concerns cetnrally in its framing, and synergies and trade offs with development concerns, including poverty, are covered in Sec 9. We are not entirely sure about a specific box on SDG1 as all SDGs are deservign of attention. We note that Ch 17 specificaly looks at SDG linkages.	Philippe Waldteufel	CNRS/IPSL/LATMO S	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
34663	22	43	23	12	This is an important issue that needs to be highlighted. Since principles of justice are often not considered, numerous agents and groups of relevant stakeholders are not included in the development of actions and plans. In this issue, as it is mentioned, participatory processes are relevant. However, they are not enough if the democratic process in the country is not inclusive enough, or if civil society groups are not well organized.	We addressed this comment	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
35067	22	1			A recent exercise assessing performance of state and municipal governments in Mexico by the Coordination of Evaluation can illustrate some of the discussions regarding efficiency and efficacy in the implementation of climate change policy. There are already different communities of practice, one of them sponsored by Euroclima, the European Union based initiative to enhance capacities in Latin America.	We can include this is the reference is provided by the reviewer.	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5523	22	12			space before 'found'	Done	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5529	22	30		36	Should human rights also be included here?	Done	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5525	22	35			close up space before full stop. Also line 34 - space between brackets?	Done	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
15439	23	3	23	3	delete blank space"2017) ," to "2017),"	Done	Simone D'Alessandro	University of Pisa	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28613	23	6	23	8	Optional additional perspective: Waisman et al (2019) documents a method for stakeholder engagement, communications and shared vision building, used for the Deep Decarbonization Pathways projects (Bataille 2016; Bataille 2020), that backcasts from multiple proposed low carbon futures to the present, meeting multiple development objectives, via an iterative qualitative visioning and quantitative scenario construction process. Its purpose is to build sufficient working consensus such that short term policy can be formed and implemented in the context of long run development and climate goals. Sources: Waisman, H., C. Bataille, H. Winkler, F. Jotzo, P. Shukla, M. Colombier, D. Buira, P. Criqui, M. Fischedick, M. Kainuma, E. La Rovere, S. Pye, G. Safonov, U. Siagian, F. Teng, M. Virdis, J. Williams, S. Young, G. Anandarajah, R. Boer, Y. Cho, A. Denis-Ryan, S. Dhar, M. Gaeta, C. Gesteira, B. Haley, J. Hourcade, Q. Liu, O. Lugovoy, T. Masui, S. Mathy, K. Oshiro, R. Parrado, M. Pathak, V. Potashnikov, S. Samadi, D. Sawyer, T. Spencer, J. Tovilla, H. Trollip. 2019. A pathway design framework for national low greenhouse gas emission development strategies. Nature Climate Change, 9, 4, 261. https://doi.org/10.1038/s41558-019-0442-8 ; Bataille, C., H. Waisman, M. Colombier, L. Segafredo, and J. Williams (2016) The Deep Decarbonization Pathways Project (DDPP): insights and emerging issues, Climate Policy, 16:sup1, S1-S6. DOI: 10.1080/14693062.2016.1179620; Bataille, C., H. Waisman, A. Vogt Schilb, M. Jaramillo, Y. Briand, J. Svensson. R. Delgado, R. Arguello, L. Clarke, T. Wild, F. Lallana, G. Bravo, G. LeTreut, G. Nadal, G. Godinez, J. Quiros-Tortos, E. Pereira, M. Howells, D. Buira, J. Tovilla, J. Farbes, R. Jones, D. De La Torre Ugarte, M. Collado, F. Requejo, X. Gomez, R.Soria, D. Villamar, P. Rochedo, M. Imperio. 2020. Net-zero deep decarbonization pathways in Latin America: challenges and opportunities. Energy Strategy Reviews. Forthcoming.	A reference was included	CHRISTOPHER BATAILLE	IDDR.ORG/SIMON FRASER UNIVERSITY	Canada
10871	23	6	23	12	It is important to acknowledge in this section that interpretations of what constitutes just responses to climate issues are not undisputed. For detailed analysis of this in national climate policy contexts, see: Bailey, I. (2017) Spatializing climate justice: Justice claim-making and carbon-pricing controversies in Australia, Annals of the American Association of Geographers, 107 (5): 1128-1143, and Jackson Inderberg, T.H. and Bailey, I. (2019) Changing the record: narrative policy analysis and the contested politics of emissions trading in New Zealand, Environmental Policy and Governance, https://doi.org/10.1002/eet.1868 .	We referred to this in the first sentence of this section.	Ian Bailey	University of Plymouth	United Kingdom (of Great Britain and Northern Ireland)
37893	23	6	23	12	Addressing injustices with participatory planning needs to address power differentials. Literature might include:Blue, G. And Medlock, J. (2014). Public Engagement with Climate Change as Scientific Citizenship: A Case Study of World Wide Views on Global Warming. Science as Culture, 23:4, 560-579, DOI: 10.1080/09505431.2014.917620. Mann C, Voß J, Amelung N, et al. (2014). Challenging futures of citizen panels. Critical issues for robust forms of public participation. A report based on interactive anticipatory assessment of the dynamics of governance instruments. Berlin: Technische Universität Berlin. Vob, , J-P., Amelung, N. (2016). Innovating public participation methods: Technoscience and reflexive engagement. 46(5): 749-772.	A reference was included	margot Hurlbert	University of Regina	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
15443	23	23	23	24	delete an extra comma: "(medium evidence, medium agreement,)." to "(medium evidence, medium agreement)."	noted	Simone D'Alessandro	University of Pisa	Italy
39907	23	26	23	26	Add after "... Boasson 2015": "Michaelowa et al. (2018) stress the key role of Interest groups in the design of mitigation policy instruments." Michaelowa, Axel; Allen, Myles; Fu Sha (2018): Policy instruments for limiting global temperature rise to 1.5°C – can humanity rise to the challenge?, in: Climate Policy, 18, p. 275-286	Accepted: thank you, the article is reviewed and taken into account	Axel Michaelowa	University of Zurich	Switzerland
43459	23	26	23	26	I do not believe the references (nor the wider literature) support the summary presented in table 13.1. There are too many ill- or undefined terms in this and while such summary might seem intuitively correct to some, it might as well appear blatantly false on specific experiences. There is a lot of literature on the strength of influence of some types of Environmental orgs under particular circumstances (e.g. their capability to sway public opinion such that politicians are forced to decide in a particular manner despite having shown earlier convictions to the contrary. I would like to suggest you consider other categories such as centralized versus decentralized interest groups. As this pertains to pursuit of drastic mitigation efforts consider the discussion of interest groups for reaching the 1.5°C target in: Michaelowa, Axel; Allen, Myles; Fu Sha (2018): Policy instruments for limiting global temperature rise to 1.5°C – can humanity rise to the challenge?, in: Climate Policy, 18, p. 275-286	Taken into account. The table has been removed from the text and the comment is taken into account in the revised section 13.5 Actors in climate governance	Matthias Honegger	Perspectives Climate Research gGmbH	Germany
18775	23	30	23	30	Meckling et al. 2015	Noted	thomas Sterner	Univ of Gothenburg	Sweden
18777	23	30	23	30	Meckling et al 2015 is not in the reference list	Noted	thomas Sterner	Univ of Gothenburg	Sweden
15445	23	30	23	31	delete an extra comma: "(limited evidence, medium agreement,)." to "(limited evidence, medium agreement)."	Noted	Simone D'Alessandro	University of Pisa	Italy
42915	23	31	23	31	"in the same vein: is unclear; does the author mean to the same extent or in a different way?	Taken into account, text revised.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
34871	23	31	23	33	Maybe, it will be useful to refer as environmental regimes: "Institutions can and do vary widely in terms of a range of dimensions, including functional scope, spatial domain, degree of formalization, stage of development, and interactions with other institutions. Institutions with deal explicitly with environmental resources issues are commonly known as environmental or resources regimes" (Young, 2002:5) The Institutional Dimensions of Environmental Change: Fit, Interplay, and Scale	Rejected, the sub-section is devoted to factors and actors impacting climate governance process and institutions are covered in sub-section 13.2	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
25285	23	40	23	42	Delete "for instance, some countries ... rather than at home"	Accepted: We have changed the wording in order to make it easier to understand the meaning of this sentence. We have also added more references that support the claim.	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
28615	23	43	24	5	Tong et al (2019) documents the scale of physical carbon lock-in due to existing and planned coal and industrial facilities, and it is large enough to consume the existing 1.5C carbon budget. Adding infrastructure would increase this value. Tong, D., Zhang, Q., Zheng, Y., Caldeira, K., Shearer, C., Hong, C., ... & Davis, S. J. (2019). Committed emissions from existing energy infrastructure jeopardize 1.5 C climate target. Nature, 572(7769), 373-377.	Accepted: thank you! the suggested literature has been assessed, but because it does not relate to governance and policy explicitly it is not referenced here. Physical lock in as such is not the theme here, but the political implications of existing carbon dominant infrastructure.	CHRISTOPHER BATAILLE	IDDRI.ORG/SIMON FRASER UNIVERSITY	Canada
5527	23	3			close up space before comma	Noted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
16373	23	14			In Section 13.4 The climate governance process, a treatment of the increasing risk of nuclear arms proliferation could be included for clarity. See, for example, Goldemberg, J., 2009. Nuclear energy in developing countries. Daedalus, 138(4): 71-80. Notably missing from plans for adopting nuclear power in a widespread fashion to address climate change is a new international mechanism that would identify the most nuclear-arms-proliferation-resistant pathway and require that this pathway be followed. The current Non-Proliferation Treaty was not adopted to address climate change, and its utility is not up to the task. For example, Saudi Arabia is presently developing facilities for nuclear materials enrichment to fuel its planned new nuclear power program, and this may be a pretext for nuclear arms production. As nearly 30 new countries are now attempting to adopt nuclear power, thereby doubling the number of nuclear-power countries globally, the risk of arms proliferation increases, and this increased risk ought to be addressed cogently in this section.	Rejected: outside the scope of the chapter	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
35167	23	30			Same comment as before on can enable and enhance. In this context enhance is a better word.	Noted, thank you for the feedback, we have checked our use of these words carefully in the revised draft.	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
1893	24	24	24	25	no comments	Noted.	Mohyeldeen Taha	University of Bahri	Sudan
5745	24	25	24	25	Amend "resolve r" to read "resolve"	Accepted, text revised	David Leary	University of Technology Sydney	Australia
6203	24	25	24	25	resolve issues (delete r)	Accepted, text revised	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
15447	24	25	24	25	typo: "and resolve r issues", there is an extra r	Accepted, text revised	Simone D'Alessandro	University of Pisa	Italy
34875	24	25	24	25	Typing error "r"	Accepted, text revised	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
42985	24	25	24	25	'r' after 'resolve' to be removed	Accepted, text revised	christophe cassan	CNRS-CIRED	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28157	24	25	24	26	Some information is missing, what does r stand for in the sentence	Accepted, text revised	Damalie Akwango	National Agricultural Research Organisation	Uganda
13817	24	32	24	37	This relation between democracy and climate policy seems problematic to me, because it risks being too biased by developed countries, in the sense that it can prove to be operational only for the Global North	The description fully reflects the state of the literature. The operationalization of democratic governance in the previous studies is applicable worldwide, see methodology descriptions of the variables the studies use: Freedom House, Polity IV, V-Dem. The text has been updated and additional references have been included.	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
35233	24	32	24	37	"Democracy is favourable for the adoption of climate policies and reaching climate goals (medium evidence, high agreement). Democratic countries tend to have lower CO2 emissions (Li and Reuveny 2006; Bättig and Bernauer 2009), lower deforestation rates (Buitenzorg and Mol 2011), be more successful in decoupling economic growth from CO2 emissions (Lægreid and Povitkina 2018) and be more active in international climate mitigation cooperation (Bättig and Bernauer 2009; Böhmelt et al. 2016)." This sentence should be removed. There is omitted variable bias drawn because of higher levels of economic development in democracy. In addition: 1) Global Value Chains mean higher emissions in developing countries functioning as manufacturing centers for developed/democracies; 2) it is arguably not reasonable to treat European policies as independent from one another in climate/energy, and not taking this into account biases the finding; 3) the results, even if suggestive, are not demonstrated by clear identification strategies, so there may be an association, but no causal relationship. If the relationship was causal, then changing a country to democratic should lead to better environmental performance, which is implausible.	Taken into account. The text has been revised, the formulations that imply causality have been removed and additional references have been added.	Llewelyn Hughes	Australian National University	Australia
34877	24	41	24	43	The case of Latin America must be supported with data or more studies	Due to the lack of conclusive studies, we have now removed the reference to Latin America.	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
12313	24	24	25	12	An important factor and body of literature that is missing from this assessment is the 'parties matter' literature. Studies that should be considered are works by Jensen & Spoon (2011), Spoon & Hobolt (2014), Båtstrand (2015), Carter et al. (2017), Farstad (2018)	Accepted: we have re-evaluated this literature and included additional references in the updated draft.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
15651	24	24	26	21	I am of the view that this sub-chapter either has to be deleted or re-written to make it more neutral and intellectual It apparently introducing direct politics or bloc into the climate discussion which is not healthy here. There could also be examples of so-called Authoritarian societies doing well in curbing GHG emissions.	Noted: we have reassessed the literature to find examples on authoritative societies doing well with curbing GHG emissions, but the section is not deleted.	Joseph Essandoh-Yeddu	Energy Commission	Ghana
5531	24	1			missing author for 2016?	Noted	Chris Hilson	University of Reading	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
13813	24	1			Seems like a missed reference (author name) before "2016"	Noted	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
15471	24	24			13.4.2.2 Political Systems	Noted	Joseph Essandoh-Yeddu	Energy Commission	Ghana
13815	24	25			Missed word? "...and resolve r issues..." "r"?	Accepted, text revised	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
13889	24	25			Typo: Missed word? "...and resolve r issues..." "r"?	Accepted, text revised	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
44673	25	1	25	3	See also Willis 2018 (already referenced in ch13), showing this on a MP level for the UK	Accepted: thank you, incorporated	Oliver Geden	German Institute for International and Security Affairs	Germany
13819	25	1	25	5	Well, proportional representation could work in both directions, also increasing the risks for climate revisionists and energy populists to win seats	Taken into account. We have not identified references to back up this comment but added statement that the research on the role of electoral systems in climate action is still inconclusive.	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
13613	25	20	25	28	Consider adding text in relation to the (increasing) number of declarations of climate emergency by governments and the legal or normative impacts that may have on policy, legislation and litigation.	Rejected, the text referred in the comment has been removed from the section.	Stuart Bruce	Wilmer Cutler Pickering Hale and Dorr LLP	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
14737	25	20	25	34	The UK political system is described as "centralised". Misleading. The UK has long-established sub-national statutory instruments for GHG action. The UK is a very useful good practice case study! There is legislation and mitigation plans, policies and measures that are established and managed by the governments in Scotland, Wales, N Ireland. They develop strategies targeting local priorities, resource them, gather evidence to track and improve. The UK also has emissions indicators for every (>400) local authority. Data gathering, evidence development and reporting of inventories at a highly regional / local level provides the evidence-base for this decentralised action. MANY policy levers are owned at regional or local level (e.g. transport infrastructure, energy efficiency, waste management, planning). The UK and sub-national GHG data gathering, reporting and provision of evidence is also co-ordinated by the UK Government (Department BEIS) via the National Inventory Steering Committee. (continued..)	Taken into account. The abstract discussing the centralized and decentralized political systems has been removed from the updated draft.	David Glen Thistlethwaite	Ricardo	United Kingdom (of Great Britain and Northern Ireland)
14739	25	20	25	34	This committee includes representatives from UK Departments, Scottish, Welsh and Northern Irish Governments, and local authorities (e.g. the GLA). This information should be added to box 133.1. There are lessons to learn also from the dynamics of organisational relationships in the UK: the integrated development of evidence at the national and sub-national level, communications between stakeholders at different geographies, adds a lot of value to the UK-wide mitigation effort: an emission source / sink in Scotland may be a lot more important than elsewhere in the UK, so the Scottish Government will fund work on that. Each stakeholder drives improvement in the evidence for their local priorities, which drives wider improvements in evidence across the national dataset. There is also a "internal competitiveness" between regions, between Local Authorities and cities. This drives ambition - sometimes by region, sometimes by sector. e.g. "which region will aim to decarbonise to net zero the earliest".	Taken into account. The abstract discussing the centralized and decentralized political systems has been removed from the updated draft.	David Glen Thistlethwaite	Ricardo	United Kingdom (of Great Britain and Northern Ireland)
5747	25	23	25	23	Delete one full stop after (Webb et al. 2017)	Noted	David Leary	University of Technology Sydney	Australia
15449	25	23	25	23	typo: "(Webb et al. 2017).. " to "(Webb et al. 2017)."	Noted	Simone D'Alessandro	University of Pisa	Italy
19903	25	23	25	23	I believe "domestic" should be "national".	Noted	Jonas Schoenefeld	Institute of Political Science, Technical University of Darmstadt	Germany
28159	25	23	25	25	Delete extra fullstop on this sentence 23 domestic level, for instance France, UK and China (Webb et al. 2017)..	Noted	Damalie Akwango	National Agricultural Research Organisation	Uganda
10269	25	35	25	46	Perhaps it is worth to bring up the litigation in Canada - provinces (Alberta, Ontario, Saskatchewan) are taking the federal government to court with respect to the authority over implementation of carbon tax. Opposite is happening in US, where the federal government is taking California to court over California's climate change policies.	Noted, we intend climate litigation to be an important part of the chapter but we do have space constraint and balance issues to think about.	Aglaiia Obrekht	Environment and Climate Change Canada	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
19905	25	35	25	46	I suggest to include a reference to Hofmann, A. (2019). Left to interest groups? On the prospects for enforcing environmental law in the European Union. Environmental Politics, 28(2), 342-364 (courts in environmental policy) EP additional evidence.	Noted	Jonas Schoenefeld	Institute of Political Science, Technical University of Darmstadt	Germany
40399	25	38	25	39	It mentions "The vast majority of climate cases have emerged in United States". Is this due to scope of Class Action Suits?	Noted. There are various examples of litigation cases in the US. The text has been updated and additional references have been added.	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
35905	25	39	25	40	The sentence 'All of these are western countries with common-law juridical systems, built on the English law tradition.' strikes me as slightly out of place. Perhaps the most succesful climate case in the Western world was the Dutch 'Urgenda' case, built on a civil law, continental system - a tort claim. Generally, there are many civil law tradition based climate cases pending, e.g. in Norway, Belgium, France, Germany, Austria, Switzerland.	Taken into account, the text has been revised.	Laura Burgers	PhD Candidate, University of Amsterdam	Netherlands
37895	25	35	26	5	Climate litigation can make normative changes. See: Ganguly, G., Setzer, J., Heyvaert, V. 2018. If at First You Don't Succeed: Suing Corporations for Climate Change. Oxford Journal of Legal Studies. 38(4) 841-868. Heidari, N., Pearce, JH. 2015. A review of greenhouse gas emission liabilities as the value of renewable energy for mitigating lawsuits for climate change related damages. Renewable and Sustainable Energy Reviews. McCormick, S., Glicksman, R., Simmens, S. et al. 2018. Strategies in and outcomes of climate change litigation in the United States. Nature Climate Change 8(9) 829-833. Peel, J., Osofsky, H.M. 2015. Climate change litigation: regulatory pathways to cleaner energy. Cambridge University Press. Cambridge, England. This section also overlaps with 13.9.3.	Taken into account, the references suggested have been reviewed and included in the assessment.	margot Hurlbert	University of Regina	Canada
42631	25	35	26	5	I would propose a case study box of the February 2020 ruling regarding the third runway of London Heathrow – as an example of how in court the ratification of the Paris Agreement and national climate targets can directly play a role (plus it would spice up the reading)	Noted, the case study is not included due to space constraints.	Vivian Grudde	Climate Change & Transformation Advisory (Freelancing)	Germany
13821	25	9			There is evidence in several European countries that there are not such a big differences regarding decarbonisation and climate change attitudes, for instance in the case of Spain and Germany, there is a wide consensus across the political spectrum. See for instance our forthcoming paper: Richard Thonig, Pablo del Río, Christoph Kiefer, Lara Lázaro Touza, Gonzalo Escribano, Yolanda Lechón, Leonhard Späth, Ingo Wolf, Johan Lilliestam (forthcoming): "Does ideology influence the ambition level in climate and renewable energy policy? Insights from four European countries". Energy Sources, Part B: Economics, Planning, and Policy	Accepted. The suggested article has been assessed and referenced in the updated draft to support the statement on the possibility of consensus on climate action across the political spectrum.	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
35069	25	34			There is a need to differentiate between federal political actors and subnational. Also, in terms of associations of legislators, organizations such as GLOBE bring together legislators to address environmental and sustainable development issues. Climate change is within their areas of interest.	This is covered in sub-section 13.2.3. Approaches to national institutions and governance of the SOD.	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5533	25	39			the United States. 'has also had importance' - been important	noted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
6205	26	10	26	12	An interesting finding, considering that the major emitters are the Global North and NIEs, while the countries considered as the most corrupt are in the Global South. Perhaps, more clarification should be provided on this.	Noted, the text has been updated but additional clarification has not been added due to space constraints. Rerferences are provided to review further details.	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
44675	26	22	26	40	I think that this very valuable section should be expanded. In the beginning, it should better avoid a potential misunderstanding that "Cultural" is primarily meant to be a differentiation between countries and regions (in a "Culture with a capital C" way), since values, morals and norms also differ within societies (e.g., in the sense of organisational or professional cultures). In the current form, it doesn't come out that clearly. And then the section should be expanded by integrating more examples on patterns in public policymaking (not restricted to climate - although the following references are mainly focused on climate governance), like the electoral market orientation of politicians (see https://journals.sagepub.com/doi/10.1177/0038026117731658), the status quo orientation of senior public officials (see https://onlinelibrary.wiley.com/doi/abs/10.1002/wcc.305), path dependencies created by 'instrument constituencies' (see https://www.tandfonline.com/doi/full/10.1080/09644016.2014.923625), or the political benefits of deliberate inconsistencies between talk, decisions and actions in climate policy (see https://onlinelibrary.wiley.com/doi/abs/10.1002/wcc.305)	Accepted: Thank you for new references, we have reviewed them	Oliver Geden	German Institute for International and Security Affairs	Germany
10873	26	23	26	40	Discussion of discourses seems to be limited mainly to media discourses and omits reference to the vital role that political discourses can play in creating more or less favourable conditions for climate policy adoption or strengthening. Authors whose work have addressed this include John Dryzek, Matrin Hajer, Peter Christoff	Agreed, we expect this to be in SOD Section 1 and perhaps in brief in Secs 3, 4, 9, 10	Ian Bailey	University of Plymouth	United Kingdom (of Great Britain and Northern Ireland)
19907	26	25	26	32	I suggest to cite Schoenefeld, J. J., & McCauley, M. R. (2016). Local is not always better: the impact of climate information on values, behavior and policy support. <i>Journal of Environmental Studies and Sciences</i> , 6(4), 724-732 on the role of values and climate change attitudes/policy support as additional evidence, given the current assessment of "limited evidence".	Accepted: Thank you! The reference is assessed and taken into account	Jonas Schoenefeld	Institute of Political Science, Technical University of Darmstadt	Germany
34879	26	33	26	35	Many factors influence on results and characteristic of emission trade system. This mechanism is not flexible enough to adapt local (every country) conditions.	noted	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
34881	26	43	26	44	Instead of actors, we can say agents as: is an actor who possesses the ability to prescribe behaviour and to obtain the consent of the governed (Biermann et al. 2009: 38) Biermann, Frank, Michele M. Betsill, Joyeeta Gupta, Norichika Kanie, Louis Lebel, Diana Liverman, Heike Schroeder, and Bernd Siebenhüner, with contributions from Ken Conca, Leila da Costa Ferreira, Bharat Desai, Simon Tay, and Ruben Zondervan. Earth System Governance: People, Places and the Planet. Science and Implementation Plan of the Earth System Governance Project. Earth System Governance Report 1, IHDP Report 20. Bonn, IHDP: The Earth System Governance Project, 2009.	Noted. We chose to use the word actors (the section has been renamed to Actors in climate governance)	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
39909	26	47	26	47	Add after "... and politicians": "Michaelowa et al. (2018) discuss the role of well-organized interest groups and conclude that only those mitigation policy instruments will be implemented that benefit these groups while spreading costs as widely as possible." Michaelowa, Axel; Allen, Myles; Fu Sha (2018): Policy instruments for limiting global temperature rise to 1.5°C – can humanity rise to the challenge?, in: Climate Policy, 18, p. 275-286	Noted, this has been substantially revised	Axel Michaelowa	University of Zurich	Switzerland
18787	26	42	29	42	This section is supposed to be about organisations that influence policy. However it grossly fails since it misses the elephant in the room: The fossil industry which is by far the biggest obstacle to efficient climate policy. Through constant attacks on all efficient policies it often succeeds instead to get subsidies and special favors. The truth is it buys or captures entire governments. This has to be dealt with seriously.	Noted, this has been substantially revised	thomas Sterner	Univ of Gothenburg	Sweden
46065	26	42	31	39	A recent special issue of the journal Environmental Politics on "Pioneers, Leaders and Followers in Multilevel and Polycentric Climate Governance" (vol. 28, no.1, 2019) examined the role of a variety of primarily non-state actors as climate leaders, pioneers and followers. Broad findings are summarised in the editorial introduction. The findings would be relevant for several of the categories of actors covered in section 13.4.3 Key Actors. See https://www.tandfonline.com/toc/fenp20/28/1?nav=toCList	Noted, this has been substantially revised	Diarmuid Torney	Dublin City University	Ireland
5001	26	42	32	5	Creo que la emisión de carbono no es el único problema generador del CC. Es imprescindible una gestión integrada del clima, con todos los actores involucrados expuestos en Tabla 13.1.	Noted	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
25901	26	43			I think "influencers, adopters and implementers" should be briefly defined at the beginning of the section, for increased clarity.	Taken into account. The text has been revised, introductory sentences describe each role in respective sub-sections on influencing, adopting, and implementation.	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
5821	27	1	27	2	table 13.1 government as an actor?	Noted, this has been substantially revised	Taedong Lee	Yonsei University	Republic of Korea
28931	27	1	27	3	What is the meaning of asterisk "*" on the table? Please fix it when you reach your conclusion on it.	Noted, this has been substantially revised	Marissa Malahayati	National Institute for Environmental Studies	Japan

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
35237	27	1	27	4	It is important to include individuals in the table. In addition, there is a large literature that agrees on findings in terms of climate change related opinion that shows ideological beliefs are dominant in forming climate opinion, that extreme weather events have only mixed effects, and that there is a strong decay effect associated with exposure to extreme weather events. This should be included. For summaries see: Howe, Peter D and Marlon, Jennifer and Mildenerger, Matto and Shield, Brittany S, How will climate change shape climate opinion?, Environmental Research Letters, 2019; Hughes, L. The Politics of Energy and Climate Change. In The Oxford Handbook of Energy Politics. : Oxford University Press. https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780190861360.01.0001/oxfordhb-9780190861360-e-26 .	Noted, this has been substantially revised	Llewelyn Hughes	Australian National University	Australia
13823	27	2	27	3	In table 13.1 and all the related discussion, I miss the role of think tanks like IDDRI, Grantham, Ecology, Bruegel (to mention only European ones) and many others in shaping policy narratives and bridging science and policy. Perhaps including them in table 13.1 with medium influence, low adoption and no implementation marks could be useful. I can however be biased given that I work for a thin tank, but I honestly think they have some influence in shaping the policy process and preferences	Noted, this has been substantially revised	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
28039	27	2	27	3	This table (13.1) should include a column for Scientists. For example, the 100% renewable energy movement that led to many of the laws listed in the last comment, was based on the science of these 19 scientific papers https://web.stanford.edu/group/efmh/jacobson/Articles/I/100Pct-WWS-Papers.pdf supported by the science of these 47 papers from 13 independent research groups http://web.stanford.edu/group/efmh/jacobson/Articles/I/CombiningRenew/100PercentPaperAbstracts.pdf Results for the first set of 100% renewable papers were translated into state, country, and city infographics that were disseminated by the non-profit Solutions Project https://thesolutionsproject.org/why-clean-energy/ . Over 100 other nonprofits supported the 100% movement and helped initiate the 100% laws listed above. The Sierra Club, for example, started a campaign to get the 150 U.S. cities committed. Please discuss the history of this movement since it has been the most effective movement worldwide to result in concrete action on climate change.	Noted, this has been substantially revised	Mark Jacobson	Stanford University	United States of America
44677	27	2	27	4	"Politicians" seems an odd term here, all the more since you use "political actors" in a much broader sense in the description on page 28	Noted, this has been substantially revised	Oliver Geden	German Institute for International and Security Affairs	Germany
10273	27	2	27	6	It seems that according to this table (13.1) only corporations are the ones that are the implementors. But what about the government departments that have to implement or enforce the climate policies? Also, what about the civic society (citizens or consumers) that would be making changes to their lifestyles, paying the carbon tax, buying electric vehicles, etc.	Noted, this has been substantially revised	Aglaia Obrekht	Environment and Climate Change Canada	Canada
5823	27	3	27	4	table 13.1. high, medium, low and no? level criteria?	Noted, this has been substantially revised	Taedong Lee	Yonsei University	Republic of Korea

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
19909	27	8	27	8	Delete the word "help".	noted	Jonas Schoenefeld	Institute of Political Science, Technical University of Darmstadt	Germany
25693	27	25	27	31	This statement might benefit from a slight rewording, as it could be read to mean that indigenous groups are not important which is a direct contradiction to earlier IPCC reports (specifically the SR1.5, SRCL and SROCC) which found that indigenous groups and peoples have a lot of knowledge that is needed for effective climate change adaptation and mitigation. Is this statement instead intending to say that indigenous peoples organisations have not historically been consulted during climate discussions?	Noted, this has been substantially revised	Renee van Diemen	WG III TSU	United Kingdom (of Great Britain and Northern Ireland)
21025	27	28	27	28	Change "Indigenous groups have had medium to low importance" by " were given medium to low importance"	Noted, this has been substantially revised	MOUNIA MOSTEFAOUI	LMD - ENS-Sorbonne	France
4587	27	30	27	31	Does literature indicate negative impacts of REDD+ measures to indigenous communities? Does REDD+ lead to expropriation or conflicts about land ownership, does it threaten their livelihoods? Are communities excluded from the benefits?	Noted, this has been substantially revised	Leonardo Barreto	Austrian Energy Agency	Austria
15369	27	30	27	31	Does literature indicate negative impacts of REDD+ measures to indigenous communities? Does REDD+ lead to expropriation or conflicts about land ownership, does it threaten their livelihoods? Are communities excluded from the benefits?	Noted, this has been substantially revised	Simone D'Alessandro	University of Pisa	Italy
44679	27	34	27	34	Sure, the EU can partly be classified as an intergovernmental actor, but it is also a supranational actor, and in climate policy the latter feature clearly dominates, at least in the 'domestic' (intra-EU) dimension.	Noted, this has been substantially revised	Oliver Geden	German Institute for International and Security Affairs	Germany
47685	27	2			Table 13.1 corporate actors are not the only actor with role in implementation. Also public sector actors. And private individuals?	Noted, this has been substantially revised	raphael Slade	Imperial College	United Kingdom (of Great Britain and Northern Ireland)
20535	27	16			The role of industrial association is very important in influencing the policy discussion. See the example of Japanese context in Ti H. Arimura, S. Kaneko, S. Managi, T. Shinkuma, M. Yamamoto, Y. Yoshida, "Political economy of voluntary approaches: A lesson from environmental policies in Japan" in <i>Economic Analysis and Policy</i> , V. 64, 2019, pp. 41-53,	noted	Arimura Toshi	Waseda University	Japan
36307	27	18		24	There are wide range of NGOs and CSOs very active in the UNFCCC and IPCC processes. Some are key drivers for actions in a variety of countries in developing world. Could you please go beyond the examples in industrialized countries	Noted, this has been substantially revised	Youba Sokona	South Centre	Switzerland
36305	27	25		31	Please see UNESCO web on IKL and recent publication "Indigenous knowledge for climate change assessment and adaptation. Cambridge University Press" for references	noted	Youba Sokona	South Centre	Switzerland
18895	28	1	28	1	WB and AfDB is an incomplete list of Multilateral Development Banks or MDBs. I suggest you use this term.	noted	Esther Badiola	European Investment Bank	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
34665	28	2	28	6	The role of international organizations deserves more study. As it is stated in the text, international organizations are important in framing the climate discussion. However, in less developed countries, where international organizations typically contribute with aid and funds, the situation is different. I have not seen a good evaluation of the amount of funds that international organizations contribute to less developed nations with respect to climate actions. Typically, this aid is used by government agencies, but not always have a significant effect. Better design aid is critical for the effectiveness of these policies.	Noted. International issues are discussed in Chapter 14. The role of international organizations in framing national climate governance is mentioned in sub-section 13.5.1	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
5749	28	7	28	8	This sentence does not make sense. Re-phrase/re-write.	noted	David Leary	University of Technology Sydney	Australia
44681	28	7	28	11	The text reads as if you deliberately want to exclude 'non-political' public officials, e.g. all the people working in ministries/departments/agencies more or less permanently, below the 'political level' that changes after elections or after cabinet reshuffles. I like the idea to create an explicitly 'political' category, but it seems odd that (national) bureaucracies then wouldn't count as relevant for governance (see, for example https://onlinelibrary.wiley.com/doi/abs/10.1111/jcms.12605). And maybe worthwhile to look into Nils Brunssons work for the relationship between decision-making and action ("The Consequences of Decisionmaking", and/or "The Organization of Hypocrisy")	Noted, this has been substantially revised	Oliver Geden	German Institute for International and Security Affairs	Germany
12315	28	7	28	12	Missing from this point is the roles of political parties for climate policy. This is a growing body of literature and should be included. Studies that should be considered are works by Jensen & Spoon (2011), Spoon & Hobolt (2014), Båtstrand (2015), Carter et al. (2017), Farstad (2018)	Noted, this has been substantially revised	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
10875	28	12	28	16	See the following article for more recent analysis of how politicians and other political actors frame debates on policy options: Jackson Inderberg, T.H. and Bailey, I. (2019) Changing the record: narrative policy analysis and the contested politics of emissions trading in New Zealand, <i>Environmental Policy and Governance</i> , https://doi.org/10.1002/eet.1868 . In general, Section 13.4 pays too limited attention to the role of discourses, issue framing and narratives in shaping debate and decision-making on climate policy. These narratives often involve debate across a range of the political actors discussed in this section and can lead to the formation of narrative alliances between different groups, e.g. government ministries and industry sectors. The section would additionally benefit from further unpacking of the idea of 'government and politicians' to recognise the potential for differences in opinion and priorities between government ministries and power balances between them to influence political action on climate change. There is some mention of this in the section examining national institutions but it should be drawn out as a more prominent theme in this section.	Noted, thanks	Ian Bailey	University of Plymouth	United Kingdom (of Great Britain and Northern Ireland)
44683	28	13	28	16	Maybe already highlight the importance of coalitions among actor groups	Noted. Thank you	Oliver Geden	German Institute for International and Security Affairs	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4595	28	17	28	34	Corporate actors do change their perspective on climate change when they identify business opportunities	Taken into account. The statement on changing climate policy preferences of corporate actors is included in the text with the supporting references.	Leonardo Barreto	Austrian Energy Agency	Austria
15377	28	17	28	34	Corporate actors do change their perspective on climate change when they identify business opportunities	Taken into account. The statement on changing climate policy preferences of corporate actors is included in the text with the supporting references.	Simone D'Alessandro	University of Pisa	Italy
40401	28	17	28	34	Corporates also have ownership over important climate-related technologies. They influence their home governments (e.g. in USA) regarding IPR regulation not only in their own country but also beyond through multilateral, regional or unilateral actions (e.g. Special 301 Report of USA). This point has not been mentioned. Big corporates can also influence towards delaying adoption by government of regulations and standards for cleaner and greener technology. Example: Bharat Stage VI and Electric Vehicle related deadlines in India. Entrepreneurs are also playing a significant role in the climate and energy space and have influence. This has not been mentioned.	Noted, additional examples of the influence of corporate actors are not included due to space constraints.	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
10271	28	19	28	20	'Corporations may gain influence their control of material endowments they control' - sentence is unclear.	noted	Aglaiia Obrekht	Environment and Climate Change Canada	Canada
25287	28	26	28	28	Delete "In the US, ... Painter and Cavin, 2016)."	noted	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
6207	28	37	28	38	The salience of a climate issue (delete s)	noted	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
4597	28	44	28	44	Please correct making decision-makers	noted	Leonardo Barreto	Austrian Energy Agency	Austria
15379	28	44	28	44	Please correct making decision-makers	noted	Simone D'Alessandro	University of Pisa	Italy
42987	28	44	28	45	'making decision-makers' to be corrected in line 44 and 45 (replacing by making decision-makers)	noted	christophe cassen	CNRS-CIRED	France
31875	28	46	28	48	In addition to public climate policy, environmental groups also try to influence behaviour at individual and community levels to adopt a low-carbon lifestyle	Noted, this has been substantially revised	Ashok Sreenivas	Prayas (Energy Group)	India

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4589	28	12	29	42	13.4.3.1. does not discuss the influence of institutional investors (such as pension funds) and other large private investors in climate governance and decision-making regarding the projects that get finance. Benchmarks can help investors compare the carbon footprint of their investments. Also, unified classification systems (taxonomies) of investments can help investors to gain information about which investments are low-carbon and which are not. See e.g. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN CENTRAL BANK, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Action Plan: Financing Sustainable Growth COM/2018/097 final. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52018DC0097&from=EN	Noted. The sub-section has been substantially revised. Financial aspects are discussed in chapter 15.	Leonardo Barreto	Austrian Energy Agency	Austria
15371	28	12	29	42	13.4.3.1. does not discuss the influence of institutional investors (such as pension funds) and other large private investors in climate governance and decision-making regarding the projects that get finance. Benchmarks can help investors compare the carbon footprint of their investments. Also, unified classification systems (taxonomies) of investments can help investors to gain information about which investments are low-carbon and which are not. See e.g. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN CENTRAL BANK, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Action Plan: Financing Sustainable Growth COM/2018/097 final. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52018DC0097&from=EN	Noted. The sub-section has been substantially revised. Financial aspects are discussed in chapter 15.	Simone D'Alessandro	University of Pisa	Italy
4591	28	44	30	37	"Corporations may gain influence their control of material endowments they control". Please explain, please check the meaning of the sentence.	Noted, this has been substantially revised	Leonardo Barreto	Austrian Energy Agency	Austria
15373	28	44	30	37	"Corporations may gain influence their control of material endowments they control". Please explain, please check the meaning of the sentence.	Noted, this has been substantially revised	Simone D'Alessandro	University of Pisa	Italy
13891	28	2			Regarding think tanks and international networks, the G20 ecosystem is completed by the B20 and T20 fora, for businesses and think tanks, respectively. T20 this year includes the issue of climate change, who is supported by KAPSARC, a Saudi Arabia energy think tank	noted	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
35071	28	11			Something should be said about the sustainability of actions implemented through or with the support of international organizations.	Noted. International issues are discussed in Chapter 14. The role of international organizations in framing national climate governance is mentioned in sub-section 13.5.1	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
42989	29	1	29	1	remove 'they' after 'Indegous Peoples'	noted	christophe cassan	CNRS-CIRED	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
6209	29	1	29	10	But indigenous peoples too are responsabilized, or rendered responsible for implementing a bundle of tasks and supporting their welfare, even beyond their capabilities and capacities (see: Mustalahti I Gutiérrez Zamora V Hylea M Devkota B P Nina Tokola 2020 Responsibilization in natural resources governance A romantic doxa Forest Policy and Economics 111 2020 102033. Kimengsi J. N. & Auch, E. (2020). Responsibilization at a crossroads: Designing pathways for indigenous forest communities in Cameroon, Development Days 2020 International Conference on "Inequality Revisited: In Search of Novel Perspectives on an Enduring Problem", 26-28 February Helsinki (Finland).	Noted. The paragraph on indigenous people has been revised and extended.	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
31877	29	1	29	11	As mentioned in the case of (some) environmental groups, even with indigenous groups it may be worth mentioning that their motivations are unlikely to be climate change by itself, but more around issues of control over natural resource management.	Noted, this has been substantially revised	Ashok Sreenivas	Prayas (Energy Group)	India
25289	29	3	29	3	Delete "such as opposing ... fossil fuels"	noted	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
40403	29	12	29	24	Environmental-Social-Governance (ESG) requirements by investors need particular mention here. Also Equator Principles.	Rejected. Financial aspects are discussed in chapter 15.	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
18897	29	14	29	14	Same comment as above. It is more correct to refer to Multilateral Developemnt Institutions	noted	Esther Badiola	European Investment Bank	United States of America
18899	29	17	29	17	please have a look to this table https://www.eib.org/attachments/press/joint-mdb-statement-climate-change-finance-un-climate-summit-2019-en.pdf to reinforce this point of how MDBs commitments may influence climate action	noted	Esther Badiola	European Investment Bank	United States of America
42991	29	18	29	18	then' to be replaced by 'than'	noted	christophe cassen	CNRS-CIRED	France
12317	29	25	29	42	For a systematic and cross-country analysis of the factors that make politicians/political parties embrace the issue of climate change, see Farstad (2018). Ideology should be included as a factor here.	Noted. The reference suggested has been included in the assessment	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
44685	29	25	29	42	These examples are about politicians, and these maybe are the most important group among those you classified as "political actors" before. But I think you should add some the other subgroups here as well	Noted, this has been substantially revised	Oliver Geden	German Institute for International and Security Affairs	Germany
18901	29	38	29	39	Maybe you wish to mention as example the last European elections where the majority of EU citizens voted for parties that brought sustainability concerns into their programmes. The EU Green Deal is direct consequence of this last vote	noted, we will have to be guided by the literature	Esther Badiola	European Investment Bank	United States of America
42993	29	39	29	39	A dot to be added after (Willis 2017, 2018)	noted	christophe cassen	CNRS-CIRED	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
20537	29	43	30	2	An industry association may of large corporations may influence the governance of Small and Medium Size Enterprises (SEMs). See the example of VAP's influence to SEM in Japan. See M. Wakabayashi & T.H.Arimura(2016)"Voluntary agreements to encourage proactive firm action against climate change: an empirical study of industry associations' voluntary action plans in Japan," in Journal of Cleaner Production,112(4) pp.2885-2895,	Noted. The suggested reference is included in the assessment in other sections of the chapter while discussing voluntary agreements and partnerships.	Arimura Toshi	Waseda University	Japan
4593	29	44	30	37	Suggest to mention that the European Union has implemented a Governance Mechanism for climate and energy (Regulation 2018/1999 on the Governance of the Energy Union and Climate Action. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1999&from=EN). The Governance Regulation integrates strategic planning and reporting on the implementation of climate and energy policies (through integrated National Energy and Climate Action Plans), promotes coordination between actors responsible for energy and climate policy, fosters a multi-level energy dialogue in Member States and supports breaking silos across policies and sectors, across government departments, with stakeholders and the public, and cross-border. The Governance Regulation intends to facilitate regional cooperation, which is key to the achievement of the objectives of the Energy Union in a cost-optimal manner.	very useful, thank you.	Leonardo Barreto	Austrian Energy Agency	Austria
15375	29	44	30	37	Suggest to mention that the European Union has implemented a Governance Mechanism for climate and energy (Regulation 2018/1999 on the Governance of the Energy Union and Climate Action. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1999&from=EN). The Governance Regulation integrates strategic planning and reporting on the implementation of climate and energy policies (through integrated National Energy and Climate Action Plans), promotes coordination between actors responsible for energy and climate policy, fosters a multi-level energy dialogue in Member States and supports breaking silos across policies and sectors, across government departments, with stakeholders and the public, and cross-border. The Governance Regulation intends to facilitate regional cooperation, which is key to the achievement of the objectives of the Energy Union in a cost-optimal manner.	very useful, thank you.	Simone D'Alessandro	University of Pisa	Italy
5535	29	1			Indigenous Peoples groups, they tend to have - delete comma and they	noted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
13893	29	18			Typo:...thAn the Global South rather than thEn?	noted	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
40405	30	3	30	8	Here, there may be mention of voluntary actions taken by corporates such as "internal carbon pricing", "Science Based Targets", Sustainability Reporting, Reporting under Climate Disclosure Project (CDP), etc.	Noted. This is mentioned in the sub-section 13.5.3 Adopting climate governance, as well as in section 13.6 Policy instruments and evaluation.	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
42995	30	17	30	17	then' to be replaced by 'than'	noted	christophe cassen	CNRS-CIRED	France
18903	30	23	30	23	Here, we should mention the EU Green Deal	noted, the main section for GND will be in SOD 10	Esther Badiola	European Investment Bank	United States of America
6211	30	26	30	26	that some (delete the)	noted	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
42997	30	26	30	26	remove 'the' between 'that' and 'some'	noted	christophe cassen	CNRS-CIRED	France
4599	30	26	30	28	international financial institutions such as the green climate fund and the adaptation fund can delegate decision-making power to national institutions, allowing them to choose the projects that will be financed. The adaptation fund, for example, introduced direct access to funding through National Direct Access (NDA) entities. That is, developing countries have the possibility of accessing funding via accredited national or regional entities without the assistance of UN agencies.	Noted. This is covered in Ch15	Leonardo Barreto	Austrian Energy Agency	Austria
15381	30	26	30	28	international financial institutions such as the green climate fund and the adaptation fund can delegate decision-making power to national institutions, allowing them to choose the projects that will be financed. The adaptation fund, for example, introduced direct access to funding through National Direct Access (NDA) entities. That is, developing countries have the possibility of accessing funding via accredited national or regional entities without the assistance of UN agencies.	as above	Simone D'Alessandro	University of Pisa	Italy
34883	30	29	30	44	Improve writing	noted	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
19911	30	33	30	33	Replace "decision are done" with "decisions are taken".	noted	Jonas Schoenefeld	Institute of Political Science, Technical University of Darmstadt	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44687	30	36	30	37	Here you now include "other governmental actors" (not explicitly their leaders) in the 'political actors' category, which seems slightly inconsistent with your earlier categorization. Also, at least in Western democracies, courts aren't governmental actors. Finally, politicians are indeed the most important decisionmakers, but maybe only for symbolic reasons. See again Brunsson ("The consequences of decision-making"). Also, I wonder whether it would be worthwhile to produce a glossary entry for 'decisionmaker' and/or related terms like 'policymaker' (there's already one on the latter). These terms are used quite ambiguously in IPCC publications, but unfortunately, also in the political science literature.	Noted, this has been substantially revised	Oliver Geden	German Institute for International and Security Affairs	Germany
42999	30	37	30	37	replace decision-makes by decision-makers	noted	christophe cassen	CNRS-CIRED	France
15451	30	47	30	47	add a blank space: "emissions(World Bank..." to "emissions (World Bank..."	noted	Simone D'Alessandro	University of Pisa	Italy
35073	30	38			Something should be said about the ability to assess evaluate the implementation of climate policy at the local sphere of responsibility. Although evaluation is addressed in the next section, a mention of this is warranted here.	Noted, evaluation is addressed in section 13.6	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
34885	31	1	31	9	Improve writing	noted	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
43001	31	2	31	2	add s to indicate	noted	christophe cassen	CNRS-CIRED	France
37603	31	10	31	13	The Climate Action Tracker should be named here as an important independent science based initiative to track and assess targets and action. https://climateactiontracker.org	Noted. Climate Action Tracker is referenced both in the FOD and SOD.	Michiel Schaeffer	Climate Analytics	Netherlands
15453	31	12	31	12	typo: from "example of is (Tracker..." to "example of it (Tracker..."	noted	Simone D'Alessandro	University of Pisa	Italy
44689	31	21	31	22	That's true, if you are talking about 'politicians' in a narrower sense here (party leaders, MPs, government ministers), and that can be explained in a neo-institutionalist perspective. I again refer to the abovementioned books by Nils Brunsson	noted	Oliver Geden	German Institute for International and Security Affairs	Germany
5751	31	21	31	24	This is perhaps where discussion could be expanded on the significant impact of policy uncertainty. See comment 2 above.	Noted, this has been substantially revised	David Leary	University of Technology Sydney	Australia
2665	31	25	31	39	It is surprizing that associations such as consumers' unions are not mentioned here. In this FOD's chapter, every time the word "consumer" is used, it is in connection with actions of the government oriented towards individual, passive consumers, such as information, taxes and the like. Yet, are not consumers able to exert an influence on their own?	Noted, no literature on consumers' unions impact on climate governance was identified.	Philippe Waldteufel	CNRS/IPSL/LATMO S	France
43003	31	29	31	29	add s to document	noted	christophe cassen	CNRS-CIRED	France
6213	31	34	31	35	...on the development of climate	noted	Jude Ndzifon Kimengsi	Department of Geography and Environmental Studies, Catholic University of Cameroon (CATUC)	Cameroon
15455	31	44	31	45	typo: "decided upon ." to "decided uopn."	noted	Simone D'Alessandro	University of Pisa	Italy
34667	31	45	31	45	There is a comma before the word "Fewer" that has to be deleted.	noted	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
39911	31	46	31	46	Add after "... climate governance." In the past, the action of interest groups has led to distortions of mitigation policy instruments such as emissions trading systems with systemic overallocation of allowances, or carbon taxes that exempt industry. Under favourable lobbying constellations strong subsidy schemes for mitigation can emerge. Renewable feed-in tariffs in Europe persisted for over two decades and were crucial for the breakthrough of wind and solar power technologies. But once competition from China led to the demise of European technology providers and the European population started to feel the pinch from the surcharges on their electricity bills, feed-in tariffs were abolished. Historically, rapid transformations of the nature required to reach 1.5°C built on either lavish public investment into the underlying infrastructure or a general notion of national emergency (Michaelowa et al. 2018): Michaelowa, Axel; Allen, Myles; Fu Sha (2018): Policy instruments for limiting global temperature rise to 1.5°C – can humanity rise to the challenge?, in: Climate Policy, 18, p. 275-286	Thanks, we agree with fundamental issue raised and will do our best to incorporate given space constraints	Axel Michaelowa	University of Zurich	Switzerland
43461	31	46	31	46	Highly centralized interest groups have in the past sought and exploited opportunities to undermine mitigation policy instruments. Where there are highly centralized interest groups in favor of progressive climate policies, progress can be achieved (e.g. feed-in tariffs in Germany). The transformation needed to reach 1.5°C compatible decarbonization and net-zero emissions is historically near-unprecedented (Michaelowa et al. 2018). Michaelowa, Axel; Allen, Myles; Fu Sha (2018): Policy instruments for limiting global temperature rise to 1.5°C – can humanity rise to the challenge?, in: Climate Policy, 18, p. 275-286	noted, thanks	Matthias Honegger	Perspectives Climate Research gGmbH	Germany
13895	31	12			Typo: "...one example of it" rather than "is"	noted	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
13897	31	45			Typo: "upon,,"?	noted	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
21027	32	1	32	5	The use of the terminology "Global South/Global North" is used by the World Bank, in order to differentiate developing countries coming in South America, Africa, Asia as opposed to developed countries, however those concepts are subject to controversy and it could be relevant to mention that there is no consensus about the use of this terminology? What sort of "biases" are you referring to?	We will follow IPCC terminology	MOUNIA MOSTEFAOUI	LMD - ENS-Sorbonne	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
18905	32	15	32	15	I think that in this section, we need to include the EU Taxonomy of Sustainable investments. I am not sure if it should be mentioned under regulatory instruments -this was the initial idea, to create a taxonomy and then regulate disclosure around these sustainable activities (under ESG frameworks) or if it should be mentioned under "other Instruments" because at this stage, it is more informative and voluntary than compulsory.	Taken into account - mentioned under 'other instruments'. The taxonomy itself follows well established precedence.	Esther Badiola	European Investment Bank	United States of America
37897	32	16	32	24	How was this taxonmy chosen? No references are provided. Perhaps see Michael Howlett's work on taxonomy. Howlett, M. (2009), Governance Modes, Policy Regimes and Operational Plans: A Multi-Level Nested Model of Policy Instrument Choice and Policy Design. "Policy Science". Vol. 42, No. 1, pp. 73-89 Howlett, M. (2019), "Designing Public Policies: Principles and instruments". 2nd Edition. London and New York: Routledge.	Taken into account - references provided.	margot Hurlbert	University of Regina	Canada
38183	32	16	32	24	R&D policies as well as industrial poilcies and trade/investment policies should be assessed under the category "other"	Taken into account - mentioned under 'other instruments'.	Yamina Saheb	OpenExp, Ecole des Mines de Paris	France
14413	32	17	32	17	The category "economic or market-based instruments" is not well defined. I would suggest dropping the term "economic" as the subsequent enumeration of instruments contains market-based instruments only.	Accepted. We will modify consistent with agreed taxonomy across WGIII	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria
10275	32	29	32	37	Since permit trading is characterized as 'quantity-based approach', perhaps it is worth mentioning that the tax is a 'price-based approach', meaning that there is a trade-off between certainty of price vs certainty of emissions reductions.	Accepted.	Aglaia Obrekht	Environment and Climate Change Canada	Canada
39913	32	36	32	36	Reword "Permit trading" as follows "Emissions trading systems". Ensure consistency across report. Reason: emissions trading is commonly used.	Accepted.	Axel Michaelowa	University of Zurich	Switzerland
39915	32	36	32	36	Add after "...world's first and largest" "regional". Add after "system." "The Kyoto Protocol constitutes an international emissions trading system." Reason: The Kyoto Protocol consitutes an emissions trading system that is broader in scope than the EU ETS. Trading under the EU ETS started in 2005 and trading under the Kyoto Protocol started in 2008. Thus, depending on how the size of the systems is defined, it may be inaccurate to state that the EU ETS is the world's largest system. It is, however, currently the world's largest regional system.	Sentence has been deleted.	Axel Michaelowa	University of Zurich	Switzerland
43463	32	36	32	36	Other parts of the FOD and IPCC assessments in the past used "Emissions trading systems" rather than "permit trading". Please use consistently.	Accepted.	Matthias Honegger	Perspectives Climate Research gGmbH	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
39917	32	38	32	41	Replace whole paragraph by "Crediting mechanisms, commonly referred to as baseline-and-credit schemes or offset protocols, are systems that establish standards and processes for issuing tradable credits for emission reductions or carbon removals that are deemed additional, robustly measured against a valid baseline and independently verified. These credits may be traded in carbon markets and used for various purposes, such as for compliance under emissions trading schemes, voluntary offsetting of emissions, delivery of results-based climate finance or tax liability (see Michaelowa et al. 2019). Credits may be generated by domestic or international mitigation activities, typically from projects or programs." Reason: Credits can be used for many purposes, and offsetting is only one of the uses. Additionality, baselines and monitoring, reporting and verification are common features of all crediting mechanisms. There is a large range of activity types, and in addition to projects, also programmes can be credited. Potentially, also policies could be credited. Michaelowa, Axel; Shishlov, Igor; Bofill, Patricio; Hoch, Stephan; Espelage, Aglaja (2019): Overview and comparison of existing carbon crediting schemes, NEFCO, Helsinki	Taken into account in revised text, but retaining aspects of original text.	Axel Michaelowa	University of Zurich	Switzerland
43465	32	38	32	41	The term 'credit' is not precise and not suitable for this section; consider the following new publication offering an overview of key lessons in crediting schemes to date: Michaelowa, Axel; Shishlov, Igor; Bofill, Patricio; Hoch, Stephan; Espelage, Aglaja (2019): Overview and comparison of existing carbon crediting schemes, NEFCO, Helsinki	Baseline and credit variant of emissions trading is covered in a footnote. This section focuses on voluntary and compliance use of offset credits with compliance use limited to domestic reductions. Credits generated by foreign reductions are discussed in section 13.7	Matthias Honegger	Perspectives Climate Research gGmbH	Germany
44355	32	16	33	23	although the text is very well written and correct, it would benefit by some citation as it is supposed to be derived by an assessment of literature.	Accepted.	BERTOLDI PAOLO	European Commission	Italy
1591	32	25	33	9	The list of economic instruments should probably include tax exemptions as a separate category as these are widely used to support the introduction of clean technologies (renewable energy, electric vehicles, etc).	Accepted - mentioned under subsidies.	Steffen Kallbekken	CICERO	Norway
38185	32	25	33	9	Protection of investments in fossil fuels is also a market-based instrument which should be referenced here. See: https://www.openexp.eu/sites/default/files/publication/files/modernisation_of_the_energy_charter_treaty_a_global_tragedy_at_a_high_cost_for_taxpayers-final.pdf	Taken into account in revised text.	Yamina Saheb	OpenExp, Ecole des Mines de Paris	France
10981	32	42	33	2	subsidies can support production or investment. And this makes a big difference. It should be mentioned.	Accepted.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
10979	32	10	34	2	I would have expected an assessment of different instruments according to the different criteria you mention in 13.5.1. Otherwise, why would you include these assessment criteria in the first place?	Taken into account - the criteria are referenced more extensively in revised text. However the section referred to here is the taxonomy only.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
37899	32	16	34	6	This section reads as a shopping list. There is no real new information. See the Land and Climate report. Confidence statements and assessments of literature are required. This section could be conflated with the evaluation section.	Taken into account in revised text - shortening text on taxonomy and summarizing in a Table.	margot Hurlbert	University of Regina	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
34541	32		40		This is intrinsically difficult, the chapter takes a fairly conventional taxonomy which is fine, but I wonder if it might then be better linked with other themes by adopting a matrix approach. If economic instruments are defined as ones that utilize market or financial incentives, they can be tailored to influence behaviours at each of the micro, meso, and macro-level processes involved in transformations. So can regulatory, and informational programmes. Eg. one could just flag a few examples in a table (attempt next comment but can send offline as the comment forms cant take images or tables). Something like this could perhaps help readers avoiding getting confused as to whether the instrument classification you adopt is somehow alternative or inconsistent with the 3-level / transition dynamics framing in the Introductory chapter I dont think it is at all.	Taken into account in revised text with reference to scales in Ch1 - however it would be too complex within the length constraints to extend to a matrix approach.	Michael Grubb	UCL - Institute of Sustainable Resources	United Kingdom (of Great Britain and Northern Ireland)
16375	32	7			In Section 13.5 Policy instruments and evaluation, mention might be made of global militaries and their impact on manufacturing, transportation and agricultural emissions, as well as their potential to mitigate these effects, for the sake of accuracy and clarity.	Taken into account - mention under government procurement.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
35075	32	9			It is important to link the discussion on the different cycles or areas of public policy. This is a more complete and comprehensive review of climate policy instruments should clearly include planning/programming, information, public participation, financial/funding/economic, coordination, regulatory/management, enforcement and evaluation instruments.	Rejected, for this part of the chapter. These aspects are covered in other parts of Chapter 13.	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5539	32	37			the first carbon tarding system, not the first trading system (earlier systems with So2 existed)	Accepted.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
42633	33	1	33	2	"Government financial support for the development and procurement of low-emission technology" – is government procurement also included here? If yes, I personally find the category debatable. I saw that public procurement is also to be found in the table in the row 'Performance standards'. Are also standards for one specific public procurement tender meant and not general ones? It could also be more nuanced - as in that there is for example the possibility of technology-neutral procurement or technology-based procurements.	Accepted.	Vivian Grudde	Climate Change & Transformation Advisory (Freelancing)	Germany
12319	33	3	33	7	Please consider adding support for fossil fuel exploration as a form of subsidy here.	Taken into account in revised text, however length constraints preclude specific discussion.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
40407	33	8	33	9	<p>In climate context, the term more often used is “Border Carbon Adjustments” instead of “Border Tax Adjustments”. Note that your Table in page 36 mentions “Border Carbon Adjustment”.</p> <p>BCAs need not be imposed as “tax”.</p> <p>Refer: Mehling et al (2019), DESIGNING BORDER CARBON ADJUSTMENTS FOR ENHANCED CLIMATE ACTION, AJIL, Vol 113:3.</p> <p style="text-align: center;">As mentioned in Mehling et al (2019), p.442:</p> <p>“In their most elementary form, they take the shape of a tariff or other fiscal measure applied to imported goods from countries that have not taken comparable climate action.⁵² Much of the political debate on BCAs has focused on border adjustments applied to imports in conjunction with domestic carbon pricing instruments, such as a carbon tax or an emissions trading system. In the case of a carbon tax, a BCA on imports would charge a covered imported good the equivalent of its carbon tax liability had it been produced domestically. In the case of an emissions trading system, a BCA would require the domestic importers or foreign exporters of a covered good to buy emission allowances side by side with the domestic producers of the same (or similar) good.⁵³ While these are the most commonly discussed mechanisms, BCAs can also be implemented through the extension of other compliance obligations to imports, such as performance standards. Because border adjustments limited to imports will only affect the relative price of domestic and foreign goods in the imposing country,⁵⁴ a BCA can alternatively or cumulatively apply to exports, rebating the domestic carbon constraint through tax or regulatory relief.⁵⁵”</p>	Accepted.	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
18907	33	9	33	9	<p>Again here, we could mention the proposed border tax adjustment of the European Commission. See here: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism</p>	Rejected, as the literature analyses border carbon adjustments only in generic terms.	Esther Badiola	European Investment Bank	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
39919	33	9	33	9	<p>Add at the end of the paragraph: "All economic instruments require a system of monitoring, reporting and verification. The experience with existing carbon pricing and management schemes demonstrates that there are multiple options with regards to the design of MRV systems that affect their costs and reliability (Bellassen et al. 2015). The CDM experience demonstrates that there is a strong effect of the economy of scale, i.e. smaller entities bear overproportional MRV cost (Shishlov and Bellassen 2016). Therefore, most existing MRV systems offer materiality provisions and/or more lenient MRV for smaller entities (Bellassen et al. 2015)." New references:</p> <ul style="list-style-type: none"> - Bellassen, Valentin; Stephan, Nicolas; Afriat, Marion; Alberola, Emilie; Barker, Alexandra; Chang, Jean-Pierre; Chiquet, Caspar; Cochran, Ian; Deheza, Mariana; Dimopoulos, Christopher; Foucherot, Claudine; Jacquier, Guillaume; Morel, Romain; Robinson, Roderick; Shishlov, Igor (2015) Monitoring, reporting and verifying emissions in the climate economy. Nature Climate Change, 5, 319–328 - Shishlov, Igor; Bellassen, Valentin (2016): Review of experience with monitoring uncertainty in the Clean Development Mechanism. Climate Policy, 16:6, 703-731 http://bit.ly/2b0d2HR 	Taken into account in revised text, though specific suggestion rejected because of space constraints and focus of the chapter.	Axel Michaelowa	University of Zurich	Switzerland
43467	33	9	33	9	<p>Suggest to expand on the need for adequate MRV:</p> <p>"Financial policy instruments require a reliable system to monitor, report and verify results. MRV systems designs affect transaction costs and long-term credibility (Bellassen et al. 2015). The CDM offers crucial lessons in regards to present day MRV designs (Shishlov and Bellassen 2016), including that MRV systems can contain adaptations in stringency as a function of activity scale (Bellassen et al. 2015)."</p> <p>Bellassen, Valentin; Stephan, Nicolas; Afriat, Marion; Alberola, Emilie; Barker, Alexandra; Chang, Jean-Pierre; Chiquet, Caspar; Cochran, Ian; Deheza, Mariana; Dimopoulos, Christopher; Foucherot, Claudine; Jacquier, Guillaume; Morel, Romain; Robinson, Roderick; Shishlov, Igor (2015) Monitoring, reporting and verifying emissions in the climate economy. Nature Climate Change, 5, 319–328</p> <p>Shishlov, Igor; Bellassen, Valentin (2016): Review of experience with monitoring uncertainty in the Clean Development Mechanism. Climate Policy, 16:6, 703-731 http://bit.ly/2b0d2HR</p>	Taken into account in revised text, though specific suggestion rejected because of space constraints and focus of the chapter.	Matthias Honegger	Perspectives Climate Research GmbH	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44357	33	11	33	16	Minimum efficiency requirements for appliances are described in: Chapter 2 - Policies, Recommendations and Standards (International Technical Standards, Main Laws and Regulations; EU Directives; Energy Labeling), Editor(s): Francesco Asdrubali, Umberto Desideri, Handbook of Energy Efficiency in Buildings, Butterworth-Heinemann, 2019, Pages 5-73, ISBN 9780128128176, https://doi.org/10.1016/B978-0-12-812817-6.00002-4 . (http://www.sciencedirect.com/science/article/pii/B9780128128176000024)	Accepted	BERTOLDI PAOLO	European Commission	Italy
44359	33	29	33	35	among these group of measure are appliances labelling scheme, feedback mechanisms. The EU policies in this category are described in the following article: Paolo Bertoldi, Chapter 4.3 - Overview of the European Union policies to promote more sustainable behaviours in energy end-users, Editor(s): Marta Lopes, Carlos Henggeler Antunes, Kathryn B. Janda, Energy and Behaviour, Academic Press, 2020, Pages 451-477, ISBN 9780128185674, https://doi.org/10.1016/B978-0-12-818567-4.00018-1 . (http://www.sciencedirect.com/science/article/pii/B9780128185674000181):	Accepted	BERTOLDI PAOLO	European Commission	Italy
44361	33	36	33	39	Public procurements for good and buildings can request high level of officency	Taken into account in revised text.	BERTOLDI PAOLO	European Commission	Italy
22375	33	10	34	2	This part of the section discusses non-market-based-regulations such as regulatory insturemnts(13.5.1.2) and other policies(13.5.1.3). However, this part lacks of the decription of management promotion approach by governments. For example,the Japanese government requires large facilities to have "energy manager" and to submit "energy planning with the detailed consumption" under Energy Saving Act with 1 percent energy efficiency improbment target. Please see Arimura and Iwata(2015) ,"The Evaluation of "Comprehensive Management Under the Act on the Rational Use of Energy" as a Measure to Combat Climate Change for the Hotel Industry" In: "An Evaluation of Japanese Environmental Regulations" from Springer..	Rejected. While we agree with the comment, there is not sufficient space to discuss this specific example.	Arimura Toshi	Waseda University	Japan
1593	33	28	34	2	Consider including voluntary agreements with sectors as an instrument (it does have a section later, but is not listed here). This has been used successfully to incentivize industries to reduce emissions, at least in circumstances where governments threaten to impose more restrictive instruments if the goals in the voluntary agreement is not met. See e.g. the review by Auld, Mallett, Burlica, Nolan-Poupart and Slater, 2014, "Evaluating the effects of policy innovations: Lessons from a systematic review of policies promoting low-carbon technology" in Global Environmental Change.	Taken into account in revised text/Table.	Steffen Kallbekken	CICERO	Norway

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
5537	33	8		9	They may have been rare up to this point, but there is increasing interest in deploying them as a means to tackling carbon leakage. The tone here is arguably too dismissive of them as it stands.	Taken into account in revised text.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5541	33	10		23	Might it be worth including technology forcing standards in this section too? Cf also p. 48, line 39 section	Taken into account in revised text - included under technology standards.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5543	33	32			worth mentioning food miles (and associate labelling) too?	Taken into account - part of information programmes.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5545	33	34		35	surely mass transit (or public transport)? Individual cars are = transit	Accepted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
31633	34		34		There is a column entitled "Demand". I have not seen a sector called "demand" before and I suggest removing this. The items included in this column could be reallocated to the Transport, buildings or AFOLU columns.	Accepted.	Lisa Ryan	University College Dublin	Ireland
31625	34		39		There are significant omissions and inconsistencies in Table 2. I will address them by sector in the next lines.	Taken into account in revision of taxonomy text and Table.	Lisa Ryan	University College Dublin	Ireland
31627	34		39		Table 2: Energy column. Under Taxes, consideration should be given whether "Tax incentives" should be included under taxes or in the "Subsidies" row. I note that "Tax incentives" is under Subsidies in the Buildings column so this is inconsistent. Either can be considered correct but I suggest that the same approach should be used across all sectors. Under "Subsidies" only Feed in Tariff is given for the range of price support schemes available to renewable electricity across many countries. I suggest you change this to "Electricity price support schemes, such as feed in tariffs, renewable energy auctions". Under "Government provision...." an additional item should be included (as number 1) - "Green procurement by public agencies".	Taken into account in revision of taxonomy text and Table.	Lisa Ryan	University College Dublin	Ireland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
31629	34		39		These comments relate to the transport column in Table 2, I suggest that the first category under Economic instruments be called "Taxes and charges" to account for other types of charges. In addition, there are some economic instruments missing under taxes in the Transport column: carbon-based vehicle taxes, fuel taxes, parking charges. Also, in the transport column under "Permit trading" I suggest the aviation sector be added, as it is included in the EU ETS. In the row "Subsidies for mitigation", I suggest that 1) should be changed to "Subsidies for electric and hybrid vehicles" and a few others added: "2) subsidies for low-emitting vehicles"; "3) tax relief for biofuels"; "4) accelerated capital allowances for low emitting vehicles for commercial fleets". Under regulatory instruments, performance standards, "Fuel economy standards" should be added in the transport column as the most widely-used transport policy globally. Under "Information programs and policies", "Vehicle CO2 emissions labels" should be added to the transport column. This is also missing from the other sectors also. Under "Government provision...." the first measure in transport should be "Green procurement programs in public agencies"	Taken into account in revision of taxonomy text and Table.	Lisa Ryan	University College Dublin	Ireland
31631	34		39		Buildings column in Table 2: Separate energy taxes and carbon taxes into two separate items in the Buildings and Industry columns, as these are two separate measures. Include 3rd item in taxes: "Alignment of building energy performance with building taxes, ie local property taxes or purchase taxes". Under "subsidies for mitigation" I am not sure what "Feed-in-tariffs" refer to, suggest removing. There is no mention of buildings retrofit in this column. The instruments are very generic. Suggest adding "Grants for buildings retrofit" and also modifying 3) to "Preferential loans for buildings retrofit".	Taken into account in revision of taxonomy text and Table.	Lisa Ryan	University College Dublin	Ireland
36559	35	1	35	1	International aviation sector uses offset credits for offsetting excess emission from their target emission. This is CORSIA which is implementing, separately and independently from Paris Agreement, by ICAO. It is better to add it. .	Rejected in this context because of length constraints and focus of this chapter on domestic policy instruments - expect CORSIA will be discussed in Chapter 14.	Takashi Hongo	Mitsui & Co. Global Strategic Studies Institute	Japan
5825	35	1	35	2	AFOLU stands for (table 13.2)	Accepted.	Taedong Lee	Yonsei University	Republic of Korea
17143	35		36		Table 13-2: Emission Trading is used and effective inTokyo ETS. See Arimura and Abe (20220) forthcoming in Enviornmental Economics and Policy Studies	Accepted.	Arimura Toshi	Waseda University	Japan
5827	35	1	40	1	different color of the text? (table 13.2)	Accepted.	Taedong Lee	Yonsei University	Republic of Korea
45109	35	1	40	1	The policy instruments for urban systems may be diversified, including those that are included in the "Global Covenant of Mayors for Climate and Energy "How to develop a Sustainable Energy and Climate Action Plan (SECAP)" that is available at < https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/guidebook-how-develop-sustainable-energy-and-climate-action-plan-secap > and summarized for energy based on the Appendix A in "Covenant of Mayors: Local Energy Generation, Methodology, Policies and Good Practice Examples" as referenced in Chapter 8.	Rejected - while relevant, space constraints do not allow discussion of this specific example.	Sir Killis	The Scientific and Technological Research Council of Turkey	Turkey
12321	35	1	40	2	Useful to have an overview of policy instruments in sectors, but please consider making the table easier to read across pages, e.g.repeating the top row on each page	Taken into account in revision of taxonomy text and Table.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
42523	35		40		This table "Table 13.2 Policy instruments in sectors" needs to be better presented.	Accepted.	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
39921	36	1	36	1	In column 1, replace "Offset systems" with "Crediting mechanisms". In column 6 (AFOLU), replace "Emission credits under the CDM" with "credits under the Clean Development Mechanism and Joint Implementation" and replace "voluntary or compliance markets for land-based carbon offsets" "with credits from voluntary, bilateral or domestic crediting mechanisms". Include these replacements also in columns 2 (energy), 3 (transport), 4 (buildings), 5 (industry), 7 (urban systems) and 9 (cross-sectoral). Reason: Crediting mechanisms include CDM and JI under the Kyoto Protocol as well as domestic, bilateral and voluntary standards. Although crediting mechanisms can serve compliance markets, this table focuses on sectors where credits can be generated. Credits can be generated in all sectors, although not all mechanisms cover all sectors. Crediting mechanisms do not create demand for credits (see Michaelowa et al. 2019). Michaelowa, Axel; Shishlov, Igor; Bofill, Patricio; Hoch, Stephan; Espelage, Aglaja (2019): Overview and comparison of existing carbon crediting schemes, NEFCO, Helsinki	Taken into account in revision of taxonomy text and Table.	Axel Michaelowa	University of Zurich	Switzerland
4199	41	1	41	2	The need for more policy evaluation was flagged in AR5 and yet since then the literature has not evolved much (relative to their work on policy and governance). Its Cinderella status (in both academia and amongst practitioners) deserves more critical reflection. The whole topic of policy evaluation is certainly deserving of its own dedicated (sub) section. i.e. before policy mixes and governance, s 13.6, are covered	Taken into account in various parts of section 13.5 where greater emphasis is placed on ex-post evaluation.	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
10983	41	1	41	17	I wonder why "a shift towards zero-emissions systems" should be a different category to "effectiveness". I find it redundant with "environmental effectiveness" in the long run.	Agreed.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
19913	41	1	41	17	This section contains too little evidence on evaluation in the climate as well as the environmental sector. It should at least reference Mickwitz, P. (2003). A framework for evaluating environmental policy instruments: context and key concepts. Evaluation, 9(4), 415-436 on evaluating environmental policies and Schoenefeld, J. J., & Jordan, A. J. (2019). Environmental policy evaluation in the EU: between learning, accountability, and political opportunities? Environmental Politics, 28(2), 365-384 on the different functions that evaluation may play in climate and environmental governance. In addition, there should be a recognition that evaluation systems themselves need to be governed, with different governance options (hierarchical - decentralized; governmental-nongovernmental) identified in the literature. For a specific discussion of the climate sector, see Schoenefeld, J., & Jordan, A. (2017). Governing policy evaluation? Towards a new typology. Evaluation, 23(3), 274-293.	Taken into account in revised text.	Jonas Schoenefeld	Institute of Political Science, Technical University of Darmstadt	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
19915	41	1	41	17	Chapter 13 as a whole does not account for the growing knowledge base on climate policy monitoring. A new section should be inserted that includes a thorough discussion of climate policy monitoring, starting with its aims, its indicators and its institutional design. There is a growing evidence base on these topics, see Aldy, J. E. (2014). The crucial role of policy surveillance in international climate policy. <i>Climatic Change</i> , 126(3-4), 279-292. Furthermore, the new section should discuss that monitoring systems, too, need to be implemented. The challenges that the European Union has faced - which has one of the most long-standing and elaborate climate policy monitoring systems - can serve as a source of lessons Schoenefeld, J. J., Hildén, M., & Jordan, A. J. (2018). The challenges of monitoring national climate policy: learning lessons from the EU. <i>Climate Policy</i> , 18(1), 118-128. Importantly, the most recent research has revealed that monitoring systems are subject to specific implementation challenges, and require ongoing financial (resource) and political support in order to function Schoenefeld, J. J., Schulze, K., Hildén, M., & Jordan, A. J. (2019). Policy Monitoring in the EU: The Impact of Institutions, Implementation, and Quality. <i>Politische Vierteljahresschrift</i> , 60(4), 719-741. Monitoring public policies is decidedly different from monitoring greenhouse gases. Policy monitoring systems have frequently been modelled on greenhouse gas monitoring systems. Doing so has generated significant challenges, which should be addressed by exploring options for better designing policy monitoring systems. It should be noted that policy monitoring may be conducted in hierarchical or decentralised ways, as well as by governmental and/or nongovernmental actors Schoenefeld, J., & Jordan, A. (2017). Governing policy evaluation? Towards a new typology. <i>Evaluation</i> , 23(3), 274-293.	Covered by the introduction in 13.6.2 and the evaluation criteria in the table.	Jonas Schoenefeld	Institute of Political Science, Technical University of Darmstadt	Germany
10985	41	9	41	9	I would call "co-benefits" side effects. The reason is that these effects can be either positive or negative. Maybe "local socioeconomic and environmental impacts" would be a more appropriate term (see del Río 2009, del Río 2014, del Río et al 2012). DEL RÍO, P. (2009). "Interactions between climate and energy policies: the case of Spain". <i>Climate Policy</i> 9(2), 119–138. DEL RÍO, P. (2014). On evaluating success in complex policy mixes: the case of renewable energy support schemes. <i>Policy Sciences</i> 47(3), 267-287 Del Río, P. et al (2012). Assessment criteria for identifying the main alternatives - Advantages and drawbacks, synergies and conflicts. D2.2 Report. A report compiled within the European IEE project beyond2020 (work package 2) - Intelligent Energy - Europe (IEE), ALTENER (Grant Agreement no. IEE/10/437/S12.589880). https://www.res-policy-beyond2020.eu/pdf/final/Assessment%20criteria%20for%20identifying%20the%20main%20alternatives%20(beyond2020%20-%20D2-2).pdf	Taken into account in revised text, but bounded by established report-wide conventions.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44691	41	9	41	9	Better say "net zero emissions systems". Probably even better to highlight (here, or later, when you explain it in more detail) that economy-wide net zero means that some sectors will have to go net negative since there will be others (like agriculture) with lots of residual emissions that have to be offset by others. But there are hardly any actors (governments, companies etc.) willing to commit to net-negative targets. Some countries do this in the form of "net zero by 20xx, net negative thereafter" (like Sweden and Finland), only one (Costa Rica) sets a specific net-negative level in its NDC (not as an economy-wide target, but as per-capita level, in the second half of the century). On the company-level, there's only one big net-negative announcement, by Microsoft. Of course you cannot write much on largely non-existing commitments or literature, but at least the latter is emerging (see, in a broader sense, highlighting the role of 'fair shares' https://www.nature.com/articles/nclimate3369 , or for an application on the EU level see https://www.tandfonline.com/doi/full/10.1080/14693062.2018.1536600). But even if you don't go into this, because you think it's too early, you shouldn't give the impression that net-zero in itself is 'transformative'. All the models show that at least the power sector (often the whole energy sector) has to go net negative to reach net zero	Taken into account in revision of taxonomy text and Table.	Oliver Geden	German Institute for International and Security Affairs	Germany
45111	41	10	41	11	The emphasis on the "coordination, coherence and consistency" of policy measures is very important as emphasized in the chapter and also holds for measures for urban systems as discussed in https://doi.org/10.3390/en12060985	Taken into account - but insufficient space to discuss the specific example.	Siir Kilkis	The Scientific and Technological Research Council of Turkey	Turkey
38187	41	1	52	3	The evaluation should include the instruments mentioned in comment #16 and # 17	Unclear - we cannot trace the comments by this numbering.	Yamina Saheb	OpenExp, Ecole des Mines de Paris	France
35077	41	2			There are more recent examples of evaluation for climate change policy evaluation. A systematic approach should be imprinted in the evaluation of policy. This view is not included in the definition of evaluation which is a more general and not climate specific. Also, it is relevant to say that the criteria included here is more linked to the impacts of public interventions, however, more detail is needed to evaluate whether policy or programs are being efficiently or effectively implemented. Therefore a more specific level of detail is needed here. The Mexican Coordination of Evaluation has recent examples (2017, 2018 and 2019) of that possibility and can very well inform this section towards a more instrumental approach to address evaluation.	Taken into account in revised text.	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
2667	42	1	42	1	Table 13.3: it is strange than among the 7 criterions, "feasibility" appears next to last. What is the point of evaluating a policy in terms of every other criterion if this policy is not found feasible?	Noted. The order of criteria is not a rank order.	Philippe Waldteufel	CNRS/IPSL/LATMO S	France
4601	42	1	42	2	Improvement of structures and methodology for M&V of policy measures across sectors (e.g. climate, renewable energy, energy efficiency) is necessary. A case in point is the monitoring and verification of measures in the EU renewable energy directive, the energy efficiency directive and the Energy Performance of Buildings Directive in the buildings sector.	Noted. No implication for text.	Leonardo Barreto	Austrian Energy Agency	Austria

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
12323	42	1	42	2	This is a useful table, please retain	Accepted.	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
15383	42	1	42	2	Improvement of structures and methodology for M&V of policy measures across sectors (e.g. climate, renewable energy, energy efficiency) is necessary. A case in point is the monitoring and verification of measures in the EU renewable energy directive, the energy efficiency directive and the Energy Performance of Buildings Directive in the buildings sector.	Taken into account in discussion of policy instruments. No implication for text in Table.	Simone D'Alessandro	University of Pisa	Italy
35235	42	1	42	2	Given the previous section of the chapter, it appears inconsistent to include political constraints under the broad category of "feasibility", which includes other technical aspects. The evidence from the chapter suggests political feasibility should be included as a separate category.	Taken into account in discussion of policy instruments. No implication for text in Table.	Llewelyn Hughes	Australian National University	Australia
44695	42	1	42	2	Transformative potential: mention not only net zero but also net negative (economy-wide for industrialized countries and also for some sectors like power/energy)	Accepted.	Oliver Geden	German Institute for International and Security Affairs	Germany
15457	42	3	42	3	in table 13.3 there are no indications of any impact on labor market, in particular on employment and wage that are crucial when dealing with distribution and socio-economic effect	Taken into account in text on policy instruments.	Simone D'Alessandro	University of Pisa	Italy
31635	42		42		The second criterion is given as "Economic effectiveness". I think that this is usually called "Economic Efficiency".	Accepted.	Lisa Ryan	University College Dublin	Ireland
42525	42		42		The criteria are quite limited and might be looked from a broader perspective. The "Table 13.3 Evaluation criteria for 1 policy instruments and packages" is not very attractively presented	Noted.	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand
5547	42				Final row, left column - 'For' should not be indented	Accepted.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
43005	43	47	31	43	To increase the acceptability of carbon taxation, Hourcade and Combet (Fiscalité carbone et finance climat, un contrat social pour notre temps, Les petits matins, 2017, 150 p.) also insist on the necessity to include carbon taxation into a 'new social contract' between government, trade unions, ngo, firms etc. that define the economic and social priority objectives and the modalities of the use of the tax revenu.	Taken into account in text on policy instruments.	christophe cassen	CNRS-CIRED	France
14415	43	4	43	4	Replace "form" with "from"	Accepted	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria
5753	43	17	43	18	In this section you could iclude some brief discussion on how misleading use of terminology can undermine policy initiatives. For example in the Australian context the Australian Emissions Trading scheme (a cap and trade scheme with an initial fixed price) was characterise by opponents as a "Carbon Tax". It was not a carbon tax but this mislabelling was a powerful tool in the politcial debate against the emissions trading scheme. It was easier for opponents to argue for the repeal of a tax than an emissions trading scheme. This suggest precision is required as to how a tax is defined.	Taken into account in text in other parts of the chapter.	David Leary	University of Technology Sydney	Australia

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
14417	43	18	43	18	Replace "Several northern European countries have relatively high carbon taxes." With "Up to now, only five European countries – Finland, Liechtenstein, Norway, Sweden and Switzerland – have implemented carbon taxes above 50 USD." (Source: World Bank Carbon Pricing Dashboard, February 2020)	Taken into account in revised text.	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria
10987	43	19	43	20	Regarding the carbon tax in Sweden, please clarify whether it is a tax on specific sectors or for the whole economy.	Accepted	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
1595	43	20	43	21	The reference to illustrate the effectiveness of the Swedish CO2-tax is rather dated and unnecessary. A more recent reference follows immediately, and I would suggest to also include the very recent and important contribution from Julius J Andersson on "carbon taxes and CO2 emissions: Sweden as a case study" in American Economic Journal: Economic Policy, 2019, 11(4), 1-30.	Accepted	Steffen Kallbekken	CICERO	Norway
45729	43	20	43	21	There is evidence that the tax promoted a shift towards biomass fuelled district energy in the country (Johansson 2000). >It should be noted that Sweden was blessed with abundant biomass fuel, a by-product of Swedish wood industry (World's 3rd largest exporter of pulp, paper and sawn timber; information found at Swedish Forest Industries https://www.forestindustries.se/forest-industry/facts-and-figures/) and had a significant advantage in areas where fuel conversion was possible at a minimum additional cost. In addition, before 1990, hydro and nuclear already accounted for more than 90% of the power mix. As above, it is noted that success of implementation of the highest carbon tax rate is partly due to its unique energy and socio-economic situation.	Accepted	Junko Ogawa	The Institute of Energy Economics, Japan	Japan
18781	43	20	43	27	You should cite Andersson, Julius J. 2019. "Carbon Taxes and CO2 Emissions: Sweden as a Case Study." American Economic Journal: Economic Policy, 11 (4): 1-30. which shows that the Swedish carbon tax had a sizeable effect on the whole economy and that the elasticity is higher when fuel prices rise because of a tax than just normal rises due to the market. The existence of this new paper and some others he cites reduces the validity of the statement "Scant empirical evidence exists on the emissions impacts of these Scandinavian carbon taxes (Stavins 2019)"	Accepted	thomas Sterner	Univ of Gothenburg	Sweden
18779	43	23	43	24	Natural gas has the same carbon tax as all fossil fuels - it is not taxed at half the rate	Accepted	thomas Sterner	Univ of Gothenburg	Sweden
10277	43	24	43	25	It would be interesting to see a discussion of how exemptions such as the one in Denmark or the output based allocations system in Canada impact the GHG reductions, and how the policy should be stipulated to reduce the maximum emissions, but at the same time have minimal impact on competitiveness of the sectors. This is leading to a complex question of whether it is the marginal or the average carbon price that is driving the majority of reductions.	Accepted	Aglaia Obrekht	Environment and Climate Change Canada	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
25955	43	26	43	27	p.13-43 Lines 26-27: saying that there is scant empirical evidence seems a bit at odds with the existing (and apparently quite clear-cut) evidence mentioned in the lines above for Sweden (on gasoline, coal and LPG emissions). Interesting evidence emerges also in other studies not mentioned here (e.g. Bohlin, F. (1998). The Swedish carbon dioxide tax: effects on biofuel use and carbon dioxide emissions. Biomass and bioenergy, 15(4-5), 283-291; Hammar, H., Åkerfeldt, S., 2011. CO2 Taxation in Sweden - 20 Years of Experience and Looking Ahead. The Swedish Ministry of Finance; Lin and Li, The effect of carbon tax on per capita CO2 emissions, 2011, Energy Policy 39(9):5137-5146)	Taken into account in revised text.	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
10989	43	28	43	38	For me, it is somehow striking that neither the "ecological tax reform" nor the "double dividend" are mentioned in this paragraph or in section 13.5.3.1	Taken into account in revised text.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
9639	43	36	43	38	The statement that distributional effects of carbon prices can be addressed with revenue recycling mechanisms, can also be backed-up by the following references: Klenert, D., Schwerhoff, G., Edenhofer, O., & Mattauch, L. (2016). Environmental Taxation, Inequality and Engel's Law: The Double Dividend of Redistribution. Environmental and Resource Economics, doi: 10.1007/s10640-016-0070-y.; Klenert, D., & Mattauch, L. (2016). How to make a carbon tax reform progressive: The role of subsistence consumption. Economics Letters, 138, 100-103.; Cronin, J. A., Fullerton, D., & Sexton, S. (2019). Vertical and horizontal redistributions from a carbon tax and rebate. Journal of the Association of Environmental and Resource Economists, 6(S1), 169-208.;Chiroleu-Assouline, M. and Fodha, M. (2014). From regressive pollution taxes to progressive environmental tax reforms. European Economic Review, 69, 126-142.; Jacobs, B., & van der Ploeg, F. (2019). Redistribution and pollution taxes with non-linear Engel curves. Journal of Environmental Economics and Management, 95, 198-226.	Taken into account in revised text.	Jasper Meya	German Centre for Integrative Biodiversity Research	Germany
44363	43	36	43	38	The carbon tax distributional effects are also discussed in Ch 9, including the reduction of labour taxation	Noted. Consolidation required.	BERTOLDI PAOLO	European Commission	Italy
1597	43	39	43	44	There is a substantial body of research on the acceptability of climate policy instruments, and while it is obviously not possible to refer to the full breadth of this literature, I believe the paragraph can be written to give a more comprehensive overview of this literature. The already cited review by Drews and van den Bergh (2016) could, for instance, serve as inspiration for how to structure such a brief review. I think it would be useful to mention some of the factors on which the level of acceptability rests, including the tax rate, distributional impact, trust in government, perceived effectiveness, etc. Potential additional references include the more recent review by Maestre-Andres, Drews and van den Bergh (2019, Perceived fairness and public acceptability of carbon pricing, Climate Policy 19(9), 1186-1204), Carattini, Kallbekken and Orlov (already in the reference list), Kallbekken and Sælen (2011, Public acceptance for environmental taxes: Self-interest, environmental and distributional concerns, Energy Policy 39(5), 2966-2973), and Harring and Jagers (2013, Should we trust in values? Explaining public support for pro-environmental taxes, Sustainability 5(1), 210-227.	Accepted	Steffen Kallbekken	CICERO	Norway

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
15459	43	42	43	42	from "(Cringui et al. 2019) suggested" to "Cringui et al. (2019) suggested"	Accepted	Simone D'Alessandro	University of Pisa	Italy
24305	43	1	44	38	The section of economic or market-based instruments does not engage much with the North American literature on carbon pricing, especially the examples of WCI, BC carbon tax, and RGGI their effectiveness and challenges. One broad conclusion of that literature that I was expecting to be reflected here is that the resilience or durability of these instruments is dependent on their design, especially the approach use for revenue recycling, with most resilient instruments providing direct benefits to members of the publics (tax rebate, energy efficiency subsidies, etc.) approach that have been lacking for contested carbon pricing measures, on this see Raymond, Leigh. "Policy perspective: Building political support for carbon pricing—Lessons from cap-and-trade policies." Energy Policy 134 (2019): 110986; Raymond, Leigh. Reclaiming the Atmospheric Commons: The regional greenhouse gas initiative and a new model of emissions trading. MIT Press, 2016; Rabe, Barry G. Can we price carbon?. MIT Press, 2018.	Accepted	David Houle	Environment and Climate Change Canada	Canada
34669	43	6	44	2	This section describes carbon taxes. It is mentioned that for sectoral carbon taxes, the lack of differentiation in carbon intensity can lead to disincentivise low emission energy alternatives. I would add that this is not the only case where low emission energy alternatives can be negatively affected. In the case of Chile, the carbon tax was design in order not to have a relevant impact on electricity cost that final customers have to bear. Then, I think it is important to mention that carbon taxes have that problem: even though they are "green" people do not like taxes that increase electricity prices. Particularly in less developed countries. More detail can be found here: Diaz, Muñoz and Moreno 2018 (http://seminarioimpuestosverdes.isci.cl/archivos/EquilibriumAnalysisofaTaxonCarbonEmissionswithPass-throughRestrictionsandSide-paymentRulesV1.pdf)	Accepted	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
31637	43	6	44		The discussion of taxes focuses only on carbon taxes. While this is valuable, it leaves out other important taxes that are important in mitigation policy. The most important are energy/fuel taxes that are applied eveywhere and carbon-based technology taxes. This latter includes carbon-based vehicle taxes and other equipment. There is a significant literature on this - see Dineen et al. (2018) 'Vehicle tax policies and new passenger car CO2 performance in EU member states', Climate Policy, 18(4), pp. 396-412 or Gerlagh et al. 'Fiscal Policy and CO2 Emissions of New Passenger Cars in the EU', Environ Resource Econ, 69, pp. 103–134. https://doi.org/10.1007/s10640-016-0067-6 for a review of Europe or Ryan, L., et al. (2019), 'An assessment of the social costs and benefits of vehicle tax reform in Ireland', OECD Environment Working Papers, No. 153, OECD Publishing, Paris, https://doi.org/10.1787/952e7bff-en and D'Haultfoeuille et al. (2014) 'The Environmental Effect of Green Taxation: The Case of the French Bonus/Malus',)The Economic Journal, 124(578) DOI: 10.1111/eoj.12089 for case studies of Ireland and France, respectively.	Taken into account in revised text.	Lisa Ryan	University College Dublin	Ireland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
1599	43	44	44	2	There is a large literature on carbon leakage and measures to mitigate carbon leakage, and while this is also covered in 13.7.2, if it is to be included here as well, the description should be more comprehensive. An important recent contribution that could be referred to is Böhringer, Rosendahl and Storrøsten, 2017, Robust policies to mitigate carbon leakage, Journal of Public Economics 149, 35-46.	Accepted	Steffen Kallbekken	CICERO	Norway
28929	43	1	47	33	Economic instrument is very important tool. However, most of this part only talk about the economic instrument in developed countries. Do you have any case about developing countries? Or at least make a bit explanation about why the instrument can be different between developing and developed countries	Accepted	Marissa Malahayati	National Institute for Environmental Studies	Japan
5003	43	6	47	33	I believe that the policies that impose punitive measures to those who increase carbon emissions are indispensable. In return, it is important to implement policies that favor compensation systems for those who adopt environmental protection practices.	Noted. No direct implication for text.	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
25905	43	1	49	14	Sections 13.5.3 and 13.5.4: I had interrogation about the distinction between "market and economic instruments" on the one hand, and "regulatory instruments" on the other hand, esp. regarding the classification of tradable performance standards as regulatory instrument, and the discussion of carbon pricing within the section on regulatory instruments (p. 48 lines 28-38). I am mostly familiar with renewable energy policy instruments, but my understanding from the literature and from the evolution of policies about those was that the distinction between "regulatory" and "market" was a shifting one, and the some instruments (such as feed-in tariffs or, it would seem, tradable performance standard) tend to move across categories depending on who is writing or on the policy trend (cf. for ex. Cointe, B. and Nadaï, A., 2018, Feed-in tariffs in the European Union: Renewable energy policy, the internal electricity market and economic expertise, Palgrave; and Lauber, Volkmar, and Elisa Schenner. 2011. The struggle over support schemes for renewable electricity in the European Union: A discursive-institutionalist analysis. Environmental Politics 19: 127–141. https://doi.org/10.1080/09644016.2011.589578 , for discussions of this issue at the EU level). So I wonder if the distinction is relevant in this assessment. If it is kept, maybe it would be worth noting that the categories have been shown, in some cases (esp. the EU), to relate to policy-perception and political orientations, for instance because 'market based' instruments appeared more politically acceptable for some actors (as was the case with the EU Commission).	Taken into account in revised text.	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
13899	43	4			Typo: ...to switch fRom" rather than FoRm	Accepted	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
13901	43	42			again a good reference here would be Meckling, J., Sterner, T. & Wagner, G. Policy sequencing toward decarbonization. Nat Energy 2, 918–922 (2017).	Rejected. We do not consider that the specific reference fits in the context.	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
10991	44	7	44	8	mention the number of countries that are covered by an ETS	Accepted	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
44697	44	13	44	14	looking at the Boyce article I only found that he indeed states that (but doesn't show it in the following analysis, really). It is most probably true that prices are too low, but from a methodological standpoint, I find the construct of a price range that is "required" or "consistent" with the Paris Agreement LTTG questionable, because this rests on so many assumptions, including on regulatory measures or the development of marginal abatement costs	Accepted	Oliver Geden	German Institute for International and Security Affairs	Germany
31639	44	18	44	18	Frank J. Convery, Luke Redmond, Market and Price Developments in the European Union Emissions Trading Scheme, Review of Environmental Economics and Policy, Volume 1, Issue 1, Winter 2007, Pages 88–111, https://doi.org/10.1093/reep/rem010	Rejected. We do not consider that the specific reference is suitable, in the context of a focus on new findings in the literature.	Lisa Ryan	University College Dublin	Ireland
31641	44	18	44	18	ELLERMAN, A. Denny, , CONVERY, Frank J., , DE PERTHUIS, Christian, Pricing Carbon: The European Union Emissions Trading Scheme, Cambridge, Cambridge University Press, 2010	Rejected. We do not consider that the specific reference is suitable, in the context of a focus on new findings in the literature.	Lisa Ryan	University College Dublin	Ireland
31643	44	18	44	18	I suggest adding in some text that "The EU ETS is the longest running emissions trading scheme for CO2 emissions; in place since 2005 and there has been significant analysis of the design and impact of the scheme'. The two cells above provide useful references for analysis of the scheme.	Rejected. We cannot accommodate additional text that provides only description.	Lisa Ryan	University College Dublin	Ireland
10993	44	18	44	19	How can you have a quantity-based instrument such as an ETS without an emission cap...	Rejected. Text is correct.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
10995	44	21	44	21	This has been shown to lead to some synergies, complementarities and conflicts, as empirically shown by del Río (2009 and 2014). See del Río (2017) for a detailed discussion of those interactions. DEL RIO, P. 2017. Why does the combination of the European Union Emissions Trading Scheme and a renewable energy target makes economic sense? Renewable and Sustainable Energy Reviews, 74, 824-834	Accepted	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
28617	44	21	44	23	There is also positive evidence of the effects of GHG limiting innovation on firms under the EU ETS. Calel, R., & Dechezlepretre, A. (2016). Environmental policy and directed technological change: evidence from the European carbon market. Review of economics and statistics, 98(1), 173-191. Aghion, P., Dechezleprêtre, A., Hemous, D., Martin, R., & Van Reenen, J. (2016).	Accepted	CHRISTOPHER BATAILLE	IDDRI.ORG/SIMON FRASER UNVIERSITY	Canada
44365	44	26	44	31	Lesson learned from the EU are: auctioning of allowances; long term reduction target; impact of energy efficiency and renewable policies, intervention to maintain a floor prices.	Taken into account in revised text.	BERTOLDI PAOLO	European Commission	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
5847	44	32	44	38	suggest cited the paper Yu X, Lo A Y. Carbon finance and the carbon market in China[J]. Nature Climate Change, 2015, 5(1): 15-16, which discusses the finance-friendly policies are needed to help the world's largest greenhouse-gas emitter to harness market forces for climate change mitigation.	Taken into account in revised text, but more recent references are used.	Xiang Yu	Institute for Urban and Environmental Studies, Chinese Academy of Social Sciences	China
5853	44	32	44	38	I suggest cited the paper Yu X, Lo A Y. Carbon finance and the carbon market in China[J]. Nature Climate Change, 2015, 5(1): 15-16, which discusses the finance-friendly policies are needed to help the world's largest greenhouse-gas emitter to harness market forces for climate change mitigation.	Taken into account in revised text, but more recent references are used.	Xiang Yu	Institute for Urban and Environmental Studies, Chinese Academy of Social Sciences	China
18789	44	3	45	10	You should discuss more problems of permit trading schemes. Particularly when it comes to banking, modifications of the ETS as happened recently in Europe to withdraw excess permits and particularly the relationship between these problems and the difficulty of linking different permit schemes without having a top-down agreement on burden sharing between nations. see for example Green, J. et al. (2014). "A balance of 'bottom-up' and 'top-down' in linking climate policies", Nature Climate Change Vol 4, pp 1064-1067 DOI: 10.1038/NCLIMATE2429	Reject. The particular reference is specific to a pre-Paris Agreement question.	thomas Sterner	Univ of Gothenburg	Sweden
25903	44	6			World Bank 2019 is previously cited as Ramstein et al 2019 (p. 43 line 18)	Accepted	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
25291	45	5	45	10	Delete "With harmonized supply constraints, ... (Asheim et al. 2019)." as there is no reference to the objective of market stability.	Taken into account in revised text.	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
39923	45	14	45	15	Replace "Offset systems" with "Crediting mechanisms" and "offset schemes" with "crediting mechanisms". Reason: Crediting mechanism is a more accurate term since all these systems generate credits, and offsetting is one but not the only use of credits (see Michaelowa et al. (2019). Michaelowa, Axel; Shishlov, Igor; Bofill, Patricio; Hoch, Stephan; Espelage, Aglaja (2019): Overview and comparison of existing carbon crediting schemes, NEFCO, Helsinki	Have used the term offset credits.	Axel Michaelowa	University of Zurich	Switzerland
43469	45	14	45	15	Suggest to use the commonly used term "crediting mechanism" instead of the inaccurate "offset systems"; offsetting is just one of many uses of credits see: Michaelowa, Axel; Shishlov, Igor; Bofill, Patricio; Hoch, Stephan; Espelage, Aglaja (2019): Overview and comparison of existing carbon crediting schemes, NEFCO, Helsinki	Have used the term offset credits.	Matthias Honegger	Perspectives Climate Research GmbH	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
25957	45	14	45	40	it would be worthwhile referring here to the (mainly negative) experience of the EU ETS with the offset mechanisms in the past (when the market was flooded by emission credits which resulted in a remarkable price fall) and to the existing debate within the EU on how to proceed with such mechanisms in the future. In my view, this aspect is crucial also for the cooperation perspectives across different ETS jurisdictions in the years to come.	Taken into account in revised text.	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
36561	45	14	45	40	International aviation sector uses offset credits for offsetting excess emission from their target emission. This is CORSIA which is implementing by ICAO, separately and independently from Paris Agreement. That would be added.	Taken into account in revised text.	Takashi Hongo	Mitsui & Co. Global Strategic Studies Institute	Japan
44699	45	14	45	40	I think you should add a paragraph on the emerging post-Kyoto wave in the offsetting debate. Even if Art 6 PA negotiation aren't finished many of the recent 'climate neutrality' announcements are based on the assumption that companies and even governments will tap the international market for carbon offsets	Rejected. At this point this would be speculative.	Oliver Geden	German Institute for International and Security Affairs	Germany
39925	45	16	45	16	Replace "on a project-by-project basis" with "on a project or programme level". Reason: For example CDM and JI have both project-level and programmatic crediting.	Accepted	Axel Michaelowa	University of Zurich	Switzerland
43471	45	16	45	16	Rephrase: CDM and JI also have programmatic crediting of activities (not just project).	Accepted	Matthias Honegger	Perspectives Climate Research gGmbH	Germany
39927	45	16	45	18	Replace "The credits from... as a voluntary measure." with "Credits may be used by governments to comply with emission reduction commitments or by companies to comply with their obligations under emissions trading schemes or taxes. Credits may be also used by public and private actors to voluntarily offset emissions or to deliver results-based payments (see Michaelowa et al. 2019)." Reason: Credits may arise from emission reductions or carbon removals. Governments can use credits for international or national commitments. Companies can use credits to cover their ETS obligations or reduce their tax liability. Voluntary offsetting can be done by any public or private actor, including governments, companies and individuals. Michaelowa, Axel; Shishlov, Igor; Bofill, Patricio; Hoch, Stephan; Espelage, Aglaja (2019): Overview and comparison of existing carbon crediting schemes, NEFCO, Helsinki	This section focuses on voluntary and compliance use of offset credits with compliance use limited to domestic reductions. Credits generated by foreign reductions are discussed in section 13.7	Axel Michaelowa	University of Zurich	Switzerland
39929	45	19	45	19	Replace "offset scheme" with "crediting mechanism".	Have used the term offset credits.	Axel Michaelowa	University of Zurich	Switzerland
43473	45	19	45	19	Replace "offset scheme" with "crediting mechanism".	Have used the term offset credits.	Matthias Honegger	Perspectives Climate Research gGmbH	Germany
34887	45	19	45	23	What happen in Latin America or Small economies?	Taken into account in revised text.	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
25703	45	19	45	40	Please check linkage with Chapter 14, specifically 14.5.1 on international emission trading mechanisms	Noted	Renee van Diemen	WG III TSU	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
39931	45	20	45	21	Replace "offsets" with "credits". Replace "produced" with "issued". Add after "3,260 projects" "and 70 programmes". Add after "5,000 further projects" "and 190 programmes". Reason: CDM covers projects and programmes.	Rejected. In our judgment this level of detail is not necessary.	Axel Michaelowa	University of Zurich	Switzerland
43475	45	20	45	21	CDM covers not only projects but also programmes; replace "offsets" with "credits" (see explanation above). Replace "produced" with "issued". Add numbers of programmatic activities ("70 programmes" and "190 programmes").	Rejected. In our judgment this level of detail is not necessary.	Matthias Honegger	Perspectives Climate Research GmbH	Germany
39933	45	24	45	24	Replace "Offset schemes... national instruments." with "Crediting mechanisms can also serve as domestic policy instruments (see Michaelowa et al. 2019)." Michaelowa, Axel; Shishlov, Igor; Bofill, Patricio; Hoch, Stephan; Espelage, Aglaja (2019): Overview and comparison of existing carbon crediting schemes, NEFCO, Helsinki	Text has been revised. This section focuses on voluntary and compliance use of offset credits with compliance use limited to domestic reductions. Credits generated by foreign reductions are discussed in section 13.7	Axel Michaelowa	University of Zurich	Switzerland
43477	45	24	45	24	Replace "Offset schemes... national instruments." with "Crediting mechanisms" (see above)	Text has been revised. This section focuses on voluntary and compliance use of offset credits with compliance use limited to domestic reductions. Credits generated by foreign reductions are discussed in section 13.7	Matthias Honegger	Perspectives Climate Research GmbH	Germany
39935	45	26	45	27	Replace "but as a domestic offset mechanism" with "but as a domestic crediting mechanism for its emissions trading systems."	Text has been revised. This section focuses on voluntary and compliance use of offset credits with compliance use limited to domestic reductions. Credits generated by foreign reductions are discussed in section 13.7	Axel Michaelowa	University of Zurich	Switzerland
43479	45	26	45	27	Replace "but as a domestic offset mechanism" with "but as a domestic crediting mechanism" (see above)	Text has been revised. This section focuses on voluntary and compliance use of offset credits with compliance use limited to domestic reductions. Credits generated by foreign reductions are discussed in section 13.7	Matthias Honegger	Perspectives Climate Research GmbH	Germany
39937	45	32	45	33	Replace "baselines need to... price is low." with "baselines need to be set in a conservative manner." Reason: Conservativeness is a key principle for managing uncertainty. Price level is not relevant for baseline-setting or environmental integrity.	Accepted	Axel Michaelowa	University of Zurich	Switzerland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
39939	45	34	45	35	Replace "Available evidence...claimed" with "Researchers disagree to what degree offset projects have happened anyway and thus are not additional. While Cames et al. (2016) argue that the majority of the CDM projects was not additional, German Ministry of Environment (no date) argues that the assumptions used by Cames et al. (2016) were flawed, particularly with regard to the argument that the revenue from credit sales needs to exceed a certain threshold. Michaelowa (2009) finds that CDM additionality rules have been strengthened considerably over time." Reason: Cames et al. (2016) was never peer reviewed and thus is highly contested. Thus, after publication of Cames et al. (2016) the German Ministry of Environment commissioned various experts to do a peer review, and published it as German Ministry of Environment (no date). German Ministry of Environment (no date): BMUB –Expert pool: Questions and Answers to the CDM additionality studyhttps://www.carbon-mechanisms.de/fileadmin/media/dokumente/sonstige_downloads/Opinions_Expert_Pool.pdf; Michaelowa, Axel (2009): Interpreting the additionality of CDM projects: Changes in additionality definitions and regulatory practices over time, in: Freestone, David; Streck, Charlotte (eds.): Legal aspects of carbon trading, Oxford University Press, Oxford, p. 248-271	Taken into account in revised text.	Axel Michaelowa	University of Zurich	Switzerland
40409	45	37	45	39	It says: "Ex-post 38 analysis further suggests that the CDM has affected international technology transfer in many instances...". This is not universally supported in the literature. For an alternative view and conceptualization of technology transfer under CDM refer: <ul style="list-style-type: none"> • Das, Kasturi, 'Technology Transfer under the Clean Development Mechanism: An Empirical Study of 1000 CDM Projects', Working Paper # 14, The Governance of Clean Development Working Paper Series, University of East Anglia and Economic and Social Research Council (ESRC), UK, 2011.Available at: http://re.indiaenvironmentportal.org.in/files/file/gcd_workingpaper014.pdf • Phillips, Jon, Kasturi Das, Peter Newell, "Governance and Technology Transfer in the Clean Development Mechanism in India", Global Environmental Change, Elsevier, 23, 1594–1604, 2013. 	Taken into account in revised text.	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
34889	45	37	45	40	The CDM affects environmental context in developing countries due to weak intutions	Noted.	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
39941	45	39	45	40	Replace "but that its contribution ... small" by ". The CDM's contribution to sustainable development has been contested, with studies on small samples of activities finding a limited contribution, while highly aggregated studies generating a more positive result (see literature review in Michaelowa et al. 2019): 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.613	Accepted	Axel Michaelowa	University of Zurich	Switzerland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
43481	45	39	45	40	This is contestable and not sufficiently referenced for such a claim; need to consider findings in the reviewed literature in Michaelowa et al. 2019): 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.613	Taken into account in revised text.	Matthias Honegger	Perspectives Climate Research gGmbH	Germany
31645	45	42	45	43	Should insert mention of external costs here. For example "Subsidies for mitigation encourage individuals and firms to invest in low-emissions assets or innovation; they compensate for the market failure arising when the external costs associated with the combustion of fossil fuels are not included in the price of the good or service"	Taken into account in revised text.	Lisa Ryan	University College Dublin	Ireland
44367	45	41	46	15	These financial mechanisms are discussed in more details in Ch 9, perhaps a cross reference could be added.	Noted. Ch13 should be the main place to discuss subsidies.	BERTOLDI PAOLO	European Commission	Italy
46939	45	6			Even for jurisdictions/coalitions that are too small to reap terms-of-trade gains, fossil-fuel producers can gain from replacing some of their domestic emission abatement (demand-side policies) with supply side policies. A combination would usually be the optimal choice for contributing to mitigate global warming (global emissions); Hoel (1994) shows this theoretically, while Fæhn et al. (2017) studied the case of a small, climate-ambitious country, Norway. Another option that could also be considered by net importing nations, is to "buy coal", i.e. pay for reserves not being exploited (Harstad, 2012) (New reference: Fæhn, T, C. Hagem, L. Lindholt, S. Mæland, and K.-E. Rosendahl (2017): Climate policies in a fossil fuel producing country, Demand versus supply side policies, Energy Journal , 38 (1), 77-102, http://dx.doi.org/10.5547/01956574.38.1.tfae).SEE ALSO MY COMMENTS 2 AND 11.	Taken into account in revised text, noting we needed to shorten the text on supply side policies.	Taran Fæhn	reserach institute	Norway
17145	45	14			Joint Crediting Mechanism (JCM) is an important international offset mechanism run by Japanese government. JCM should be cited here because it is having a big impact in ASEAN countries or others. See (13) M Sugino, M Morita, K Iwata, TH Arimura, Multiplier impacts and emission reduction effects of Joint Crediting Mechanism: analysis with a Japanese and international disaggregated input-output table, Environmental Economics and Policy Studies 19 (3), 635-657, 2017.	Accepted.	Arimura Toshi	Waseda University	Japan
5829	46	1	46	15	any concerns of subsidies in WTO rules?	Noted. A treatment of these questions would go beyond the scope of this chapter.	Taedong Lee	Yonsei University	Republic of Korea
10997	46	7	46	8	This is not correct. Compared to production subsidies, investment subsidies do not encourage the well-functioning of installations.	Taken into account in revised text, though the comment lacks specificity.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
5755	46	9	46	10	Clarification is needed here. Feed in tariffs are not always used for solar systems. In the Australian context for example tradeable certificates could be created under the renewable energy target scheme creating a financial incentive for households. For a detailed examination of this scheme see Leary D 'The Australian Renewable Energy Target scheme: a case study of the impact of uncertainty on a market-based mechanism' in Stoianoff, N Kreiser, L, Butcher, B, Milne, J & Ashiabor, H (eds), Green Fiscal Reform for a Sustainable Future Reform, Innovation and Renewable Energy, Edward Elgar Publishing, United Kingdom, pp. 187-203	Accepted	David Leary	University of Technology Sydney	Australia
31647	46	9	46	11	There should also be mention of grants for energy efficiency. I suggest adding to the end of the first sentence "and grants for energy efficient equipment and house renovation".	Accepted	Lisa Ryan	University College Dublin	Ireland
10999	46	13	46	13	subsidies at higher levels...Well, this can be mitigated when auctions instead of administratively-set feed-in tariffs are organised. A problem with generous FITs is that they do not encourage allocative efficiency over the territory (Peñasco et al 2019). PEÑASCO, C., ROMERO-JORDÁN, D., DEL RÍO, P. 2019. The Impact of Policy on the Efficiency of Solar Energy Plants in Spain: A Production-Frontier Analysis. Economics of Energy & Environmental Policy, Volume 8, Number 2	Taken into account in revised text and in a different section.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
11001	46	17	46	23	I find it strange (and incorrect) that you do not mention the diffusion externality in the box. See del Río 2017 for details on this. DEL RÍO, P. 2017. Why does the combination of the European Union Emissions Trading Scheme and a renewable energy target makes economic sense? Renewable and Sustainable Energy Reviews, 74, 824-834	Taken into account in revised text, citation used.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
25705	46	17	46	23	Please check linkages with Chapter 16, specifically 16.5.5 which addresses policies that stimulate innovation	noted	Renee van Diemen	WG III TSU	United Kingdom (of Great Britain and Northern Ireland)
28619	46	33	46	38	Just for contrast and interest, Chapter 6 contrasts the IEA methodology for fossil fuel subsidies (at ~\$300 billion/yr in 2017) against the OECD's "externalities inclusive" methodology (at ~\$5.2 trillion/yr in 2019) page 27 of the FOD.	Taken into account in revised text.	CHRISTOPHER BATAILLE	IDDR.ORG/SIMON FRASER UNIVERSITY	Canada
32225	46	41	46	46	A few words could be included that these estimates may be even higher due to the lock-in effects of fossil fuel subsidies, particularly producer subsidies. See Erickson, Peter, Harro van Asselt, Doug Koplou, Michael Lazarus, Peter Newell, Naomi Oreskes & Geoffrey Suppran (2020). Why Fossil Fuel Producer Subsidies Matter. Nature 578, E1–E4.	Accepted	Harro van Asselt	University of Eastern Finland	Netherlands
1111	46	24	47	12	This section on fossil fuel subsidies should mention the G20 commitment of 2009 to phase out inefficient fossil fuel subsidies and the failure to significantly reduce those subsidies over 10 years.	Accepted	Erik Haites	Margaree Consultants Inc.	Canada
31879	47	1	47	4	It is a bit controversial to claim that fossil fuel subsidies are necessarily regressive. In many cases, in poorer nations, they are necessary to provide access to modern energy forms to poor households. Perhaps, one could say that the subsidies, where necessary to enable the poor to access modern energy, could be targeted better which is not often the case. But a blanket statement about regressive fossil fuel subsidies will be controversial.	Accepted	Ashok Sreenivas	Prayas (Energy Group)	India

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
32227	47	1	47	12	It would be good to add that climate change mitigation has not been one of the main drivers of fossil fuel subsidy reform at the national level. See 25.Skovgaard, Jakob & Harro van Asselt (2019). The Politics of Fossil Fuel Subsidies and Their Reform: Implications for Climate Change Mitigation. WIREs Climate Change 10(4), e581. https://doi.org/10.1002/wcc.581 . More generally, see Skovgaard, Jakob & Harro van Asselt (Eds.) (2018). The Politics of Fossil Fuel Subsidies and Their Reform. Cambridge, UK: Cambridge University Press. https://www.cambridge.org/core/books/politics-of-fossil-fuel-subsidies-and-their-reform/B8CB7D383F3AD9AF9CC82EB50A74DE5 (NB: all chapters of this book have been peer reviewed).	Noted, we will consider whether the point is supported adequately in the literature	Harro van Asselt	University of Eastern Finland	Netherlands
25293	47	8	47	10	Delete "Opposition for reform ... (Foucet 2016)." as the analysis does not consider inefficient subsidies.	Text has been revised. Foucet is only one of several papers cited.	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
39753	47	13	47	17	An explainer of how BCA are defined would be helpful in this section. The section starts with "import taxes" which is only one of a number of potential BCA. Terminology and concepts include: tariffs, taxes, charges, fees, duties, rebates. The design details matter for legality under trade law.	Taken into account in revised text.	Susanne Droege	German Institute for International and Security Affairs	Germany
1113	47	13	47	33	Is there a single instance where a border tax (not just carbon tax) adjustment has been implemented? If there are examples they should be documented. Otherwise the border carbon adjustment is just a hypothetical policy that could substitute for free allowance allocation (or partial carbon tax exemption) policies that are widely used and are effective (no evidence of adverse competitiveness impacts).	Noted. This is a policy relevant issue that should be at least mentioned	Erik Haites	Margaree Consultants Inc.	Canada
40411	47	14	47	15	It says: "Import taxes on carbon-intensive goods could be used by countries with domestic mitigation policies to encourage or force other countries to likewise regulate their own industries." First, BCAs need not necessarily be import taxes, and can take other forms. Refer Mehling et al (2019), p.442 as mentioned earlier in my comments. Second, BCAs are often imposed for countering "carbon leakage" by creating a level playing field. It may not be appropriate to say "force" other countries, though BCAs could also be used for such political leveraging. Third, it is not correct to say "countries with domestic mitigation policies". The issue is about unequally stringent domestic climate policies between imposing country and target country. The target country could also have domestic climate policies which are less stringent. Fourth, BCAs may be imposed sub-nationally also, e.g. California. Refer Mehling et al. (2019), pp. 455-456.	Taken into account in revised text.	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
39751	47	14	47	16	first mentioning of BCA - do introduce abbreviation	Accepted	Susanne Droege	German Institute for International and Security Affairs	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
15461	47	17	47	17	regulation of international trade should not be merely treated as protectionism and it is not necessarily negative for the domestic economy. Please provide more justification for this sentence	Taken into account in revised text - mention deleted.	Simone D'Alessandro	University of Pisa	Italy
39755	47	18	47	19	Traditionally, BCA have been discussed to address carbon leakage. This took place in the context of competitiveness effects from carbon constraints (pricing, regulation).	Taken into account in revised text.	Susanne Droege	German Institute for International and Security Affairs	Germany
39757	47	20	47	21	Pls consider to change terminology ("penalty") - a BCA is discussed to apply incentives for emission reductions across countries, (levelling of prices/costs) . "Import charges and export rebates would even out the carbon constraints across countries."	Accepted	Susanne Droege	German Institute for International and Security Affairs	Germany
40413	47	21	47	22	It says: "BCAs are an alternative to output-based free allocation of emissions allowances under permit trading". Note that BCAs may be imposed side by side free allocation and not necessarily as an alternative. Refer past proposals as reviewed by Mehling, et al. (2019), pp. 449-450.	Accepted	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
39759	47	24	47	24	this is not fully correct. Cosbey et al. Examine several design, one of them is a carbon "tax" at the domestic level that would build the base for a carbon tax at the border. Thus, this sentence has to start with "If a BCA on imports is applied based on a domestic carbon tax, the size of the carbon tax ..."	Accepted	Susanne Droege	German Institute for International and Security Affairs	Germany
40415	47	26	47	27	It says: "The latter is difficult to estimate, and the setting of product benchmarks would 27 in either case be subject to many different economic interests". Note what has been argued by Mehling et al (2019), p.476: "But direct emissions measurement is not always practicable, and may face legal challenges. Therefore, measures such as a BCA will generally be based on standardized benchmarks serving as a proxy for the carbon intensity of products, with the benchmark values reflecting average performance, best available technology, or worst available technology in a sector, either at a national, regional, or global level."	Accepted	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
18909	47	34	47	34	Again here, we could mention the proposed border tax adjustment of the European Commission. See here: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism	Rejected. There is no analysis of the specific EU proposal in the peer reviewed literature, and specific policy proposals are likely to change.	Esther Badiola	European Investment Bank	United States of America
31649	47	43	47	45	There should be discussion of traditional performance standards before introducing tradable performance standards. Therefore building energy performance standards and equipment MEPS and fuel economy standards for vehicles should all be mentioned first. These are the most common policy instruments and it seems strange not to mention them before getting into tradable standards.	Accepted	Lisa Ryan	University College Dublin	Ireland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
22377	47	35	50	15	This part of the section discusses non-market-based-regulations such as regulatory insturemnts and other policies. However, this part lacks of the decription of management promotion approach by governments. For example,the Japanese government requires large facilities to have "energy manager" and to submit "energy planning with the detailed consumption" under Energy Saving Act with 1 percent energy efficiency improbment target. Please see Arimura and Iwata(2015) ,"The Evaluation of “Comprehensive Management Under the Act on the Rational Use of Energy” as a Measure to Combat Climate Change for the Hotel Industry” In: "An Evaluation of Japanese Environmental Regulations" from Springer.	Noted, for cross-chapter coordination with buildings chapter.	Arimura Toshi	Waseda University	Japan
13903	47	4			There are several references on the regressive and climate change and pollution counter productive effects of resistance to fossil subsidies in Latin America: (1) Schaffitzel, F., M. Jakob, R. Soria, A. Vogt-Schilb y H. Ward (2019): “Can government transfers make energy subsidy reform socially acceptable? A case study on Ecuador” IDB working paper series n° IDB-WP-01026; (2) H. X. Jara, P. Chun Lee, L. Montesdeoca y M. Varela (2018): “Fuel subsidies and income redistribution in Ecuador”, WIDER Working Paper 2018/144. (3) Feng, K., K. Hubacek, Y. Liu, E. Marchán y A. Vogt-Schilb (2018): “Managing the distributional effects of energy taxes and subsidy removal in Latin America and the Caribbean”, Applied Energy 225: 424–436	Noted for possible inclusion.	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
46935	47	23			Should also be mentioned here that OBA combined with a consumption tax would come very near a BCA policy. This is a main message and shown in Böhringer et al (2017) referred to.	Accepted	Taran Fæhn	ferserach institute	Norway
46937	47	31			Here it should also be discussed how different designs of the BCAs will affect carbon leakage differently. In Böhringer et al. (2012) they show different designs' effectiveness. In Böhringer et al. (2017) the most targeted type of BCA is analysed, showing that the effectiveness can be significantly increased, but at the expense of administrative cost. New references: (1) Böhringer, C., B. Bye, T. Fæhn and K. E. Rosendahl (2012): Alternative designs for tariffs on embodied carbon – a global cost-effectiveness analysis, Energy Economics 34 (suppl. 2), 143-153, http://dx.doi.org/10.1016/j.eneco.2012.08.020 , (2) Böhringer, C., B. Bye, T. Fæhn and K. E. Rosendahl (2017): Targeted carbon tariffs – Carbon leakage and welfare effects; Resource and Energy Economics 50, 51–73,	Not implemented because the text on BCAs has been reduced.	Taran Fæhn	ferserach institute	Norway
13905	47	33			In addition to it, the EU discussion on border tax adjustment could be mentioned. For a comprehensive review of the EU's border carbon tax challenges see for instance: G. Claeys, S. Tagliapietra y G. Zachmann (2019), “How to make the European Green Deal work”, Bruegel Policy Contribution, n°13, noviembre	Rejected. There is no analysis of the specific EU proposal in the peer reviewed literature, and specific policy proposals are likely to change.	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
18911	48	22	48	22	Another example is the european emissions standards that define limits for exhaust emissions of new vehicles sold in the EU and EEA member states.	Noted, for cross-chapter coordination with transport chapter.	Esther Badiola	European Investment Bank	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
18913	48	39	48	39	I think that in this section, we need to include the EU Taxonomy of Sustainable investments. I am not sure if it should be mentioned under regulatory instruments -this was the initial idea, to create a taxonomy and then regulate disclosure around these sustainable activities (under ESG frameworks) or if it should be mentioned under "other Instruments" because at this stage, it is more informative and voluntary than compulsory.	Accepted	Esther Badiola	European Investment Bank	United States of America
31651	48	46	48	46	It says "Technology standards are often referred to as command-and-control standards...". I would consider all standards as "command-and-control" policies and I think this is the categorisation used by most.	Rejected. Classification and nomenclature is well established.	Lisa Ryan	University College Dublin	Ireland
31881	49	16	49	16	In addition to the various points mentioned in this section, it may be worth adding greater devolvement of decision making and financial autonomy. For example greater devolvement of powers to, say, indigenous groups is likely to actually improve natural resource management and battle climate change. Similarly, regarding greater devolvement and autonomy to urban and local bodies.	Noted.	Ashok Sreenivas	Prayas (Energy Group)	India
31653	49	17	49	37	Information policies should be given more emphasis than is given here. They appear as an afterthought. I think that information programs are necessary but not sufficient in climate mitigation policy. They facilitate the effectiveness of economic and regulatory instruments. I would present the policy package required as a combination of all three- economic instruments, to get the pricing right, regulatory instruments, to push the market, and information measures to overcome asymmetric information in the market and enable consumers to make low carbon choices and reward firms that supply low carbon products to the market. This combination is especially prevalent in the light vehicle market where a combination of standards, CO2 labels and vehicle taxes is in place in many countries. An outline of why carbon pricing is not enough to drive improvements in energy efficiency is provided in the IEA publication Ryan, L. and S. Moarif (2011) Energy efficiency policy and carbon pricing, IEA/OECD, Paris. https://webstore.iea.org/energy-efficiency-policy-and-carbon-pricing	Taken into account in revised text.	Lisa Ryan	University College Dublin	Ireland
1601	49	21	49	37	There is a large literature also on labelling approaches, especially from the USA and Europe - where such schemes are in widespread use. While a detailed literature review is probably out of scope, it would be useful to refer to some of the reviews or more prominent studies, e.g. the work of Rolf Wüstenhagen or Hunt Allcott on this topic.	Taken into account in revised text; note the issue is also treated elsewhere in the section.	Steffen Kallbekken	CICERO	Norway
44369	49	22	49	28	Information programmes include appliances labelling , but also feedback mechanism on energy consumption through smart meter, see for example The effectiveness and the range of energy savings resulting from energy consumption feedback systems based on different media has been assessed on the following paper: Zangheri, P.; Serrenho, T.; Bertoldi, P. Energy Savings from Feedback Systems: A Meta-Studies' Review. Energies 2019, 12, 3788. (available at https://www.mdpi.com/1996-1073/12/19/3788/htm). It is recommended to cite it.	Taken into account in revised text; note the issue is also treated elsewhere in 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
28621	49	38	50	51	Green government procurement, or selective, partial, and declining subsidization through contracts-for-difference (Sartor and Bataille 2019) , could be essential for commercialization of very low and zero GHG materials like steel and cement. While technically feasible, early production of ultra low emissions materials will likely be more expensive than the standard high intensity method, and will need niche markets paying higher prices to build economies of scale (Bataille et al 2019) until the best available technology standard can be reset. These higher prices can be partially met by directly contracting with consuming firms for whom their consumers are willing to pay, but government procurement for buildings and infrastructure will almost certainly be required. Sources: Sartor, O., Bataille, C., 2019. IDDRI policy brief: Decarbonising basic materials in Europe: How carbon contracts-for-difference could help bring breakthrough technologies to market [https://www.iddri.org/en/publications-and-events/study/decarbonising-basic-materials-europe]. Paris, France: Institut du Developpement Durable et des Relations Internationales (IDDRI.org). Bataille, C. 2019. Physical and policy pathways to net-zero emissions industry. WIREs Climate Change. 2020;11:e633. https://doi.org/10.1002/wcc.633	Taken into account in revised text, within length constraints.	CHRISTOPHER BATAILLE	IDDRI.ORG/SIMON FRASER UNIVERSITY	Canada
40419	49	38	50	51	Here the following may be mentioned, as the scope is not only on direct climate policies but also policies that have indirect effects on climate: <ul style="list-style-type: none"> • Circular economy related laws, policies and requirements and their implications for climate action • Initiatives on Sustainable Stock Exchanges and their implications for climate action 	Noted. Length constraints preclude new text on this issue.	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
34543	49			51	Consider a matrix of instruments to illustrate applications at different levels? Micro / individual actors; Meso / market-level; Macro / strategic. Economic instruments: / Subsidies for insulation, downstream cap-and-trade (eg. Tokyo/Saitama ETS)// Carbon taxation, cap-and trade, etc/// Rising price floor in ETS systems, long-term FiTs / auctioned renewable energy contracts, 'carbon contracts' Regulatory instruments: /'White good' product efficiency standards// Power plant performance standards/// Market-forcing standards – eg. long term vehicle Informational & other instruments: / Information campaigns// TCFD – transparency initiatives/// Green public procurement, R&D	Noted. Refer to Ch1 regarding different levels of application.	Michael Grubb	UCL - Institute of Sustainable Resources	United Kingdom (of Great Britain and Northern Ireland)
34545	49			51	My sense is that consumption-oriented policy instruments are somewhat underrepresented in section 3.5, though that may reflect their relatively limited use, and still somewhat limited literature. It could be useful to coordinate this with Chapter 5. One recent effort of myself and colleagues, focused on evaluation of potential consumption-based policy instruments, just published as part of the Climate Policy Special Issue on Carbon Consumption Accounting and Policies: http://dx.doi.org/10.1080/14693062.2020.1730151. See also remark on your leakage section (p61+)	Taken into account in revised text, within length constraints.	Michael Grubb	UCL - Institute of Sustainable Resources	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
5549	49	5		8	No such lock-in if the relevant tech standards are technology forcing ones - which are designed to spur innovation.	Accepted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
25907	49	18			"less compulsory policies" is vague	Accepted	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
5551	49	36		37	Some mention of information on financial products (including eg pensions, ETFs, funds) to guide choices on green investment would be useful.	Noted for cross-chapter coordination.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
13907	49	37			also plane flights tickets, which include carbon footprint and can also be compensated	Noted for cross-chapter coordination.	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
16377	49	38			In Section 13.5.5.2 Government provision, including mention of global military provisioning is warranted and will lead to a more accurate description.	Accepted	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
18915	50	12	50	12	Maybe you wish to mention here the recent decision of the European Investment Bank to become the EU's Climate Bank. See here: https://www.eib.org/en/press/all/2019-313-eu-bank-launches-ambitious-new-climate-strategy-and-energy-lending-policy	Noted. Length constraints preclude further detail on this issue.	Esther Badiola	European Investment Bank	United States of America
18917	50	16	50	16	Divestment: maybe interesting to mention here that the EIB is the first multilateral development bank to have announced its phase out from fossil fuels. See here https://www.eib.org/en/press/all/2019-313-eu-bank-launches-ambitious-new-climate-strategy-and-energy-lending-policy	Comment repeated/	Esther Badiola	European Investment Bank	United States of America
2669	50	16	50	39	While this subsection 13.5.5.3 discusses the financial impacts of divestment initiatives, nothing is said in terms of the effect in the real world, the hoped for mitigating effect. Did the companies involved in fossil fuel extraction curb this part of their activity following disinvestments? In table 13.3, the first evaluation criterion is environmental effectiveness, beginning with the effect on greenhouse gas emissions. Very well; then who is conducting the evaluation of the policies under discussion, and who is reporting the results, seem to be open questions.	Taken into account in revised text.	Philippe Waldteufel	CNRS/IPSL/LATMO S	France
44371	50	16	50	39	Please clarify whether divestment is a public policy or a voluntary initiative by some private sector acting on their own initiative	Accepted	BERTOLDI PAOLO	European Commission	Italy
25295	50	26	50	29	Delete "Divestment can be understood ... (Dordi and Weber, 2019)."	Taken into account in revised text.	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
10279	50	30	50	39	It might be difficult to compare the performance of portfolios with and without the fossil fuel investments, due to economic turmoil over the last 12 years, with the global economic recession of 2008-2009, and oil price collapse in 2014.	Rejected. There are analyses in the literature that perform this.	Aglaija Obrekht	Environment and Climate Change Canada	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
31883	50	30	50	39	Not sure why this para is posited as an exception to efficient market theory. With the current and future price trends, it does seem to be the case that cleaner technologies are also financially more attractive (except perhaps in niches). Hence, efficient capital allocation will allocate capital to cleaner technologies?	Taken into account in revised text.	Ashok Sreenivas	Prayas (Energy Group)	India
34891	50	31	50	32	Change the colors of table, improve formating	Noted. Tables revised.	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
43007	50	42	50	42	remove 'such'	Unclear - cannot find this word at that location.	christophe cassen	CNRS-CIRED	France
34671	51	37	51	40	Evidence of Voluntary Agreements that are Negotiated Agreements in Latin America can be found in the Coal Phase out process in Chile (https://ieefa.org/chile-launches-coal-phase-out-initiative/) The agreement was reached in June 2019 after a year of roundtables and negotiations (http://generadoras.cl/english)	Taken into account in revised text.	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
5831	51	16	52	3	VA for climate mitigation?	Unclear/non-specific comment.	Taedong Lee	Yonsei University	Republic of Korea
31665	51	17	52	3	Voluntary agreemeents have become less popular with policy makers in recent years. An example of this is the most widely applied voluntary agreement in terms of geographic scope was the passenger car voluntary agreement between the car industry and the European Commission to reduce average new car CO2 emissions. In 2007 however, the European Commission announced it was introducing a CO2 emissions regulation as the industry was failing to meet the VA targets (Dineen et al., 2018) and Mock, P. (2017) 2020-2030 CO2 standards for new cars and light-commercial vehicles in the European Union, the ICCT Briefing https://theicct.org/sites/default/files/publications/ICCT_Post-2020-CO2-stds-EU_briefing_20171026_rev20171129.pdf	Taken into account in revised text.	Lisa Ryan	University College Dublin	Ireland
4603	51	41	52	3	Voluntary agreements may be faster to implement than regulation If the regulator wants a policy to be in place quickly	Noted.	Leonardo Barreto	Austrian Energy Agency	Austria
15385	51	41	52	3	Voluntary agreements may be faster to implement than regulation If the regulator wants a policy to be in place quickly	Noted.	Simone D'Alessandro	University of Pisa	Italy
1955	51		52		Discussion on supply chain agreements is missed when voluntary agreements are addressed in section 13.5.5.4, particularly in regard to AFOLU. See Nepstad et al Slowing Amazon deforestation through public policy and interventions in beef and soy supply chains. See Nepstad et al. Science 6:344. pp 1118-1123, 2014 and Seagfredo and Seroa da Motta, Chapter 4, Bridging the Emissions Gap in: UNEP, 2012 Emission Gap Report, UNEP, Nairobi, 2012	Noted for cross-chapter coordination.	Ronaldo Seroa da Motta	State University of Rio de Janeiro (UERJ)	Brazil

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10877	52	1	52	3	The section on voluntary agreements could also point out that the approach can be useful instrument for encouraging learning by companies about their emissions profiles and sources without imposing regulatory standards or financial penalties, particularly during the early stages of climate policy. There is useful work on the learning effect of industry agreements in relation to the UK Climate Change Agreements by Ekins and Etheridge (2005) in Energy Policy. However, the idea has wider applicability, especially to the management of industry emissions in countries where climate policy is in its earlier stages and where industry resistance creates difficulties for the introduction of regulatory or market-based instruments. Against this, other research highlights the danger of climate policy becoming locked into (generally weaker) voluntary approaches that create resistance to the introduction of more robust approaches: Bailey, I. (2008) Industry environmental agreements and climate policy: learning by comparison, Journal of Environmental Policy and Planning, 10 (2) 153-173.	Taken into account in revised text.	Ian Bailey	University of Plymouth	United Kingdom (of Great Britain and Northern Ireland)
11003	52	4	52	4	I miss a table here qualitatively summarising the above assessment of different policy instruments according to the different criteria you mention in 15.2. This table would probably show the conflicts between different instruments and criteria.	Noted. A summary table of each instrument against each criterion in our judgment would not be able to do justice to nuances.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
11005	52	4	52	4	Also, I find the discussion above a bit simplistic, because the literature has shown that the devil lies in the details. In other words, it is not only an issue of selecting the “appropriate” instrument but of designing it well. The choice of design elements within a given instrument is thus a critical issue, which is at least as important as the choice of instrument. See del Río and Cerdá (2017) for a full discussion. DEL RIO, P., CERDÁ, E. (2017). The missing link: The influence of instruments and design features on the interactions between climate and renewable electricity policies Energy Research & Social Science 33, 49-58	Noted.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
4201	52	6	52	6	The notion of 'policy integration' is far broader than the idea of policy instrument mixes (see also above). Ideally, policy integration should receive its own (sub) section. Appropriate links should be made to the literatures on the relationship between mitigation and adaptation (currently in section 13.8, without any acknowledgment that it is also a dimension of the policy integration problematique)	Accepted. The section is being revised with greater attention to integration.	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
11007	52	7	52	29	This framework is similar to del Río (2014) who distinguishes between different goals and is part of a broader literature on environmental policy integration (Howlett and del Río 2015). DEL RÍO, P. (2014). On evaluating success in complex policy mixes: the case of renewable energy support schemes. Policy Sciences 47(3), 267-287 HOWLETT, M., DEL RIO, P. (2015). The parameters of policy portfolios: verticality and horizontality in design spaces and their consequences for policy mix formulation. Environment and Planning C: Government and Policy 33(5), 1233-1245.	Noted. These references are useful. With apologies to the commentor, they were missed in the final revision due to an oversight, but we have noted them for consideration in the next draft.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
12695	52	13	52	24	The framework discussed in this section has also been applied in empirical cases for food and climate policy (see: Candel J.L.L. and G.R. Biesbroek (2018) Policy integration in the EU governance of global food security Food Security 10(1) 195–209; Biesbroek, G.R. and J.L.L. Candel (2019) Explanatory mechanisms for policy (dis)integration: food policy and climate change adaptation policy in the Netherlands, Policy Sciences	Noted. The literature is expansive and for the purpose of WGIII we are trying to keep the focus on mitigation	Robbert Biesbroek	Wageningen University	Netherlands
4605	52	15	52	24	A combination of mitigation and adaptation measures for vulnerable poor communities is necessary but they may have competing requirements such as financing and their integration may require resolving conflicts between poverty, vulnerability and climate change. Julia Laukkonen, Paola Kim Blanco, Jennifer Lenhart, Marco Keiner, Branko Cavric, Cecilia Kinuthia-Njenga. Combining climate change adaptation and mitigation measures at the local level. Habitat International 33 (2009) 287–292	Noted. The literature is expansive and for the purpose of WGIII we are trying to keep the focus on mitigation	Leonardo Barreto	Austrian Energy Agency	Austria
15387	52	15	52	24	A combination of mitigation and adaptation measures for vulnerable poor communities is necessary but they may have competing requirements such as financing and their integration may require resolving conflicts between poverty, vulnerability and climate change. Julia Laukkonen, Paola Kim Blanco, Jennifer Lenhart, Marco Keiner, Branko Cavric, Cecilia Kinuthia-Njenga. Combining climate change adaptation and mitigation measures at the local level. Habitat International 33 (2009) 287–292	Noted. The literature is expansive and for the purpose of WGIII we are trying to keep the focus on mitigation	Simone D'Alessandro	University of Pisa	Italy
31885	52	28	52	29	Table 13.4 indicates an even greater prevalence of energy efficiency policies than renewable energy policies.	Noted. Table 13.4 is being expanded and updated and shifted to a new section where it will be discussed.	Ashok Sreenivas	Prayas (Energy Group)	India
15127	52	30	52	30	there exist examples for regulatory impact assessments to address policy a's effect on policy b, e.g. agricultural policy and effect for climate policy (e.g. in the EU)	Noted.	Bettina Rudloff	German Institute for foreign and security affairs (SWP)	Germany
1957	52		52		Section 13.6.1 on Policy integration misses the cases where CC policies are just an extension of sectoral policies that at the beginning had fiscal, development issues or non-climate environment issues. See several examples in Seagfredo and Seroa da Motta, Chapter 4, Bridging the Emissions Gap in: UNEP, 2012 Emission Gap Report, UNEP, Nairobi, 2012	Noted. Will explore the relevance of this literature. We are keen to ensure we cover sectoral policies that have climate impact. This discussion has been expanded in a new Sec 13.8 within which this section has been included	Ronaldo Seroa da Motta	State University of Rio de Janeiro (UERJ)	Brazil
25911	52		53		It does not seem necessary to use percentages if only 30 countries are considered: why not just write exact amounts, eg. 3/30 instead of 10%? Also, regarding the note saying that in SOD this table will reflect the share of emissions covered by each policy items rather than the prevalence in G20 countries: wouldn't it be more useful to have both?	Noted. The table is being re-made for content and clarity	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
32733	52	6	54	2	Section 13.6.1 should be turned into an introductory section, providing an overview of the various big issues discussed in section 13.6. However, as it stands it mainly introduces policy integration, which then is not really taken up later, so is rather confusing the reader. Instead, key terms can be introduced, and their link to each other outlined. That seems to be relevant for policy mixes / portfolios, its relation to policy integration and governance, and policy interaction. Table 13.4 is interesting, and the last paragraphs prepare the reader for what is to come, but the first 3 paragraphs simply do not work in an opening subsection in a section on policy mixes and governance. Maybe a further subsection on policy integration is needed where the material can be moved to.	Accepted. This section has been integrated into a larger policy integration section as part of a re-written 13.8	Karoline Rogge	SPRU, University of Sussex	Germany
28633	52	7	54	2	I was somewhat surprised how generic the section on policy integration, interaction, mixes and governance was, without a section on suggested examples. There are several suggested policy package architectures out there designed to meet most of the criteria you establish in earlier sections, in the grey and white literatures (e.g. Bataille et al 2018 on the role of varying carbon prices in policy packages (with examples from Canada and India), or Bataille et al 2016 section 3.6 " the pathways to national (low carbon) transformation were based on policy packages designed by each country research team to fit their nation's specific context. In general, implementing each national DDP will probably require some mix of the following: 1) Regulations and information for less price-sensitive sectors, particularly with respect to buildings and transport efficiency (e.g. building codes, performance standards). 2) Carbon pricing for price-sensitive sectors, and to incentivize technology innovation. 3) Policies that support innovation, pushing the technology frontier forward and infrastructure change (e.g. municipal land-use, transit finance, R&D, prototyping and commercialization support such as municipalities decarbonizing their vehicle fleets). 4) Institutions to monitor sectoral progress towards decarbonization, and to adjust policy if necessary. These institutions may also be responsible for supporting and monitoring key R&D programs (e.g. for CCS if applicable) and for being ready to implement alternative plans if technological aspirations do not meet necessary performance levels. 5) Country- and sector-specific policies, e.g. methane controls for landfills and industry)." I include these because I am familiar with them, but there has to be several if not many out there, and I am surprised there isn't a section on examples of explicit policy package suggestions while being mindful of the IPCC's mandate to be "policy useful, without being policy prescriptive", e.g. from/for California, the UK, the EU, Germany, China, and other policy advanced jurisdiction, etc. Sources: Bataille, C., C. Guivarch, S. Hallegatte, J. Rogelj and H. Waisman. 2018. Carbon prices across countries.	Noted. Thank you for the references which and ideas which we will check for suitability for this section. Due to length restrictions it is difficult to use all the citations suggested	CHRISTOPHER BATAILLE	IDDRI.ORG/SIMON FRASER UNVIERSITY	Canada
42527	52	5	60	2	This section "5 13.6 Policy mixes and governance" needs to be improved substantially.	Accepted	Atiq Kainan Ahmed	Asian Disaster Preparedness Center (ADPC)	Thailand

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
25909	52				I found this page hard to follow, and maybe a bit restrictive in terms of conceptual frameworks and perspectives considered: is the literature presented here the only existing approach on policy integration? [this is an honest question, I wondered whether it was a choice on the part of the authors to highlight this literature in this section, or whether a thorough review would conclude that this literature/framing is dominant on this issue]. So I think the page needs to situate the concepts and perspectives it presents a bit better, explaining from what disciplines/perspectives/approaches they come from, how much diversity and variations there is in conceptions of policy integration, etc... Otherwise this is a bit obscure for someone who dose not know the field in details, especially since it directly moves into the discssion of one specific framework (namely Candell and Biesbrok's).	Accepted. A new Section 13.8.1 seeks to expand the framework	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
12325	53	1	53	1	This table is extremely useful, but the resolution is too low. Plese make larger.	Accepted	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
37611	53	2	53	3	Important to address the fact that not only coverage but also stringency is important and needs to be assessed as well, even though this is harder. But there is literature e.g. UNEP gap reports that do look into e.g. fact that many countries have RE targets, but mostly these are not stringent enough to be consistent with PA.	Noted. The discussion of stringency is taken up in Sec 5, along with the relocation of the table	Michiel Schaeffer	Climate Analytics	Netherlands
5757	53	5	53	5	Amend "literatures" to read "literature". Literature is singular and plural. Avoid the American temptation to add an 'S' to everything.	Editorial. Accepted	David Leary	University of Technology Sydney	Australia
31655	53	21	53	23	I suggest that a good example of thmultiple objectives associated with mitigation policies is the range of benefits associated with improving energy efficiency - employment, economic growth, health and well-being - and should be mentioned. The publication on the multiple benefits of energy efficiency led by the IEA could be included here. IEA (2015), "Capturing the Multiple Benefits of Energy Efficiency", IEA, Paris https://www.iea.org/reports/capturing-the-multiple-benefits-of-energy-efficiency or Ryan and Campbell (2012) Spreading the NET: the Multiple Benefits of Energy Efficiency, IEA Energy Papers, No. 2012/08, OECD Publishing, Paris, https://doi.org/10.1787/5k9crzjbpkkc-en .	Noted. This comment appears mis-referenced (likely p 56). But we will note the reference for the appropriate location	Lisa Ryan	University College Dublin	Ireland
28163	53	36	53	36	The table has a problem of readability. Could be the colours used. Changing the table to Landscape may help improve readability	The table has been entirely changed and shifted to Sec 5	Damalie Akwango	National Agricultural Research Organisation	Uganda
14425	54	4	54	4	Remove "empiric" from the title – in economic literature "empiric" typically implies evidence gained via application of statistical or econometric methods rather than a descriptive analysis. Several paragraphs in this section provide a purely descriptive analysis. If additional evidence from simulation-based studies is included - and I recommend doing so - the term "empiric" does not fit.	Accepted. Content of the section -- now 13.6.6 -- has been revised to focus on ex post evidence.	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44701	54	4	54	12	In the beginning of this section you should clarify that there are similar effects not stemming from explicit 'packaging' but governmental processes simply running in parallel (often more status quo orientied, contradicting the low-carbon transition), which is leading to enormous inconsistencies. Maybe you also need to explicitly define what constitutes a 'package': only measures in one policy domain? only a bundle of measures decided/implemented within a certain time frame?	Accepted. New first paragraph addresses this.	Oliver Geden	German Institute for International and Security Affairs	Germany
4607	54	5	54	12	For example, coupling policies on renewable energy and energy efficiency domains for the heat sector and combining them with climate policies will be required to move forward decarbonisation and sector integration	Accepted	Leonardo Barreto	Austrian Energy Agency	Austria
4609	54	5	54	12	For example, a coordinated implementation of the renewable energy directive, the energy efficiency directive and the energy performance of buildings directive in the EU will help to accelerate the decarbonisation of the buildings sector	Accepted	Leonardo Barreto	Austrian Energy Agency	Austria
15389	54	5	54	12	For example, coupling policies on renewable energy and energy efficiency domains for the heat sector and combining them with climate policies will be required to move forward decarbonisation and sector integration	Accepted	Simone D'Alessandro	University of Pisa	Italy
15391	54	5	54	12	For example, a coordinated implementation of the renewable energy directive, the energy efficiency directive and the energy performance of buildings directive in the EU will help to accelerate the decarbonisation of the buildings sector	Accepted	Simone D'Alessandro	University of Pisa	Italy
11009	54	5	54	19	Bear in mind that reducing GHG emissions is only one goal among others. The interactions between instruments exceed the GHG emissions reduction realm and might affect other crucial aspects (for example, local socioeconomic and environmental benefits, such as industry creation, jobs, reduction of local environmental impacts etc...). The challenge is also when we have many goals and in defining the system boundaries over which the interactions in the policy mix are to be assessed (see del Río 2014,cited above, for an extensive discussion of these topics).	Accepted. Explicitly addressed in the first para. Also this is acknowledged elsewhere, notably Sec 13.8	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
14423	54	8	54	9	Include an example of the sentence "Interactions can also be positive, where the policy package achieves greater reductions than the sum of each policy individually." Otherwise, it shall be deleted.	Accepted. Example provided.	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria
14431	54	11	54	11	The chapter focuses on internal and external leakage, but this is just one aspect of policy inactions. Another aspect of policy interactions is additional economic cost which might arise from various policy mixes. This shall be better explained.	Accepted	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
25959	54	13	54	46	<p>When discussing the waterbed effect you might want to refer to Burtraw et al. (2018) (Burtraw, D., A. Keyes, and L. Zetterberg. 2018. "Companion Policies under Capped Systems and Implications for Efficiency – The North American Experience and Lessons in the EU Context." RFF Working Paper. http://www.rff.org/research/publications/companion-policies-under-cappedsystems-and-implications-efficiency-north) who argue that the MSR in the EU ETS and a minimum allowance auction price in North American ETS can puncture the waterbed making companion policies to cap and trade systems more effective.</p> <p>Moreover, I would suggest you to mention the position of some scholars arguing that the waterbed effect remains important with increasing shift towards national policies. It has been estimated that in some cases (e.g. German coal exit) national policies might even induce >100% waterbed effect (cf. Edenhofer's presentation here https://drive.google.com/file/d/1OrhAGclzR2MhdWJ7LQl7uOAx8SY344HC/view)</p>	Noted. Waterbed effect is noted as is the market stability reserve as a mechanism to address it.	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
44703	54	20	54	25	I think it should be mentioned/highlighted that (California's) policymakers don't do this because they think that this is the 'policy-optimal' package that delivers the best results policy-wise but that there are many other considerations involved, including 'signalling effects' (which are higher if you do six different things at once instead of just increasing your carbon price), plus there are path dependencies and 'instrument constituencies' influencing what is finally being implemented (often, many more measures had been envisaged and were part of overarching strategies but then got lost on the way)	Accepted. High percentage of overlap of mitigation policies in California is noted.	Oliver Geden	German Institute for International and Security Affairs	Germany
44373	54	20	54	35	in a similar manner to the Clifornia example the EU example can be described, with the EU ETS, the EU Effort Sharing Regulation for the non-ETS sector and the Governance Regulation requiring EU MSs to submit Energy and Climate Plans. This is complemented by standards for vehicles, appliances and buildings, energy labelling and several financial mechanisms. A paper on the EU climate policie is under preparation.	Noted. This is reflected in the text.	BERTOLDI PAOLO	European Commission	Italy
14419	54	26	54	26	Replace “-” with “—”	Accepted	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria
1115	54	26	54	35	This paragraph fails to mention that California policymakers were well aware of the overlaps and included the ETS an an insurance policy in case some of the policies did not perform as well as expected (possibly due to highly likely legal challenges to all of the policies) Bang, Guri, David G. Victor, and Steinar Andresen, 2017. California's Cap-and-Trade System: Diffusion and Lessons, Global Environmental Politics 17(3), 12-30. doi:10.1162/GLEP_a_00413. The fact that emissions have been consistently below the cap and the price has not fallen to zero indicates that the ETS has been responsible for some emission reductions. This is mentioned on p. 57 lines 26 - 29 but might be better placed here.	Accepted. High percentage of overlap of mitigation policies in California is noted.	Erik Haites	Margaree Consultants Inc.	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
14421	54	30	54	30	“.” is missing.	Accepted	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria
10281	54	4	55	44	It would be interesting to know if there has been any research on how policy interactions and leakage affect costs or GDP impacts. For example, if there is a leakage of 50% between cap and trade and standards, would that mean that the costs of compliance (or GDP impacts) are roughly 50% lower than they would have been if there were no leakage?	No literature on this point has been found.	Aglaia Obrekht	Environment and Climate Change Canada	Canada
14427	54	4	55	44	I think this section shall be enlarged, given that poorly designed policy packages can increase cost and lower efficiency. Include additional evidence on interactions between cap-and-trade and feed-in-tariffs – there exists a significant body of literature, for example Böhringer, C.; Behrens, M. (2015): "Interactions of Emission Caps and Renewable Electricity Support Schemes", Journal of Regulatory Economics, 48(1), 74-96.	Section is shorter due to word count constraints, but interactions between cap and trade and renewable support policies is addressed.	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria
14429	54	4	55	44	Mention a growing body of literature which explores indirect effects of regulating conventional, fossil-fuel fired sources – for example in form of environmental regulation, such as a nitrogen oxide (NOx) cap-and-trade – and CO2 emissions, for example in Daniel H. Karney, Electricity market deregulation and environmental regulation: Evidence from U.S. nuclear power, Energy Economics 84 (2019) 104500.	Not covered due to word count limitations.	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria
18919	54	4	55	45	here we should mention the EU climate policy packages. In 2007, the 2020 climate and energy package. Later the Clean Energy for all and now, the EU Green Deal.	EU climate policy is summarized elsewhere in the chapter. Eu approach to policy overlap is mentioned in this section.	Esther Badiola	European Investment Bank	United States of America
25913	54		55		The section is mostly about leakage, maybe the title should be made more specific to reflect this?	Rejected. Section is revised to be broader.	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
32735	54	5		6	policy interactions do not only occur if there are more than one instrument in the same sector. It is rather the policy target being hit by more than one instrument. e.g, this could also be a technological system, or a geographical area. So the sentence suggests a narrowness which is not in line with the literature, see the seminal interaction project led by Steve Sorrell and the subsequent body of literature. Remedy: "Climate policy packages can lead to policy interactions, where more than one policy applies to the same sector, technology or region, for example."	Agreed. Policy interaction is explicitly addressed in the first para.	Karoline Rogge	SPRU, University of Sussex	Germany
32737	54	9			If you use policy package in this section, then provide a definition. But could also simply speak of 'instrument mixes', which is by itself a clearer terminology, and typically what the interaction literature focuses on.	Noted. We settled on policy interactions.	Karoline Rogge	SPRU, University of Sussex	Germany
32739	54	13			The mixed up discussion of leakage (in the second paragraph on a subsection on interaction) does not work well, and is also not well aligned with the fact that section 13.7.2 is addressing leakage in detail. Also, there is no definition of leakage provided. This mix up of interaction and leakage without clear introduction of the terms and difference is confusing for the reader, so I'd suggest to substantially rework the passage.	Accepted	Karoline Rogge	SPRU, University of Sussex	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
32741	54	44		46	The sentence should be clarified, as currently there seems to be no well explained link between context differences and partial failure - so why exactly have the energy efficiency standards failed? And what is partial about it?	Accepted	Karoline Rogge	SPRU, University of Sussex	Germany
11011	55	1	55	44	Another crucial example: ETS vs. renewable energy promotion schemes (see del Río 2017). DEL RIO, P. 2017. Why does the combination of the European Union Emissions Trading Scheme and a renewable energy target makes economic sense? <i>Renewable and Sustainable Energy Reviews</i> , 74, 824-834	Accepted	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
25961	55	3	55	4	Please clarify the sentence "Full offset...allowance price is zero": differently from the rest of the paragraph, I found this sentence a bit obscure (what's the link with a zero price? Please make it more explicit)	Accepted	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
1117	55	8	55	10	A few estimates put the emissions reductions due to the ETS at 7% to 9% depending upon the time period. ICF International, 2016. Decomposition analysis of the changes in GHG emissions of the EU and Member States. European Commission. https://op.europa.eu/en/publication-detail/-/publication/ceb0fb6c-f4e2-11e6-8a35-01aa75ed71a1 Another estimate is 11 to 13%, Bel, Germà and Stephan Joseph, 2015. Emission abatement: Untangling the effects of the EU ETS and the economic crisis, <i>Energy Economics</i> , 49, 531-539. http://dx.doi.org/10.1016/j.eneco.2015.03.014	Accepted	Erik Haites	Margaree Consultants Inc.	Canada
25963	55	8	55	10	when saying virtually none estimates...": I would suggest to mention Koch et al. (2014) who actually performs such estimations. They find that only about 10% of the variation in EUA prices can be explained by the four variables of interest ((a) relative prices of natural gas and coal, b) expectations on economic activity, c) growth of RES-E generation and d) use of international offsets). Moreover, within this 10%, 40% of the variation in carbon prices can be attributed to the variation in expected economic conditions and almost 25% to RES-E generation (cf. Koch, N., Fuss, S., Grosjean, G. and O. Edenhofer (2014), Causes of the EU ETS price drop: recession, CDM, renewable policies or a bit of everything? New evidence, <i>Energy Policy</i> , 73, 676–685).	Rejected, as not relevant in the context. Koch et al focus on price changes rather than contributions to emission reductions	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
25965	55	19	55	20	why is that the case? Please explain	Accepted	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
12697	56	2	56	15	The authors could be more explicit on the challenges of policy instrument mix calibration (i.e. how to balance the mix, not in terms of density, but intensity), and the challenges of proposing instruments but with no/or limited calibration of the instruments.	Noted. The discussion of policy mixes has been reduced in length as part of a new Sec 13.8.1	Robbert Biesbroek	Wageningen University	Netherlands

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4611	56	6	56	9	For example, sector coupling leading to the use of electricity i End-use sector coupling involving the electrification of heating and cooling in buidlings, transport (e-mobility) and industry sectors while reinforcing the interaction between electricity supply and end-use can be mentioned as one of the long-term sector integration strategies to achieve low-carbon energy systems (Van Nuffel et al., 2018, Sector coupling: how can it be enhanced in the EU to foster grid stability and decarbonise?, Study requested by the ITRE committee) https://www.europarl.europa.eu/RegData/etudes/STUD/2018/626091/IPOL_STU(2018)626091_EN.pdf	Noted. This is likely too specific for this section	Leonardo Barreto	Austrian Energy Agency	Austria
15393	56	6	56	9	For example, sector coupling leading to the use of electricity i End-use sector coupling involving the electrification of heating and cooling in buidlings, transport (e-mobility) and industry sectors while reinforcing the interaction between electricity supply and end-use can be mentioned as one of the long-term sector integration strategies to achieve low-carbon energy systems (Van Nuffel et al., 2018, Sector coupling: how can it be enhanced in the EU to foster grid stability and decarbonise?, Study requested by the ITRE committee) https://www.europarl.europa.eu/RegData/etudes/STUD/2018/626091/IPOL_STU(2018)626091_EN.pdf	Noted. This is likely too specific for this section	Simone D'Alessandro	University of Pisa	Italy
4613	56	21	56	23	A combination of renewable energy and energy efficiency can serve the energy needs of low-income communities in developing countries and at the same time contribute to decrease carbon emissions and enable productive uses of energy, thus leading to private sector development	Noted. The reviewer provides one among several examples that could be considered	Leonardo Barreto	Austrian Energy Agency	Austria
15395	56	21	56	23	A combination of renewable energy and energy efficiency can serve the energy needs of low-income communities in developing countries and at the same time contribute to decrease carbon emissions and enable productive uses of energy, thus leading to private sector development	Noted. The reviewer provides one among several examples that could be considered	Simone D'Alessandro	University of Pisa	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28623	56	21	56	28	Optional additional perspective: Waisman et al (2019) documents a method for stakeholder engagement, communications and shared vision building, used for the Deep Decarbonization Pathways projects (Bataille 2016; Bataille 2020), that backcasts from multiple proposed low carbon futures to the present, meeting multiple development objectives, via an iterative qualitative visioning and quantitative scenario construction process. Its purpose is to build sufficient working consensus such that short term policy can be formed and implemented in the context of long run development and climate goals. Sources: Waisman, H., C. Bataille, H. Winkler, F. Jotzo, P. Shukla, M. Colombier, D. Buira, P. Criqui, M. Fischedick, M. Kainuma, E. La Rovere, S. Pye, G. Safonov, U. Siagian, F. Teng, M. Virdis, J. Williams, S. Young, G. Anandarajah, R. Boer, Y. Cho, A. Denis-Ryan, S. Dhar, M. Gaeta, C. Gesteira, B. Haley, J. Hourcade, Q. Liu, O. Lugovoy, T. Masui, S. Mathy, K. Oshiro, R. Parrado, M. Pathak, V. Potashnikov, S. Samadi, D. Sawyer, T. Spencer, J. Tovilla, H. Trollip. 2019. A pathway design framework for national low greenhouse gas emission development strategies. Nature Climate Change, 9, 4, 261. https://doi.org/10.1038/s41558-019-0442-8 ; Bataille, C., H. Waisman, M. Colombier, L. Segafredo, and J. Williams (2016) The Deep Decarbonization Pathways Project (DDPP): insights and emerging issues, Climate Policy, 16:sup1, S1-S6. DOI: 10.1080/14693062.2016.1179620; Bataille, C., H. Waisman, A. Vogt Schilb, M. Jaramillo, Y. Briand, J. Svensson. R. Delgado, R. Arguello, L. Clarke, T. Wild, F. Lallana, G. Bravo, G. LeTreut, G. Nadal, G. Godinez, J. Quiros-Tortos, E. Pereira, M. Howells, D. Buira, J. Tovilla, J. Farbes, R. Jones, D. De La Torre Ugarte, M. Collado, F. Requejo, X. Gomez, R.Soria, D. Villamar, P. Rochedo, M. Imperio. 2020. Net-zero deep decarbonization pathways in Latin America: challenges and opportunities. Energy Strategy Reviews. Forthcoming.	Noted. Thanks for the suggestion	CHRISTOPHER BATAILLE	IDDR.ORG/SIMON FRASER UNIVERSITY	Canada
44705	56	29	56	41	This paragraph relies a little bit too much on the obvious demands for consistency and coherence, ideals that are almost never fulfilled in real-world policy-making (similar to other complex organizations), for reasons that can easily be explained. Therefore, coherence and consistency should be treated more clearly as ideal states that can only be reached under very favourable circumstances (maybe it would be good to find an example and describe it in a box) or to a certain extent (because in an either/or logic, almost no policy would cross the coherence/consistency threshold)	Noted. Thank you for this suggestion. The revision includes case studies from across the WG, which try and give a more real world set of examples in a cross chapter box	Oliver Geden	German Institute for International and Security Affairs	Germany
15441	56	33	56	33	It should be worth add recent studies on the impacts of alternative policy mixes, such as in: D'Alessandro et. al (2020). Feasible Alternatives to Green Growth. Nature Sustainability, forthcoming".	Noted. We will review	Simone D'Alessandro	University of Pisa	Italy
31887	56	34	56	34	Not just targets, but even achievements against those targets should be reviewed periodically?	Noted	Ashok Sreenivas	Prayas (Energy Group)	India
11013	56	43	56	43	In addition to the aforementioned, classical ones of environmental effectiveness, economic efficiency etc... (see del Río 2009, 2014 and 2017, cited above, for such an analysis).	Noted. These benchmarks are discussed in Sec. 5 in the context of individual instruments	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
31667	56	1	57	7	I find it strange that there is no mention of the efficiency, ie the static and dynamic costs, and the distributional effects or equity of a policy mix. Also the transaction and administrative costs and political acceptability are key issues that should be considered in policy design.	Noted. These are discussed in Sec 5 in the context of individual instruments but agree that these criteria should be brought ot bear on mixes as well. We will examine the literature	Lisa Ryan	University College Dublin	Ireland
5833	56	1	57	33	clear distinction between policy mix and policy integration	Noted. No concrete suggestion provided	Taedong Lee	Yonsei University	Republic of Korea
14433	56	1	57	33	I don't see a clear cut between the chapter "Empirical evidence on policy interactions" (13.6.2) and the chapter "Policy mixes: comprehensiveness, balance and consistency" (13.6.3). I understand the rational to separate the subject, but the lines of discussion and examples used in the text body are not clear enough. I would recommend moving parts of the discussion which is takins place here to the previous section, for example the discussion on interactions between emission trading schemes and feed-in-tariffs is absolutely central.	Accepted. Interaction across policy instruments is being shifted to Sec 6 which now looks at policy instruments. Policy mixes is retained here as part of a new Sec 8	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria
15463	56	1	57	33	I do believe that section 13.6.3 misses a crucial aspect of policy mix. Indeed, each policy generate several side effects, beyond the purposes it addresses. This is due to the interwoven relation among the economic, social and environmental spheres. So, this section should be extende to include a discussion about the social impact of market based policies and, on the contrary, the environmental effect of social reforms. Policy mix should be designed to manage the trade-oof and sinergies emerging from these interactions.	Noted. This is a thoughtful comment and we have sought to incorporate this broader perspective in an expanded section on policy integration in Sec 13.8.1	Simone D'Alessandro	University of Pisa	Italy
18785	56	1	57	33	In this section it seems important to discuss policy sequencing. For example the finding that support for renewables may pave the way for carbon pricing policies which are initially not feasible but will be more acceptable once there is a strong presence of renewables. See for instance Wagner, G, Kåberger, T., Olai, S., Oppenheimer, M., Rittenhouse, K., and Sterner, T. (2015). "Push Renewables to spur carbon pricing", Nature, 525:27-29 doi:10.1038/525027a	Noted. Due to space constraints we did not get into policy sequencing here, but have noted the reference for a future revision.	thomas Sterner	Univ of Gothenburg	Sweden
31657	56	1	57		I find it strange that there is no mention of the efficiency, ie the static and dynamic costs, and the distributional effects or equity of a policy mix. Also the transaction and administrative costs and political acceptability are key issues that should be considered in policy design.	Noted. These are discussed in Sec 5 in the context of individual instruments.	Lisa Ryan	University College Dublin	Ireland
32709	56	43	57	4	Highlight Comprehensiveness Balance Consistency by making them italics --> improved readibilitz	Editorial, will consider	Karoline Rogge	SPRU, University of Sussex	Germany
32695	56	12			policy ARENAS: in section 13.6.1 above you use the word policy DOMAIN for the same things - I would suggest to apply uniform terminology - so here also use policy DOMAIN (an alternative is policy FIELD) - ultimately depends on language you like to adopt throughout the report	Editorial. Will consider	Karoline Rogge	SPRU, University of Sussex	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
32697	56	14		15	it is unlikely that': too weak formulation, the scientific evidence is much stronger, carbon pricing alone will not address the structural and transformational system failures. Suggested rewording: "While carbon pricing may be salient to these transitions, on its own it will not be able to address all of these failures." If you want to cite more evidence on this, there would be more studies to cite, e.g. Rogge, K.S., Hoffmann, V.H., 2010. The impact of the EU ETS on the sectoral innovation system for power generation technologies. Energy Policy 38, 7639–7652. https://doi.org/10.1016/j.enpol.2010.07.047 .	Noted. We will consider the language	Karoline Rogge	SPRU, University of Sussex	Germany
13909	56	14			Typo: "..to BE able to..."	Editorial. Thank you	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
32699	56	16		18	First sentence needs a reference for this emergent policy mix literature, added at end of the sentence: (Rogge and Reichardt 2016; Kern et al. 2019). Full references: Rogge, K.S., Reichardt, K., 2016. Policy mixes for sustainability transitions: An extended concept and framework for analysis. Res. Policy 45, 1620–1635. https://doi.org/10.1016/j.respol.2016.04.004 --- Kern, F., Rogge, K.S., Howlett, M., 2019. Policy mixes for sustainability transitions: New approaches and insights through bridging innovation and policy studies. Res. Policy 48, 103832. https://doi.org/10.1016/j.respol.2019.103832 .	Accepted	Karoline Rogge	SPRU, University of Sussex	Germany
32701	56	18			Change structural change and transformation into "structural and transformational system failures"	Accepted	Karoline Rogge	SPRU, University of Sussex	Germany
32703	56	18			would suggest to add 'for example' in: "These include, for example, energy ..."	Accepted	Karoline Rogge	SPRU, University of Sussex	Germany
13911	56	23			Among the co-benefits a usual claim is that the energy transition also increases energy security and has geopolitical benefits. See for instance Lázaro Touza, L. (2018), "Governing the geopolitics of Climate Action after the Paris Agreement". In Considine & Paik (Eds.), Handbook of Energy Politics. Edward Elgar, Cheltenham. In my opinion this dimension is lacking in the report. There is evidence that countries with higher levels of energy dependence tend to deploy more renewables faster: 6. Valdés, J., G. Escribano, E. San Martín (2016): "Energy security and renewable energy deployment in the EU: Liaisons Dangereuses or Virtuous Circle?" Renewable and Sustainable Energy Reviews 62: 1032–1046. Also	Noted. Thank you for the suggestion	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
13913	56	23			The geopolitical co-benefits of energy transition have been studied for the EU: T. Sweijs, M. de Ridder, S. de Jong, W. Oosterveld, E. Frinking, W. Auping et al. (2014), "Time to wake up: the geopolitics of Eu 2030 climate and energy policies", The Hague Centre for Strategic Studies. And also there are quantitative studies of the winners and loser of the energy transition: I. Overland, M. Bazilian, T. Ilimbek, R. Vakulchuk y K. Westphal (2019), "The GeGaLo index: geopolitical gains and losses after energy transition", Energy Strategy Reviews, nº 26	Noted. Thank you for the suggestion	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
32705	56	30			delete 'credibility and': the targets alone do NOT provide CREDIBILITY, this happens when they are implemented, and thus credibility needs to be deleted here, it only comes to play in the next sentence, quite correctly: "...climate policy mixes as they provide guidance to sttegic investments and innovation..."	Noted. Text has been revised so this comment is not directly relevant	Karoline Rogge	SPRU, University of Sussex	Germany
32707	56	42		43	Reformulate sentence, so it is clear that these criteria are not exclusive, and we still would have the typical ones (such as effectiveness), and add the proper reference: "Policy mixes may be evaluated based on a broad set of specific design criteria, such as comprehensiveness, balance and consistency (Rogge and Reichardt 2016)." Rogge, K.S., Reichardt, K., 2016. Policy mixes for sustainability transitions: An extended concept and framework for analysis. Res. Policy 45, 1620–1635. https://doi.org/10.1016/j.respol.2016.04.004	Noted. Text has been revised so this comment is not directly relevant	Karoline Rogge	SPRU, University of Sussex	Germany
32711	56	46			add 'support': "...such as public R&D support" (it is not about the government doing the R&D themselves, it is about granting support for low carbon R&D)	editorial. Accepted and adapted to re-written text	Karoline Rogge	SPRU, University of Sussex	Germany
32713	56	46			suggest to use plural: "energy taxes"; or add 'an': "such as an energy tax"	editorial. Accepted and adapted to re-written text	Karoline Rogge	SPRU, University of Sussex	Germany
32715	56	47			Reword 'for example', as it is the second example being provided: "Another example is provided by instrument mixes that include ..."	editorial. Accepted and adapted to re-written text	Karoline Rogge	SPRU, University of Sussex	Germany
4615	57	5	57	7	energy efficiency may have multiple benefits for health, productivity and standard of living but their quantification/monetization have not been explored very closely and methodologies for quantification are still being developed ((e.g. https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/8/198/0/Multiple%20benefits%20of%20EE%20renovations%20in%20buildings%20-%20Full%20report%20and%20appendix.pdf); (e..g. https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/8/198/0/Multiple%20benefits%20of%20EE%20renovations%20in%20buildings%20-%20Full%20report%20and%20appendix.pdf)	Noted. Thank you for the references. Due to space limitations we are unable to aded the exact example suggested	Leonardo Barreto	Austrian Energy Agency	Austria
15397	57	5	57	7	energy efficiency may have multiple benefits for health, productivity and standard of living but their quantification/monetization have not been explored very closely and methodologies for quantification are still being developed ((e.g. https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/8/198/0/Multiple%20benefits%20of%20EE%20renovations%20in%20buildings%20-%20Full%20report%20and%20appendix.pdf); (e..g. https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/8/198/0/Multiple%20benefits%20of%20EE%20renovations%20in%20buildings%20-%20Full%20report%20and%20appendix.pdf)	Noted. Thank you for the references. Due to space limitations we are unable to aded the exact example suggested	Simone D'Alessandro	University of Pisa	Italy
43009	57	8	57	8	remove the repetition 'supporting low carbon'	Editorial accepted - thank you	christophe cassen	CNRS-CIRED	France
25297	57	11	57	13	Delete "Policies that combine incentives ... David, 2017)."	Rejected. No reason is provided	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
11015	57	34	57	34	Design of policy mixes should not only take into account different policies which interact, but also a lower level of granularity, i.e. the design elements in those policies (see del Río and Cerdá 2017,cited above).	Noted. Thank you for the suggestion	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
32717	57	5			Add 'for example' to make clear the prior sentence is now illustrated with an example: "For example, policy mix consistency has been identified..."	Editorial. Thank you	Karoline Rogge	SPRU, University of Sussex	Germany
13915	57	8			"supporting low carbon" is repeated	Editorial. Thank you	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
32719	57	9			Add supporting references to end of first sentence (Kivimaa and Kern 2016): "...those destabilizing existing carbon-intensive regimes (Kivimaa and Kern 2016)."	Editorial, Thank you	Karoline Rogge	SPRU, University of Sussex	Germany
32721	57	11			move up Reference David 2017 to 'exnovation' part of sentence: "...for innovation with those aimed at 'exnovation' (David 2017) -- capturing the termination of fossil-based technological trajectories in a deliberate fashion -- stand..." No references at end of this sentence as Kivimaa and Kern moved up to first sentence, and David to the particular part on exnovation.	Accepted	Karoline Rogge	SPRU, University of Sussex	Germany
32725	57	24			Add relevant reference to end of this sentence, rather than having it appear at the very end of the paragraph: "...top down and bottom up mapping of policy mixes (Ossenbrink et al. 2019)."	Editorial, thank you	Karoline Rogge	SPRU, University of Sussex	Germany
32723	57	26			change 'relative' into 'balanced' or 'equal': "...for example balanced representation of incumbents and new entrants in policy advisory councils."	Editorial, Accepted within revised and re-written text	Karoline Rogge	SPRU, University of Sussex	Germany
32727	57	27			geography and policy' needs to be changed into 'impact' domain to be correct: "A bottom up policy mix analysis starts from a specific impact domain, such as..." '(also important to add the comma after impact domain, as credit for the first part of the sentence goes to Ossenbrink et al 2020 (the big reference of this paragraph), while Sovacool 2009 is the reference for the example used to illustrate the case.	Noted, retained geography and policy as it seems more intuitive than impact domain	Karoline Rogge	SPRU, University of Sussex	Germany
32729	57	43			add 'climate' in policy mixes, otehrwise follow up sentences do not make sense: "Design of climate policy mixes must account for..." An alternative would be: "Design of policy mixes aiming at decarbonization must account for..."	Noted. Editorial suggestion	Karoline Rogge	SPRU, University of Sussex	Germany
25915	58	5	58	14	There is an increasingly rich literature at the interesction between science and technology studies and market sociology that explores the co-evolution of policy, sociotechnical systems, and markets based on detailed case studies, especially on the energy transition. It would be relevant to include here. See Silvast, Antti, 2017, Energy, economics, and performativity: Reviewing theoretical advances in social studies of markets and energy,Energy Research & Social Science, Volume 34, Pages 4-12, ISSN 2214-6296, https://doi.org/10.1016/j.erss.2017.05.005 . for a literature review; Labussièrre, O. and Nadaï, A (2018). Energy Transitions: a socio-technical inquiry, Palgrave, also provides a good overview of this literature in its introduction.	Thank you. This literature is considered in a revised Sec 9	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44707	58	5	58	14	Please add changes in government after elections as a factor, because that's the most obvious one (in democracies), and this variant of 'fluid participation' and 'changing (powerful) preferences' creates a strong tension with long-term transition planning - unless there's a strong national consensus	Noted. This text has been deleted due to revisions and due to shortage of space	Oliver Geden	German Institute for International and Security Affairs	Germany
34673	58	15	58	28	It is possible to have a long-term energy policy in a developing country, with clear goals for sustainability, without neglecting the short-term issues, and at the same time to consider actions to respond to climate change, as it is described in Bustos-Salvagno (2019): https://www.wri.org/publication/energy-2050-participatory-process-long-term-energy-policy-and-its-role-climate-change	Noted. Thank you for the citation	Javier Bustos-Salvagno	Universidad del Desarrollo	Chile
10879	58	17	58	17	Would it be helpful for this sentence to include a further reference outlining the various sources of political resistance that can hinder climate policy development? If so, Compston, H. (2010) The politics of climate policy: strategic options for national governments, Political Quarterly, 81 (1), would be a useful source.	Noted. We will consider either here or in Sec 4	Ian Bailey	University of Plymouth	United Kingdom (of Great Britain and Northern Ireland)
5759	58	17	58	20	This is very technical. Can this information be more clearly explained in a non-technical way the lay person can understand.	editorial. Noted thank you	David Leary	University of Technology Sydney	Australia
43011	58	21	58	21	uncertainty literature Céline	Noted. No clear suggestion	christophe cassen	CNRS-CIRED	France
25299	58	24	58	28	Delete "In addition, the emerging ... Stephens, 2017)." as such statement is not consistent with sustainable development matters.	Noted. The text has been completely revised in this section	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
11017	58	36	58	36	Coordination may not be useful once we take into account the different goals (see del Río 2014, cited above).	Noted. The text has been completely revised in this section	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
4617	58	37	58	41	Synergies between energy, mobility, water supply, hygienic conditions, communications, industry and other infrastructures must be tapped to develop integrated solutions for low-carbon and climate resilient cities	Noted. Synergies and co benefits are noted prominently in Sec 13.8.1	Leonardo Barreto	Austrian Energy Agency	Austria
15399	58	37	58	41	Synergies between energy, mobility, water supply, hygienic conditions, communications, industry and other infrastructures must be tapped to develop integrated solutions for low-carbon and climate resilient cities	Noted. Synergies and co benefits are noted prominently in Sec 13.8.1	Simone D'Alessandro	University of Pisa	Italy
1959	58		59		Brazilian Soy Moratorium review in Table 13.5 Enablers and barriers for policy led sector transitions is missing other aspects such as the lack of PES or other pricing economic incentives See See Nepstad et al. Science 6:344. pp 1118-1123, 2014 and Seagfredo and Seroa da Motta, Chapter 4, Bridging the Emissions Gap in: UNEP, 2012 Emission Gap Report, UNEP, Nairobi, 2012	Noted. Table 13.5 has been replaced by a cross chapter box	Ronaldo Seroa da Motta	State University of Rio de Janeiro (UERJ)	Brazil
32731	59	2			add 'instrument' to Policy mix in column head of table 13.5, because what is included in the table are just instruments, so to be precise the table talks about the 'instrument mix'. Change to: "Policy instrument mix" or simply "Instrument mix"	Noted. Table 13.5 has been replaced by a cross chapter box	Karoline Rogge	SPRU, University of Sussex	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
34055	60	1	60	1	Despite the note under Table 13.5 that "fo future drafts this table will be populated with detailed case studies from Chs 512" and that this latter drafting may well delve into the issue in more depth, I am surprised here by the cursory treatment of Just Transitions challenges, which only receive one mention. This is an issue of great significance at the level of national and sub-national policies and institutions both in the developed and developing world, and so I would expect this issue to have a more substantive mandate here, potentially even in relation to the role of the NDCs (see Climate Strategies work: https://climatestrategies.org/publication/jt-after-cop24/). Clearly mentioning it need not duplicate ideas covered in other chapters, but a passing mention in a table is certainly not substantive enough. Perhaps this could be added in the paragraph starting page 16, line 23 through recognition of the International Labour Organisation and the role of Unions?	Noted. Table 13.5 has been replaced by a cross chapter box. Just transition is discussed in 13.9	Kirsten Jenkins	University of Edinburgh	United Kingdom (of Great Britain and Northern Ireland)
4203	60	4	60	4	The bridge into this section is quite weak - the notion of international interactions appears somewhat 'out of the blue'	Noted.	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
5761	60	4	60	4	It would be useful if this part of the chapter also considered the interaction of climate policies with WTO and other trade rules. For example do they conflict? Do they have the potential to undermine national actions? Do they restrict national actions? A wholistic examination of the impact of trade regulations would be useful as these are likely to be a significant challenge in the future.	Noted, this is not currently within the scope of the section and we will explore if it can be accommodated in a new Sec 7	David Leary	University of Technology Sydney	Australia
31659	60	13	60	14	The statement that a change in demand in one country will tend to reduce global fossil fuel prices needs to be qualified as "reduced demand for fossil fuels due to carbon pricing in one country, if at sufficient scale, could lower the price...."	Accepted	Lisa Ryan	University College Dublin	Ireland
31661	60	28	61	2	The last sentence in the last paragraph on p 60 is not clear and too long.	Accepted	Lisa Ryan	University College Dublin	Ireland
14731	60	4	63	41	This is a really important sector in the document, to provide insight into best practice for policy makers to take a global view of their decisions and help avoid some of the perverse incentives that have resulted from mitigation action focusing on national boundaries and the standard national inventory / Kyoto Protocol reporting and accounting mechanisms. As it stands the section seems to focus a lot on direct industry-specific leakage, impacts of cap and trade systems etc. - which is all well and good and generally well-documented already. I think a key area that also must be covered is the global impacts of national policies that may lead to changes in land use, soils, forests and biodiversity overseas to meet the demands of mitigation policies. In particular around the development of biomass and biofuels. There is clearly also a wider "social justice" element to this, where some countries may divert their agricultural or forest land to meet the demands driven by other country mitigation measures.	Noted, however these may be salient to explore in Sec 7. We will consider it in the revision	David Glen Thistlethwaite	Ricardo	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
45731	60		65		<p>As draft Chap 2 of IPCC AR6 mentioned, it should be also mentioned in this chapter that carbon leakage has the potential to increase global emissions because it can result in carbon leak from countries with high carbon efficiency to countries with low carbon efficiency in the section.</p> <p>Following is quoted from chap 2; “With the quick expansion of global trade and fragmentation of production, a general outsourcing trend shifting production from developed to developing economies has been identified (Jiang et al. 2018). Emissions outsourcing to developing countries has led to an increase in their territorial emissions, especially in China (Jiang et al. 2018). One reason that rich countries are shifting emission -intensive processes to developing countries is that developing countries tend to have less stringent environmental legislation (acting as so - called pollution havens) (Malik and Lan 2016), cheap labour costs (Tate and Bals 2017), cheap raw materials (Mukherjee 2018), and increasing openness to trade (Fernández - Amador et al. 2016) . As a result, carbon leakage among countries has increased (Fernández -Amador et al. 2016), as well as global emissions. Developing countries such as China tend to have higher emission intensity due to less efficient technologies and carbon -intensive fuel mix (Liu et al. 2015a).”</p>	Taken into account in revised text in section 13.6.	Junko Ogawa	The Institute of Energy Economics, Japan	Japan
16379	60	4			In Section 13.7 International interactions of national actions, including spillovers, please consider whether to include a treatment of global warfare, global military provisioning, and global mechanisms to avoid war as a subsection. Military impacts on climate change are significant, and including mitigation strategies here is warranted.	Rejected - beyond the scope of the chapter.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
31889	61	10	61	13	It is not clear how the Green Paradox would work. Even if fossil fuel producers may extract greater quantities of the reserves, it is unlikely that they will find buyers for the larger quantity of extracted reserves at the prices they would like for the higher returns. They would either have to 'warehouse' the extra production or sell it at a lower price (since the supply would exceed demand) - either way not making significant gains. Or perhaps I have not understood this correctly - either way, it would be good to explain it in greater detail.	Taken into account in revised and shortened text.	Ashok Sreenivas	Prayas (Energy Group)	India
44709	61	30	61	38	This paragraph should include some counterarguments to hedge against the simplifications following the McGlade/Ekins article. A simple global carbon budget countdown overlooks the persistence of so-called residual emissions (to be offset with carbon dioxide removal), the potential role of CCS, and of net negative emissions, which would also influence te amount of 'stranded assets' (see https://www.smithschool.ox.ac.uk/research/sustainable-finance/publications/Stranded-Carbon-Assets-and-NETs.pdf). Furthermore, the McGlade/Ekins paper focused on the AR5/2C budget which was considerably smaller than the AR6/2C budget (see WGI SOD).	Noted. This text has been deleted from Chapter 13 and is covered elsewhere.	Oliver Geden	German Institute for International and Security Affairs	Germany
14435	61	40	62	42	Make a refence/discuss empirical studies on cost pass-through and carbon leakage, for example in S.M. de Bruyne et al. (2015), Ex-post investigation of cost pass-through in the EU ETS - An analysis for six sector, https://ec.europa.eu/clima/sites/clima/files/ets/revision/docs/cost_pass_throu gh_en.pdf	Rejected - no direct evidence of leakage.	Victoria Alexeeva	IAEA - International Atomic Energy Agency	Austria

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
34547	61		63		The leakage discussion overlaps substantially with those in Chapter 11 and 12 - See comments on leakage, BCAs etc below. Also worth noting that one of the major motivation for consumption-based policy instruments (comment to p.49) is that they would largely avoid leakage concerns. Strategically, I think some discussion with Chapter 14 would also be useful - a key question being how to design instruments to support industrial transformation in a world of highly unequal participation.	Noted for cross-chapter coordination.	Michael Grubb	UCL - Institute of Sustainable Resources	United Kingdom (of Great Britain and Northern Ireland)
34549	61		63		Also to flag a comment to Chapter 11: p.74-79: International trade spillover effects and competitiveness Note my comment to Chapter 11 in this area: one specific suggestion is that the authors collectively consider more deeply how to approach the issues around carbon leakage, investment and 'border adjustments'. First, this could usefully be coordinated with Chapters 12 (discusses leakage estimation) and 13 (which has a section on BCAs) and/or 14. In Ch.11 it is located in a section on carbon pricing, which indeed is how almost all the literature addresses it, though the issue could arise from other policies which may raise costs on mobile production activities. It would be useful to clearly distinguish the principles, notably, consumption-based measures and border carbon levelling, which are in principle non-discriminatory, vs potentially discriminatory trade measures. It could be useful if possible to set in wider context of trade and climate relationships. Please to see reference to Mehling et al, worth checking and citing the development of this work as now published in leading law journal: Mehling, M., Van Asselt, H., Das, K., Droegge, S., & Verkuil, C. (2019). Designing Border Carbon Adjustments for Enhanced Climate Action. American Journal of International Law, 113(3), 433-481. doi:10.1017/ajil.2019.22 Also to consider the possible intersection of this issue with 'clubs' discussion in Chapter 14? It may be worth raising at WG-III level how AR6 should approach this issue across chapters.	Noted for cross-chapter coordination.	Michael Grubb	UCL - Institute of Sustainable Resources	United Kingdom (of Great Britain and Northern Ireland)
40417	62	32	62	32	Call it "border carbon adjustments", instead of "border tax adjustments".	Accepted	Kasturi Das	1. Professor of Economics, Institute of Management Technology, Ghaziabad, India; 2. Member, Climate Strategies	India
25967	62	37	62	37	There must be a typo here ("and" is missing before "Ex post"; I guess the sentence should read: "Estimates of leakage rely on both ex ante...and ex post empirical studies...")	Accepted	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
45733	63	20	63	23	<p>Ex post analyses of the competitiveness impacts of the EU emissions trading scheme (ETS) finds it has reduced emissions and increased innovation of low-carbon technologies with no statistically significant negative impacts on employment, output, value added, unit material costs, revenue, profits, exports or investment (Martin et al. 2016).</p> <p>> This fact implies that the reason for no negative impact is that intra-EU trade accounts for about 70%. It suggests that policy maker should consider in order to prevent carbon leakage or negative impacts, each country should harmonize climate policy strength with its trading partners.</p>	Accepted	Junko Ogawa	The Institute of Energy Economics, Japan	Japan
25969	63	20	63	41	<p>I think the authors should better specify the argument that ex post analyses of the EU ETS “reduced emissions and increased innovation of low-carbon technologies” distinguishing small-scale and marginal innovation vs large-scale radical ones. Indeed, based on the literature on Phases I and II of the EU ETS, it can be concluded that the EU ETS alone did not stimulate major low-carbon investments; however, it did stimulate investments typically described as small-scale with short amortization times (e.g., three to five years), resulting in incremental emission reductions (cf. Borghesi and Verde, 2019, for a literature review. Borghesi S., Verde S. (eds), 2019, A literature-based assessment of the EU ETS, Florence School of Regulation, European University Institute, Florence, Italy, DOI 10.2870/97432 http://lifesideproject.eu/wp-content/uploads/2019/06/LIFE-SIDE-final-EU-ETS-Assessment-report.pdf). One prominent econometric study (Calel and Dechezleprêtre, 2016) finds that the EU ETS brought about a substantial increase in the number of low-carbon patents granted to regulated firms. However, it is hard to say how many of these additional patented innovations turned into new processes or products.</p>	Accepted	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
10283	63	29	63	36	<p>To what extent the electricity sector needs free allocations/subsidies/or other type of support to be able to keep the price of electricity at levels that would promote economy-wide electrification?</p>	Noted. This is a context specific question that does not lend itself for assessment in this context.	Aglaia Obrekht	Environment and Climate Change Canada	Canada

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
25971	63	37	63	41	<p>It is true that most studies found no evidence of leakage and competitiveness effects so far. However, more recent studies (Borghesi et al. (2020) and Koch and Basse Mama (2016);) find evidence of greater FDI activity, respectively, in Italy's and Germany's regulated sectors most exposed to international competition and less capital intensive. Moreover, the authors might want to stress that further evidence on competitiveness and leakage might emerge in the future with the extension of available studies to the following phases of the EU ETS and with the price increase observed since 2018.</p> <p>References: Borghesi S., Franco C., Marin G., (2020), "Outward Foreign Direct Investments Patterns of Italian Firms in the EU ETS", The Scandinavian Journal of Economics, vol. 122 (1), 219-256, DOI: https://doi.org/10.1111/sjoe.12323. Koch, N., Basse Mama, H. (2019): Does the EU Emissions Trading System induce investment leakage? Evidence from German multinational firms, Energy Economics, 81, 479-492.</p>	Taken into account in revised text.	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
25709	63	44	65	43	Please check linkages with Chapter 16, which addresses knowledge capacity and spillovers from innovation processes throughout the chapter (and specifically in 16.3.1.3). Please also check linkages with Chapter 14, 14.5.3 which addresses international cooperation in science, technology and innovation	Noted for cross-chapter coordination.	Renee van Diemen	WG III TSU	United Kingdom (of Great Britain and Northern Ireland)
11019	64	2	64	2	This topic is also addressed in chapter 16. A note referring to this chapter is needed.	Noted for cross-chapter coordination.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
31663	64	22	64	23	Feed-in-tariffs subsidise low-carbon supply, not demand. Their most common use is to encourage renewable electricity price by providing a higher price than the market would provide.	Accepted	Lisa Ryan	University College Dublin	Ireland
43015	64	24	64	24	Add dot after (Kitzing et al. 2018)	Accepted	christophe cassen	CNRS-CIRED	France
28625	65	2	65	3	Isn't the failure specifically of the US 1970s and '80s synthetic fossil hydrocarbon fuels program, as opposed to synthetic fuels in general? Arguably Sassoil in South Africa was very successful with their synthetic coal based fuels program, as may be Carbon Engineering in the future with DAC based hydrocarbon fuels.	Noted for cross-chapter coordination.	CHRISTOPHER BATAILLE	IDDRI.ORG/SIMON FRASER UNIVERSITY	Canada
11021	65	3	65	3	However, "failure" here in relative, since knowledge is generated in those "failures" (although may be at a too high costs).	Noted for cross-chapter coordination.	PABLO DEL RÍO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
25917	65	17	65	24	The paragraph seems to contain some inaccuracies. Are there references supporting that the German Feed-in Tariffs design was directly inspired by Japanese policy and California? My understanding of the history of FITs in Europe was that they had emerged at the same period (late 80s to mid-90s) in Germany and Denmark, and were refined as renewable energy developed (Meyer, Niels I. 2004. Renewable energy policy in Denmark. Energy for Sustainable Development 8: 25–35; Lauber, Volkmar, and Lutz Mez. 2004. Three decades of renewable electricity policies in Germany. Energy and Environment 15: 599–623;Cointe, B. and Nadaï, A., 2018, Feed-in tariffs in the European Union: Renewable energy policy, the internal electricity market and economic expertise, Palgrave; Hoppmann, Joern, Joern Huenteler, and Bastien Girod. 2014. Compulsive policy-making— The evolution of the German feed-in tariff system for solar photovoltaic power. Research Policy 43 (8): 1422–1441). The US had indeed introduced a similar system in the 70s, but German FITs quickly became very different from it - The reference to California, I suppose, is to the US 1978 PURPA act which introduced an obligation for utilities to purchase electricity produced by small-scale installations? This policy was not limited to California, though each State developed their own calculations rules to set the fixed prices. (Lesser, Jonathan A., and Xuejuan Su. 2008. Design of an economically efficient feed-in structure for renewable energy development. Energy Policy 36: 981–990; Loiter, Jeffrey M., and Vicki Norberg-Bohm. 1999. Technology policy and renewable energy: Public roles in the development of new energy technologies. Energy Policy 27: 85–97.). About policy learning on FITs, see also Jacobs, David. 2012. Renewable energy policy convergence in the EU. The evolution of feed-in tariffs in Germany, Spain and France. Farnham: Ashgate.	Taken into account in revised and shortened text.	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
44425	66	6	66	6	It should read Sendai Framework for Disaster Risk Reduction 2015-2030	Accepted	Urbano Fra Paleo	University of Extremadura	Spain
30827	66	11	66	12	The need to identify synergies and trade-offs sounds a bit repetitive of what has been already stated before	Accepted. Considered this point and updated in thesecond draft	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
25711	66	17	66	21	Please refer to the glossary for the IPCC definitions of adaptation and mitigation. Adaptation is defined as: 'in human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effect; human intervention may facilitate adjustment to expected climate and its effects.' Mitigation is defined as: 'A human intervention to reduce emissions or enhance the sinks of greenhouse gases'.	accepted.	Renee van Diemen	WG III TSU	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
42109	66	29	66	29	<p>Please consider adding to the indicated line: To meet the demand of various climate information users and tailor climate products to their needs, climate services should facilitate opportunities for co-production of knowledge (Kirchhoff, Lemos and Dessai, 2013) that enables users to actively participate with valid expertise of the particularities of their decision-making context (Vaughan and Dessai, 2014). Multi- inter- and transdisciplinary collaborations are essential to address complex challenges such as climate adaptation or climate risk reduction, and stakeholders need to be properly prepared and trained for effective cross-sector collaborations (Gálos and Lehoczky, 2020; Lehoczky, 2017).</p> <p>References</p> <p>Gálos B., Lehoczky A. (2020): Copernicus Climate Data Store: ready for application in adaptation case studies? – experiences of the training workshop in Hungary. EGU General Assembly. Vienna, Austria. 3 – 8 May 2020. Session CL5.7. Climate Services - Underpinning Science. EGU2020-7417. Geophysical Research Abstracts, EGU General Assembly 2020.</p> <p>Kirchhoff, C. J., Lemos, M. C. and Dessai, S. (2013) 'Actionable Knowledge for Environmental Decision Making: Broadening the Usability of Climate Science', Annual Review of Environment and Resources. 38(1), pp. 393–414. doi: 10.1146/annurev-environ-022112-112828.</p> <p>Lehoczky A. (2017): Changing horizon of Climate Science: from scientific knowledge towards demand based, integrated Climate Services. Universitat Rovira i Virgili, Doctoral Dissertation. (http://www.tdx.cat/handle/10803/461522)</p>	Accepted, but text now significantly restructured. Thank you for the references.	Annamária Lehoczky	Másfél fok (NGO)	Spain
28161	66	33	66	46	Yes there are these efforts in place in many policies, plans, programmes and strategies in many developing countries, but the gap is on implementation/ operationalisation. What do we have in place to ensure / track implementation?	Text now restructured to respond to this.	Damalie Akwango	National Agricultural Research Organisation	Uganda
17377	66	41	66	42	According to discussions held during COP25 and lack of international consensus in IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels, the mentioned texts should appear to be reviewed.	Taken in account.	Zeyaeyan Sadegh	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
4619	66	42	66	43	what kind of synergies with adaptation do CCS technologies exhibit?	Text now restructured.	Leonardo Barreto	Austrian Energy Agency	Austria
15401	66	42	66	43	what kind of synergies with adaptation do CCS technologies exhibit?	repeat comment, text now restructured.	Simone D'Alessandro	University of Pisa	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
30817	66	42	66	45	I found this passage and the examples cited here unclear. In particular, I don't understand the meaning of "trade-offs with mitigation and the built environment" (trade-offs of what?). In all the other cases you refer to synergies or trade-offs of something with mitigation or adaptation, but it is not self-evident what kind of synergies or trade-offs you refer to. Some explicit examples would help the reader better understand.	Accepted. Text rewritten.	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
4621	66	43	66	44	low- and zero energy buildings do have synergies with adaptation, for example allowing better livelihood in hotter and/or colder climates	Accepted	Leonardo Barreto	Austrian Energy Agency	Austria
15403	66	43	66	44	low- and zero energy buildings do have synergies with adaptation, for example allowing better livelihood in hotter and/or colder climates	Accepted	Simone D'Alessandro	University of Pisa	Italy
47429	66	16	67	14	With the potential for preventing some of the increased energy consumption projected to occur with increased warming and potential for preventing GHG feedbacks from the natural system, SRM merits consideration in the context of policies at the interface of mitigation and adaptation.	Partially accepted. Text rewritten. The focus of this section is on policy and institutional overlaps and integration of mitigation and adaptation.	Kelly Wanser	SilverLining	United States of America
16381	66	1			In Section 13.8 Mitigation and adaptation, please consider adding a subsection on the military sector both as a driver of manufacturing, transport and food provisioning emissions and a key to their mitigation. Likewise, global war diminishes the human potential for a sustainable and just future, such that increasing alliances globally for the purpose of climate mitigation may reduce the military sectors of all countries and lead to further benefits.	Noted. This is too detailed for this section focus.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
5555	66	19			Not a grammatical sentence (the one starting with 'While')	Noted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
13709	67	1	67	1	The reference (Tompkins 2018) does not appear in the reference list at the end of the chapter.	Accepted, the references is: Tompkins, EL, Vincent, K, Nicholls, RJ, Suckall, N. Documenting the state of adaptation for the global stocktake of the Paris Agreement. WIREs Clim Change. 2018; 9:e545. https://doi.org/10.1002/wcc.545	Lisanne Groen	Open University of the Netherlands	Belgium
28933	67	4	67	5	Delete one row	Accepted	Marissa Malahayati	National Institute for Environmental Studies	Japan
30877	67	5	67	8	Once more, the same paragraph appears before (p.66, 37-40). I am afraid the whole section needs a deep revision to avoid repetitions and improve the link between its parts.	Accepted. Text has been restructured and rewritten	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4623	67	7	67	9	The impacts of adaptation and mitigation measures on poverty reduction should be mentioned here	Taken into account. The text has been restructured and rewritten.	Leonardo Barreto	Austrian Energy Agency	Austria
15405	67	7	67	9	The impacts of adaptation and mitigation measures on poverty reduction should be mentioned here	Taken into account. The text will be restructured, and updated with recent literature. For example; Lorenza Campagnolo, Marinella Davide. Can the Paris deal boost SDGs achievement? An assessment of climate mitigation co-benefits or side effects on poverty and inequality, World Development, Volume 122, 2019, Pages 96-109, ISSN 0305-750X.	Simone D'Alessandro	University of Pisa	Italy
30829	67	19	67	22	Again, I think this concept has been already repeated several times above.	Taken into account. The text has been restructured and rewritten.	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
30851	67	29	67	33	Please notice that this paragraph repeats word by word what was written before (p.66, lines 33-37)	Accepted, the text will be restructured to avoid redundancy.	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
31891	67	29	67	33	This para is repeated. Previous occurrence on p66, line 33.	Accepted.	Ashok Sreenivas	Prayas (Energy Group)	India
30875	67	34	67	37	Again, I found this paragraph rather repetitive: consider eliminating or aggregating it with what stated before	Accepted	Simone Borghesi	European University Institute - Florence School of Regulation Climate, and University of Siena	Italy
43013	67	41	67	41	remove the dot	Accepted	christophe cassen	CNRS-CIRED	France

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28733	67	41	67	46	<p>REDD+ mitigates climate change not only by carbon sequestration but also by reducing GHG emissions from deforestation and forest degradation into atmosphere. In addition to the listed co-benefits, protection of biodiversity and ecosystem services is one of main co-benefits REDD+ initiative.</p> <p>Therefore, to strengthen the argument, I added this element to the sentence and changed the line as following (highlighted in red color):</p> <p>The REDD initiative focus on mitigation by reducing GHG emissions from deforestation and forest degradation into atmosphere and carbon sequestration, also generates some co- benefits such as: nature protection including biodiversity and ecosystem services, political inclusion, monetary income, economic opportunities. However, some unintended trade-offs may have occurred such as physical displacement, loss of livelihoods, increased human-wildlife conflicts, unequal distribution of benefits to local population groups (Duguma et al. 2014a; Ehara et al. 2014; Di Gregorio et al. 2016; Anderson et al. 2016; Gebara et al. 2014; Bushley 2014; Di Gregorio et al. 2017)</p> <p>Added reference Ehara et al. 2014. REDD+ initiatives for safeguarding biodiversity and ecosystem services: harmonizing sets of standards for national application, Journal of Forest Research, 19:5, 427-436, https://doi.org/10.1007/s10310-013-0429-7</p>	Accepted. Taken into account. The text has been restructured and rewritten.	Makoto Ehara	Forestry and Forest Products Research Institute	Japan

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
47431	67	16	72	10	<p>Local efforts are emerging to explore the potential for SRM to reduce impacts at national or regional scales. These include exploration of marine cloud brightening techniques to cool ocean surface temperatures to reduce the force of storms, albedo techniques to reduce ocean temperatures to protect coral reefs and various cloud-aerosol interventions to affect precipitation. For that reason, SRM and related interventions merit consideration here. Substantial research is required to explore the relationship of SRM techniques to SDGs and synergies across adaptation and mitigation, which are likely to be considerable. See:</p> <p>Jones, A.C., Haywood, J.M., Dunstone, N., Emanuel, K., Hawcroft, M.K., Hodges, K.I. and Jones, A., 2017. Impacts of hemispheric solar geoengineering on tropical cyclone frequency. <i>Nature communications</i>, 8(1), pp.1-10. https://doi.org/10.1038/s41467-017-01606-0</p> <p>McDonald, J., McGee, J., Brent, K. and Burns, W., 2019. Governing geoengineering research for the Great Barrier Reef. <i>Climate Policy</i>, 19(7), pp.801-811. https://doi.org/10.1080/14693062.2019.1592742</p> <p>French, J.R., Friedrich, K., Tessendorf, S.A., Rauber, R.M., Geerts, B., Rasmussen, R.M., Xue, L., Kunkel, M.L. and Blestrud, D.R., 2018. Precipitation formation from orographic cloud seeding. <i>Proceedings of the National Academy of Sciences</i>, 115(6), pp.1168-1173. https://doi.org/10.1073/pnas.1716995115</p>	<p>Noted. This section is about policy and integration between M and A not about the processes/ technologies description so too detailed to include</p>	Kelly Wanser	SilverLining	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
32603	67	16	73	4	This section would benefit from the example of the integration of switching to climate friendly refrigerants (and away from high GWP HFCs, as mandated by the Kigali Amendment to the Montreal Protocol, as well as the EU and many national and subnational measures) with simultaneous improvements in the energy efficiency of cooling equipment. Phasing down HFCs can avoid up to 0.5°C of warming by 2100. See Xu Y., et al. (2013) The role of HFCs in mitigating 21st century climate change, ATMOS. CHEM. & PHYS. 13:6083–6089. The initial phasedown schedule of the Kigali Amendment captures about 90% of this potential, avoiding up to 0.44°C of future warming by end of century, with additional mitigation provided by the Kigali Amendment’s requirement for parties to use best efforts to reduce HFC-23, a by-product of the production of HCFC-22. WMO, et al. (2019) Scientific Assessment of Ozone Depletion: 2018, Global Ozone Research and Monitoring Project-Report No. 58; UNEP (2019) SYNTHESIS OF THE 2018 ASSESSMENT REPORTS OF THE SCIENTIFIC ASSESSMENT PANEL, THE ENVIRONMENTAL EFFECTS ASSESSMENT PANEL AND THE TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL, UNEP/OzL.Pro.31/8 (“Owing to the Kigali Amendment, it is projected that global average warming due to HFCs will be reduced from a baseline of 0.3°C–0.5°C to less than 0.1°C by 2100.”). Additional climate mitigation of up to 39–64 Gt CO ₂ -e is available by capturing the ODS at product end-of-life and destroying or recycling it. Velders G. J. M., et al. (2014) Growth of climate change commitments from HFC banks and emissions, ATMOS. CHEM. PHYS. 14:4563–4572. Parallel efforts to improve energy efficiency of cooling equipment during the mandated phasedown of HFCs under the Kigali Amendment can double the climate benefits of the phasedown. See UNEP (2019) SYNTHESIS OF THE 2018 ASSESSMENT REPORTS OF THE SCIENTIFIC ASSESSMENT PANEL, THE ENVIRONMENTAL EFFECTS ASSESSMENT PANEL AND THE TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL, UNEP/OzL.Pro.31/8; and Dreyfus G., et al. (2020) Assessment of climate	Noted but this is out of scope for this section	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
5553	67	9			space after 'goals'	noted.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
18921	68	19	68	20	think that the correct name is "National and Energy Climate Plans (NECPs)	Accepted	Esther Badiola	European Investment Bank	United States of America
10881	68	42	68	44	I'm unsure whether much has been published on this yet but again it seems worthwhile including here some discussion of the burgeoning climate emergency and net zero carbon plans being developed by local government in countries like the UK. From my involvement, there is a very strong sense that many of these go beyond technocratic approaches and involve deep consideration of stakeholder values and cultures in planning zero-carbon strategies.	Noted.	Ian Bailey	University of Plymouth	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
16383	68	10			In Section 13.8.2.1 Policies approaches to mitigation and adaptation across scales, consider adding a topic-treatment subsection on the military sector both as a driver of manufacturing, transport and food provisioning emissions and a key to their mitigation. Likewise, global war diminishes the human potential for a sustainable and just future, such that increasing alliances globally for the purpose of climate mitigation may reduce the military sectors of all countries and lead to further benefits.	Noted. Certainly conflicts and war reduce any climate actions and joint efforts of mitigation and adaptation. However, this is not the focus of this section.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
5557	68	12			target not targetting	Accepted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5559	68	26			seems too sweeping as it stands - do they all do this?	Accepted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
12703	69	4	4	5	please consider including examples for health (airconditioning as means to adapt is a classical example)	Noted.	Robbert Biesbroek	Wageningen University	Netherlands
5763	69	4	69	5	There is an error in the table? Why the blank spaces under second last box "Trade-offs Mitigation U Adaptation"?	Accepted, the table and the section have been rewritten.	David Leary	University of Technology Sydney	Australia
31893	69	9	69	11	Not sure of the relevance of the sentence "Adaptation with water sector ..." in the section on energy sector trade-offs and synergies.	Noted.	Ashok Sreenivas	Prayas (Energy Group)	India
14725	69	1	70	20	This section seeks to address win-wins and trade-offs. It is vitally important here to explicitly cite the risk of trade-offs between GHG and air quality, for example for the energy sector, where shifting to greater use of biomass and biofuels may well have detrimental effects on air quality and health impacts, due to higher emissions of particulate especially. Diesel versus petrol vehicles has been another major learning point for UK and EU in this space. This point should be within the table 13.6. Providing material examples is helpful to break up the theoretical text and help the reader with some context. There is also a related point that should be made regarding the coordination of policy development within Governments, i.e. the need for joined-up thinking if you have departments with separate responsibilities for GHG and AQ (as we do in the UK with BEIS and Defra).	Text rewritten and restructured.	David Glen Thistlethwaite	Ricardo	United Kingdom (of Great Britain and Northern Ireland)
14727	69	1	70	20	Linked to the above, another key risk (trade-off) that warrants specific mention is the development of use of biomass and biofuels in one country that leads to detrimental impacts (GHG emissions, deterioration of soils, biodiversity) in other countries due to the changes to land use, soils and forestry to meet that biomass demand. When appraising policy impacts it is vital that the full global scope of impacts is considered, and not just those impacts within the limited geographical boundaries of a country or region. I recognise that the document does cover the issue of carbon leakage in other sections (although not with any discussion / focus on land use, soils, forestry, biodiversity), but this is such a key area of policy for many Annex 1 countries in particular, and with risks of very counter-productive policies implemented if these issues of considering the full global scope of policy impacts are not considered, that it should be highlighted.	Text rewritten and restructured.	David Glen Thistlethwaite	Ricardo	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
4625	70	2	70	4	Trade-offs between energy and agriculture and forestry are related, among others, to compliance with sustainability and GHG savings criteria of the use of biomass and biofuels. Strict compliance and enforcement of sustainability criteria will reduce the trade-offs. In addition, trade-offs are related to competing needs for water use (e.g. irrigation vs.power generation).	Text has been restructured and rewritten but this chapter / section is not the lead on this topic.	Leonardo Barreto	Austrian Energy Agency	Austria
15407	70	2	70	4	Trade-offs between energy and agriculture and forestry are related, among others, to compliance with sustainability and GHG savings criteria of the use of biomass and biofuels. Strict compliance and enforcement of sustainability criteria will reduce the trade-offs. In addition, trade-offs are related to competing needs for water use (e.g. irrigation vs.power generation).	Text has been restructured and rewritten but this chapter / section is not the lead on this topic.	Simone D'Alessandro	University of Pisa	Italy
14729	70	11	70	20	This section notes that in cities climate actions, better energy efficiency etc will lead to "improving air quality". This needs to be substantiated or set in full context; where policies may promote uptake of biomass heating that will not be the case. Also the recent UK / EU transport tax policies have promoted less emissive (for GHGs) diesel vehicles which has led to worse air quality in cities due to the trade-off with NOx PM2.5 and other pollutants. This is a key point to add to this section, somewhere (not necessarily "cities"). Further, I wonder why these points are made specific to cities? Where you have off-gas-grid areas in many countries, and a greater reliance on solid and liquid fossil fuels currently, surely the scope for GHG mitigation is similar / better through improving energy efficiency of those buildings; further, more rural communities will tend to have greater reliance on transport links, so better green infrastructure will have strong mitigation potential too.	Noted.	David Glen Thistlethwaite	Ricardo	United Kingdom (of Great Britain and Northern Ireland)
5561	70	5			forestry not Forest for first mention in line 5 (and no caps F)?	Accepted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
12327	71	8	71	12	The y-axis should be labelled, and not just explained in the legend.	Accepted	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
31895	71	20	71	22	Agriculture leads to slightly more emissions than energy in Africa probably because energy consumption levels are so low, rather than because of some inherent characteristic of the agriculture or energy sectors in that continent.	Noted. Text has been restructured and rewritten.	Ashok Sreenivas	Prayas (Energy Group)	India
5765	72	12	72	41	The use of acronym M& A and A &M for mitigation and adaptation is annoying and also confusing. M&A is a common acronym used for mergers and acquisitions and so not appropriate. Why not just refer to mitigation and adaptation? There is no need for an acronym here. But if you do think that is needed be consistent which is it M& A or A & M. You use both here.	Accepted.	David Leary	University of Technology Sydney	Australia
39747	72	31	72	32	It is better to give an example to illustrate that point.	Text has been restructured and rewritten	Xiusheng Zhao	Tsinghua University	China
28167	72	43	72	47	include the level of education. Understanding of policies cannot easily be by the less or non educated	Noted.	Damalie Akwango	National Agricultural Research Organisation	Uganda

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28165	72	12	73	43	Include the barrier associated with corruption, resources are allocated for implementation according to plan and misused in most Least developed countries	Noted	Damalie Akwango	National Agricultural Research Organisation	Uganda
16385	72	12			In Section 13.8.3 Barriers to joint M&A implementation and enablers and solutions, consider adding a subsection on the military sector as a driver of manufacturing, transport and food provisioning emissions and a key to their mitigation. The importance of military goals may overshadow climate change opportunities. Likewise, global war diminishes the human potential for a sustainable and just future, such that increasing alliances globally for the purpose of climate mitigation may reduce the military sectors of all countries and lead to further benefits.	Noted. Certainly conflicts and war reduce any climate actions and joint efforts of mitigation and adaptation. However, this is not the focus of this section.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
4205	73	6	73	6	I miss the fundamental point that 'people' are not just consumers with behaviours, but also voters in democracies who (do not) support various interest groups etc. i.e. individuals are not just relevant to the debate in this section on 'attitudes' and 'behaviour change'.	Noted. The role of individuals as citizens is covered in SOD Sec 3/4	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
10883	73	15	73	22	13.9.1.1 first paragraph does not actually specify at this stage that left-leaning, females etc. people tend to show higher levels of concern about climate change, only that variations exist. Ditto 13.9.1.2, lines 38-44.	Thanks: corrected	Ian Bailey	University of Plymouth	United Kingdom (of Great Britain and Northern Ireland)
37605	73	18	73	22	These two sentences present the main predictors of climate concern in a backwards order - suggest switching or simplifying. Also it's not sufficiently clear whether the groups in brackets (left leaning) (female) are more concerned about climate or less.	Noted. We will clarify in the revision - Missing direction is corrected.	Michiel Schaeffer	Climate Analytics	Netherlands
37607	73	23	73	33	This paragraph should start with something like 'studies have demonstrated mixed results on relative levels of climate concern in developed vs developing nations'	good suggestion, included.	Michiel Schaeffer	Climate Analytics	Netherlands
31897	73	31	73	33	Is the claim made that concerns about the climate increase with age and religiosity correct? It seems counter-intuitive	According to Lewis et al (2018) this is correct.	Ashok Sreenivas	Prayas (Energy Group)	India
37765	73	34	73	38	This feels repetitive with relation to the above section on who is predisposed to 'climate concern' - sure it's a different study, but seems to be stating the same finding?	Taken into account	Michiel Schaeffer	Climate Analytics	Netherlands
39749	73	39	73	44	Eudcation level is also an important factor to influence an individual's attitudes to climate policy measures	Noted.	Xiusheng Zhao	Tsinghua University	China
4143	73	6	74	39	There is some good discussion here on the merits and drivers of engagement but seems to lack anything on local knowledge and expertise. Doing so would help frame citizen engagement/participation as more than a 'barrier' to be overcome or manipulate, but rather that such people have knowledge that can help us to innovate and sustain (re: social acceptability) low carbon transitions.	Noted. We will explore. Section now considerably changed and in 13.4	Chad Walker	University of Exeter	United Kingdom (of Great Britain and Northern Ireland)
46073	73	14	74	41	The headings of sections 13.9.1 ("Engaging people") and 13.9.2 ("Citizen Engagement") ought to be differentiated further. It's not entirely clear what the distinction between the labels is	Noted. Will take into account in chapter restructuring	Diarmuid Torney	Dublin City University	Ireland

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
46071	73	6	75	42	Either somewhere in this section (13.9 Building agreement and action) or elsewhere in the chapter there ought to be some discussion of deliberative democracy and the growing phenomenon of citizens assemblies. A number of countries have now undertaken or are currently undertaking such initiatives to inform climate policy development, either at national or sub-national level, including Ireland, France, the UK, and Poland. An established literature has considered the potential of deliberative democracy in climate and environmental governance (see e.g. John Dryzek, Simon Niemeyer, Graham Smith), which could be referenced. Because of their newness, little has been written specifically about recent examples, but this piece in Environmental Communication provides an overview of the Irish experience: https://www.tandfonline.com/doi/full/10.1080/17524032.2019.1708429	Noted. We have referred to Dryzek.	Diarmuid Torney	Dublin City University	Ireland
34835	73		77		Author(s) should consider adding graphical plots to the entire chapter 13. In addition, graphical plots should be used to explain climate change litigation, citizen enlargement and people's engagement.	Noted. Thank you for the suggestion.	Onema Adojoh	Missouri University of Science and Technology, Rolla, USA	United States of America
5005	73	6	82	45	It is important to agree on policies and actions among all social actors. Implementing citizen consultation actions, citizen science and participatory methodologies will contribute to improving the mitigation practices of CC effects.	Noted	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
5025	73	6	82	45	Community training such as webinars: Monitoring and evaluation of climate policies in Latin America: Learning from a community of regional practice "	Noted	MARIA DEL VALLE MORRESI	UNIVERSITY	Argentina
16387	73	6			In Section 13.9 Building agreement and action, consider adding a subsection on the military sector both as a driver of manufacturing, transport and food provisioning emissions and a key to their mitigation. Likewise, global war diminishes the human potential for a sustainable and just future, such that increasing alliances globally for the purpose of climate mitigation may reduce the military sectors of all countries and lead to further benefits.	This is too detailed for this section.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
16389	73	6			In Section 13.9 Building agreement and action, a treatment of the increasing risk of nuclear arms proliferation could be included for clarity. See, for example, Goldemberg, J., 2009. Nuclear energy in developing countries. Daedalus, 138(4): 71-80. Notably missing from plans for adopting nuclear power in a widespread fashion to address climate change is a new international mechanism that would identify the most nuclear-arms-proliferation-resistant pathway and require that this pathway be followed. The current Non-Proliferation Treaty was not adopted to address climate change, and its utility is not up to the task. For example, Saudi Arabia is presently developing facilities for nuclear materials enrichment to fuel its planned new nuclear power program, and this may be a pretext for nuclear arms production. As nearly 30 new countries are now attempting to adopt nuclear power, thereby doubling the number of nuclear-power countries globally, the risk of arms proliferation increases, and this increased risk ought to be addressed cogently in this section.	Noted. Because of space issues. We are unable to do this.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
43637	73	6			section 13.9 is great!	Thank you	Felix Creutzig	MCC Berlin	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
25919	73	11			Not sure climate litigation can be considered as "behavioral action"	Noted.	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
36309	73	16			What about the public perceptions in the Southern contexts? Again a bias towards the situation of the North needs to be corrected	Thank you for this suggestion.	Youba Sokona	South Centre	Switzerland
13917	73	20			I miss the reference: Capstick S., L. Whitmarsh, W. Poortinga, N. Pidgeon & P. Upham (2015), "International trends in public perceptions of climate change over the past quarter century". WIREs Climate Change, Vol 6 (1) Pages 35–61. (doi: 10.1002/wcc.321)For the EU, there are some interesting references, for instance: Poortinga, W. et al. (2018), European Attitudes to Climate Change and Energy: Topline Results from Round 8 of the European Social Survey. ESS. Available on-line at: https://www.europeansocialsurvey.org/docs/findings/ESS8_toplines_issue_9_climatechange.pdf On the male/female divide, a poll made in Spain showed that women feel much more individually responsible for climate change than men: Los españoles ante el cambio climático Lara Lázaro Touza, Carmen González Enríquez y Gonzalo Escribano Francés. 24/9/2019 http://www.realinstitutoelcano.org/wps/portal/rielcano_es/contenido?WCM_GLOBAL_CONTEXT=/elcano/elcano_es/zonas_es/encuesta-espanoles-ante-cambio-climatico-sep-2019	Thank you for this suggestion, the reference is included and the text modified.	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
1603	74	1	74	1	The statement "...carrots are more popular than sticks" is indirectly backed up by the referenes that follow in the next few sentences, but I would recommend to add two papers that directly address this issue: 1). Cherry, Kallbekken and Kroll (2012, The acceptability of efficiency-enhancing environmental taxes, subsidies and regulation: an experimental investigation, Environmental Science & Policy 16, 90-96) test the acceptability of taxes vs subsidies vs regulation in a controlled lab setting where confounding factors are controlled for, finding a clear preferenece ranking consistent with people preferring carrots over sticks (or the less coercive instruemnt as the authors put it). 2). Steg, Dreijerink and Abrahamse (2006, Why are energy policies acceptable and effective, Environment and Behavior 38(1).	Noted. These referances are rather old and this is a well established finding and hence the review paper Drews and van den Bergh should be sufficient	Steffen Kallbekken	CICERO	Norway
31899	74	1	74	2	CO2 taxes on industry and producers may be more popular than taxes on consumers, but it's not clear how such taxes can be classified as "carrots"? It is just that they prefer sticks being applied to someone else than to them (though it will indirectly affect them as prices will increase).	Thank you for this comment. The formulation is adjusted to: "Generally, this literature finds that carrots are more popular than sticks, e.g. subsidies are more popular than taxes. Further, CO2 taxes targeting industry and producers receive more support than CO2 taxes directed towards consumers". However, the SOD has now altered text considerably.	Ashok Sreenivas	Prayas (Energy Group)	India

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
46067	74	1	74	3	The sentence beginning "For example" seems to be a non sequitor. The example isn't an example of the preference for carrots over sticks. A better link between the sentences is needed.	Thank you for this comment, The sentence was adjusted to: "Generally, this literature finds that carrots are more popular than sticks, e.g. subsidies are more popular than taxes. Further, CO2 taxes targeting industry and producers receive more support than CO2 taxes directed towards consumers." However, the SOD text has been sgnificantly restructured.	Diarmuid Torney	Dublin City University	Ireland
1605	74	8	74	11	I would add the following recent review to the list of references here: Maestre-Andres, Drews and van den Bergh (2019, Perceived fairness and public acceptability of carbon pricing, Climate Policy 19(9), 1186-1204 (as it reviews precisely the studies on acceptability and perceived fairness).	Thank you for this suggestion, the reference is added.	Steffen Kallbekken	CICERO	Norway
10885	74	8	74	11	For perceived unfairness leading to lower public acceptance, see commentaries by Chrias Rootes in Environmental Politics (2013) and Bailey, I. (2017) Spatializing climate justice: Justice claim-making and carbon-pricing controversies in Australia, Annals of the American Association of Geographers, 107 (5): 1128-1143.	Noted	Ian Bailey	University of Plymouth	United Kingdom (of Great Britain and Northern Ireland)
46069	74	8	74	11	I think the point about perceived fairness needs to be nuanced in light of the findings of this paper: https://doi.org/10.1080/14693062.2019.1639490 . Specifically, according to that paper, most studies do not indicate clear public preferences for using revenues to ensure fairer policy outcomes, notably by reducing its regressive effects.	Thank you for this suggestion. Fairness is not referred to as the most important in the section the reviewer refers to, but as one of the most important. The reference is now included.	Diarmuid Torney	Dublin City University	Ireland
19917	74	16	74	20	Empirical evidence suggests that values have a strong influence on policy support, especially in conjunction with targeted messaging. I suggest to add the reference Schoenefeld, J. J., & McCauley, M. R. (2016). Local is not always better: the impact of climate information on values, behavior and policy support. Journal of Environmental Studies and Sciences, 6(4), 724-732.	The suggestion may be more suitable for ch 5 - we will review the literature	Jonas Schoenefeld	Institute of Political Science, Technical University of Darmstadt	Germany
44711	74	18	74	18	Who's 'we' in this sentence?	Thank you for this comment. The sentence is now rewritten ("we" referred to people): "However, people tend to underestimate other people's willingness to support mitigation policies warming"	Oliver Geden	German Institute for International and Security Affairs	Germany

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10289	74	41	75	42	<p>RAISING THE PROFILE: GREAT STRIDES TOWARDS NET-ZERO EMISSIONS</p> <p>Literature reveals that the fierce fight against global warming has sparked awareness and commitments by countries around the globe. Africa has not been left out in this all important battle, and policies and commitments have been made to resolve this issue. However, the African continent has not contributed much to this fight.</p> <p>In Africa, many people are aware of the changing weather patterns but have not closely associated that with the effects of climate change as they interpret climate change as a literal change in climate or weather. (Taderera, 2010). Through observed changes in agriculture and other systems in the economy, Climate change is yet poorly understood by some Africans as a mere change in the weather with limited understanding of the role of the interplay of greenhouse gases and its effect on the planet (Neville & Mohammed, 2010). This is attributed to the low level of knowledge on the subject and limited awareness campaigns and that African countries are beset and much concerned with issues of poverty, civil strife and political unrest and so climate change is not a priority issue. (UNFCCC, 2007; UNDP, 2007). In a study conducted among some cocoa farmers in Ghana by Cudjoe et al 2013, the farmers' responses to the changing weather patterns included God's plan signifying the end of time, usage of heavy machines on the land, air and water and illegal mining among others. This is a clear indication that the farmers had some level of awareness of the changes in weather patterns and its causes but need extra education to improve their understanding on climate change manifesting itself in extreme weather patterns. How well climate change is understood by subjects of a country will induce a positive and effective response to create net-zero emissions.</p> <p>Having failed at being preventive driven, the focus can be shifted to being curative ridden in a swift manner. To employ measures to mop up the</p>	noted	Kate Kyeremateng	University of Ghana	Ghana
13919	74	28			Typo: "attiTudes"	noted	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
10887	75	1	75	11	It would also be worth noting here that the types and effects of civic engagement can vary greatly depending on the object of that engagement, contrasting, for example, civic engagement on onshore versus offshore renewable energy projects, then further comparisons with grassroots sustainability and resilience initiatives like Transition Towns or emerging local net zero carbon initiatives (Leeds, Devon etc. in the UK), many of which involve extensive civic engagement through citizens' assemblies etc.	noted	Ian Bailey	University of Plymouth	United Kingdom (of Great Britain and Northern Ireland)
28169	75	5	75	7	Use of specific feed types for animals like cymbopgan grass contributes less GHG	Misplaced comment	Damalie Akwango	National Agricultural Research Organisation	Uganda

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
4627	75	9	75	9	Other forms of consumer/citizen's engagement refer to their participation in renewable energy communities entitled to produce, consume, sell, store and share renewable energy as granted by the EU renewable energy directive 2018/2001 (https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32018L2001&from=EN#d1e2996-82-1)	Added reference to this directive.	Leonardo Barreto	Austrian Energy Agency	Austria
15409	75	9	75	9	Other forms of consumer/citizen's engagement refer to their participation in renewable energy communities entitled to produce, consume, sell, store and share renewable energy as granted by the EU renewable energy directive 2018/2001 (https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32018L2001&from=EN#d1e2996-82-1)	same as previous	Simone D'Alessandro	University of Pisa	Italy
5767	75	19	75	27	I have concerns about a significant policy report advocating in support of radical extremists like extinction rebellion. I would strongly urge this controversial overtly political statement of support for such extremists and strike action be removed, It has no place in a sober scholarly policy analysis. In any event Chapter 14 has more balanced analysis of this group and to that extent discussion here doubles up. I suggest that if the discussion is in fact necessary that the more balanced and infomative discussion in Chapter 14 be preferred	Noted. We have created a box about School strikes.	David Leary	University of Technology Sydney	Australia
28171	75	24	75	25	Very few studies look specifically at the effect of these tactics on actual climate-related outcomes , Full stop instead of comma	Text has been edited.	Damalie Akwango	National Agricultural Research Organisation	Uganda
44715	75	24	75	27	I wonder whether you should mention that FFF and XR base their claims very explicitly on IPCC reports (see https://www.cell.com/one-earth/fulltext/S2590-3322(19)30140-X) and/or their 'just follow the science' claims (which is something that the mentioned Evensen commentary criticizes).	Rejected, as the focus of this section is on the tactic not the basis of the claims of specific groups.	Oliver Geden	German Institute for International and Security Affairs	Germany
44713	75	26	75	26	Fridays for Future' should be mentioned as well, I think FFF is more important than Extinction Rebellion	we now have a box on school strikes	Oliver Geden	German Institute for International and Security Affairs	Germany
25713	75	45	76	15	Please check linkages with Chapter 14, specifically 14.5.8. on transnational civil society movements and actions	Rejected - reviewed this section and do not see any overlaps	Renee van Diemen	WG III TSU	United Kingdom (of Great Britain and Northern Ireland)
5565	75	15			Sentence is not garmmatically correct	I'm not sure which sentence the comment is referring to but I reviewed all to check grammar.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5567	75	17			two lots of 'as well'	edited.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5569	75	19			Other citizen engagement involves (pselling, no comma, no caps)	fixed.	Chris Hilson	University of Reading	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
5563	75	28			and climate change litigation?	added.	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
28935	76	0	76	0	Put the footnote as reference. Thank you	all footnotes have been moved to references.	Marissa Malahayati	National Institute for Environmental Studies	Japan
5769	76	1	76	15	I have strong concerns about a significant policy report encouraging students to go on strike and leave school. Scholarly policy analysis should not be encouraging students to walk away from education. It should also not advocate the views of more radical elements of society. In any event this is also discussed in Chapter 14. The discussion in chapter 14 is more balanced and nuanced and I would suggest the discussion in chapter 13 be deleted as it overlaps considerably with the more balanced discussion in Chapter 14.	This box provides a description of this specific form of civic engagement--the school strike--which has gained substantial attention around the world.	David Leary	University of Technology Sydney	Australia
44717	76	7	76	15	As far as I know, the mentioned turnout numbers are all based on the organizers' claims and therefore highly likely to be exaggerated (at the same time, public officials tend to downplay attendance numbers). Neither the Guardian nor 350.org are credible sources in this regard, so maybe you just shouldn't mention exact numbers? Maybe "millions" would do?	noted, sources changed	Oliver Geden	German Institute for International and Security Affairs	Germany
44719	76	13	76	15	It's certainly not dying down, but even before the Corona crisis the numbers of demonstrations and the overall turnout went down across Europe, forcing the organizers to use more targeted strategies (e.g. campaigning against companies like Siemens).	Section updated and included a discussion of the movement's response to the Coronavirus	Oliver Geden	German Institute for International and Security Affairs	Germany
34833	76	38	76	38	The copied sentences and websites should be removed and taken to the reference page.	moved to references (highlighted to show as Zotero does not track changes).	Onema Adojoh	Missouri University of Science and Technology, Rolla, USA	United States of America
10285	76	18	77	44	Perhaps it is worth to bring up the litigation between different levels of government: national versus sub-national. For example, in Canada - provinces (Alberta, Ontario, Saskatchewan) are taking the federal government to court with respect to the authority over implementation of carbon tax. Opposite is happening in US, where the federal government is taking California to court over California's climate change policies. See also comment 57.	Accepted - text revised	Aglaia Obrekht	Environment and Climate Change Canada	Canada
12329	76	18	77	44	The textual overview of climate litigation in this section is very useful. Please consider presenting this in a table, including the location (global south/north), country, number of cases, year, who the case was brought by and outcome etc.	Noted. We will consider this suggestion	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
13141	76	18	77	44	This section should include discussion of climate change litigation against governments, with reference to the extensive literature on the Urgenda case (e.g. Cox (2016), Roy & Woerdman (2016), Lin (2015), Mayer (2019)). Literature on what Peel and Osofsky (2018) have called a 'rights turn' in climate litigation' should also be discussed, highlighting how human rights law has formed a legal basis for forcing governments to adopt more ambitious climate policies (e.g. Gerrard 2016, Bach 2015-2016, Jaimes (2015)).	Accepted - text revised	Margaretha Wewerinke-Singh	Leiden University; University of the South Pacific	Netherlands
16803	76	18	77	44	Climate litigation is a phenomenon that has gained much importance since AR5 and deserves to be given ample attention in the context of AR6. It is therefore positive that a chapter on this topic has been included. The current chapter however lacks a description of two of the most important topics in this field: 1) cases in relation to government responsibilities in relation to climate change and 2) the potential impact of those cases on mitigation and adaptation action at the national and international level. The next draft of the report should include an in depth discussion of these topics. The importance of these cases can for instance be seen in the very brought legal scholarship on the topic. For instance, the Urgenda case, which to date is seen as the most prominent of these type of cases, has more than 1400 search results in google scholar: https://scholar.google.nl/scholar?as_sdt=1,5&q=urgenda&hl=nl&as_ylo=2015&as_yhi=2020&as_vis=1	Accepted - text revised	Dennis van Berkel	Urgenda	Netherlands
16805	76	18	77	44	[continued] The final decision in the Urgenda case by the Dutch Supreme Court was taken on December 2019. The importance of this decision was for instance emphasised in the following statement of the UN High Commissioner for Human Rights: "The decision confirms that the Government of the Netherlands and, by implication, other governments have binding legal obligations, based on international human rights law, to undertake strong reductions in emissions of greenhouse gases." (https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=25450&LangID=E) The report should therefore spend specific attention to this judgement, for instance by committing a separate box to it.	Accepted - text revised	Dennis van Berkel	Urgenda	Netherlands

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
16807	76	18	77	44	[continued] Courts in Pakistan and Colombia similarly recognised the fundamental right protection against the impacts of climate change, including the rights of future generations. In October 2019 an administrative court in Berlin came to a very similar conclusion as the Dutch Courts in the Urgenda case with regards to the existence of a legal duty on the government to do its share in reducing global emissions to below the Paris Agreement Temperature Target. (see Petra Minnerop in the Environmental Law Review (forthcoming) and Schomerus in Zeitschrift für Umweltrecht (ZUR) March 2020). In January of 2020 an Appeals court in Norway similarly accepted legal obligations with regards to emission for the Norwegian territory, based on the Norwegian constitution. In February 2020 an appeal court in the UK annulled the approval of an airport expansion on the basis that its impact on climate change had not been taken into account. The report should include scholarship on these important judgements which clearly show a trend in this type of litigation.	Accepted - text revised	Dennis van Berkel	Urgenda	Netherlands
16809	76	18	77	44	[continued] The analysis of this type of climate litigation against government should be put in the context of the finding in the AR5 report. AR5 for instance discussed the role of litigation in connection to compliance in the context of international agreements (WGIII, chapter 13.3 and 13.3.4). The report also described topics such as intergenerational justice, rights of future generations, historic responsibility of emissions, and perceived hurdles for adjudicating these issues in courts. (WGIII, Chapters 3.3, 3.3.1, 3.3.2, 3.3.4, 3.3.5, 3.3.6 and 4.2.2). Whereas the discussion of these topics in AR5 were still largely of a theoretical nature, each of these topic have been decided upon by courts in different jurisdiction, which has create a wealth of legal scholarship that was not yet available at the time of AR5.	Accepted - text revised	Dennis van Berkel	Urgenda	Netherlands
16811	76	18	77	44	[continued] The understanding of the issues at play have also developed far beyond that of AR5 and have had real live impacts (for instance in the mitigation measures taken by the Dutch government in response to the Urgenda judgement). All of this warrants a much more elaborate assessment of these topics in than is the case in the currently draft of the report.	Accepted - text revised	Dennis van Berkel	Urgenda	Netherlands

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
32605	76	19	77	44	Since the Industrial Revolution, rules of liability have evolved in common law courts to address new threats as they emerged, and they will do the same with the threats from climate change. As one noted law professor observed, it is possible to trace the history of the Industrial Revolution through tort litigation, Prosser and Keeton on Torts (1984, 5th edition), as courts considered how to address new threats to society and how to assign liability. The growing risk presented by climate change is now challenging courts around the world to evolve to address these new risks. The question is how quickly the courts will be able to do this—whether they will assign liability and responsibility in time to change the course the world is on and help return the planet to a safe climate. It is clear, however, that the generative capacity of the common law is already beginning to darken the shadow of common law liability, and that such shadow is reaching into the board rooms of fossil fuel companies and related industries. See Eisenberg, M.A., THE NATURE OF THE COMMON LAW (Harvard U Press 1991) (“The generative conception, however, permits an answer to be given to every such question, and it is supplemented by an institutional principle that courts should give such an answer; that courts, having capacity under the generative conception to determine the law on every matter, should pass upon the justice under law of any claim that may arise.”)	Taken into account. It is not clear what changes are expected, but the matters pointed out (climate change is challenging courts around the world and limits of common law liability) are being considered in th text.	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
32607	76	19	77	44	It would be useful to add other objectives for climate litigation, in addition to driving policy change or influencing corporate or societal behavior. Other objectives include: preventing sources and protecting sinks (clearly related to mitigation but not always focused on top-down emissions reductions) and seeking compensation for climate-related harms, as well as cost recovery for adaptation, which should be mentioned here.	Accepted - text revised	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
32609	76	19	77	44	Section 13.9.3 seems to conflate the climate liability/damages lawsuits brought under common law principles, which are not necessarily intended to drive policy or regulatory change that would reduce GHG emissions, with all the rest of the climate lawsuits, which are generally based on statutory law or regulation, under the following descriptor: “Climate change litigation is ‘regulatory’ in that it can be seen as an intentional activity attempting to control, order or influence the behavior of others.” (See, p. 13-76, Ins. 37-38, citing an article that only discussing lawsuits seeking orders mandating lower emissions, such as Juliana, Urgenda, and cases from Pakistan and the Philippines, and not just the climate liability lawsuits).	Accepted - text revised	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
32611	76	19	77	44	When discussing the climate liability lawsuits brought against “Carbon Majors,” the authors distinguish these cases from the regulatory cases by using the term “strategic” (e.g. “More recently, a new generation of strategic private climate change litigation alleging...” p. 13-77, ln. 31; and “Strategic climate change litigation against major emitters...” p. 13-77, lns. 35-36). The term strategic is not used to qualify any of the other climate litigation discussed in Section 13.9.3. Nor is there is any discussion why one thread of litigation—but not the other—should be considered “strategic”. While it is clear that the common law climate liability lawsuits against corporations for money damages are distinct from regulatory lawsuits against governments, the designation as one as strategic and the other not is not useful. in Section 13.9.3.	Accepted - text revised	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
32613	76	19	77	44	Ideally, the “regulatory” sentence should be removed. Alternatively, it would be useful to clarify that it does not apply to all of the lawsuits discussed in Section 13.9.3. The simplest way to make clear that the common law climate liability lawsuits are separate and apart from any regulatory litigation would be to add a clause to the very beginning of the paragraph discussing the common law climate liability lawsuits. For example, instead of reading: “More recently, a new generation of strategic private climate change litigation alleging...” the sentence could say “In addition to the lawsuits against governments seeking regulation of GHG pollution, a new generation of common law climate change lawsuits against carbon majors for damages...”. A more substantive change would include parsing the many categories of climate litigation and applying the “regulatory” comment only to those where it fits. One way to do that would be by separating lawsuits concerning climate mitigation from those re climate adaptation – with the regulatory comment being applied to the mitigation cases, but not the strategic adaptation cases. Further, immediately before discussing the various current climate litigation, the authors cite the Sabin Center U.S. Climate Change Litigation database for the assertion that “[a]s of November 2019, more than 1,400 climate change litigation cases have been identified.” (See, p. 13-76, ln. 32.) The Sabin Center database sorts those 1,400+ cases into 10 separate categories (Federal Statutory Claims; Constitutional Claims; State Law Claims; Common Law Claims; Public Trust Claims; Securities and Financial Regulation; Trade Agreements; Adaptation; Climate Change Protestors & Scientists; Archived Categories). Thus, the authors mention the 10 categories – and then apply the regulatory comment where applicable.	Accepted - text revised	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
32615	76	19	77	44	Additional resources on climate litigation include: Zaelke, D. & Cameron, J. (1990) Global Warming and Climate Change - An Overview of the International Legal Process, AMERICAN U INT'L LAW REV, 5, no. 2, 249–290; Leslie Hook (1 March 2020) Billionaire Chris Hohn threatens to sue coal-financing banks, FINANCIAL TIMES; and Leslie Hook (9 June 2019) Oil majors gear up for wave of climate change liability lawsuits, FINANCIAL TIMES; Giuliana Viglione (28 February 2020) Climate lawsuits are breaking new legal ground to protect the planet: Despite recent defeats, activists are optimistic that courts will provide relief from climate change, NATURE.	Rejected. Zaelke & Cameron (1990) is an overview of the international legal process and considering all the new developments in this area it is not sufficiently up to date to be included. Also, this section focuses on climate litigation, not a topic covered by the article. The other suggested references are all news/media article (including the last one - it is a news article published in Nature).	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
35079	76	19	77	44	A more qualitative discussion is needed here in terms of what the causes are for bringing cases to courts and what the rationale for that has been. Little discussion or attention is given as to the reasons or grounds upon which claimants seek composition through a court of law.	Accepted - text revised	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
5587	76	18			In this climate change litigation section, should mention not also be made of reactive climate change litigation (involving activists engaged in protest activity being arrested and prosecuted and using criminal court proceedings brought against them to further climate change arguments, especially in the context of available criminal defences such as 'necessity')? See eg Graeme Hayes (2013). 'Negotiating proximity: Expert testimony and collective memory in the trials of environmental activists in France and the United Kingdom' Law & Policy, 35(3), 208–235; Chris Hilson (2010). 'Climate change litigation: An explanatory approach (or bringing grievance back in)' In F. Fracchia & M. Occhiena (Eds.), Climate change: la risposta del diritto (pp. 421–436). Napoli: Editoriale Scientifica	Accepted - text revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
43639	76	18			This section should consider also the recent Dutch case and the Heathrow case, even if there is not yet peer-reviewed literature. It's just too important to ignore.	Accepted - text revised	Felix Creutzig	MCC Berlin	Germany
5573	76	19		20	Some mention of the definitional difficulty of deciding what amounts to climate change litigation might be useful (although I see this is raised at lines 35-6, which is probably fine as it's not too far away).	Accepted - text revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5571	76	24		26	The range of actors presented are all seemingly on the claimant/plaintiff/applicant side. There is also a range of actors against whom claims are brought, many of whom are also in the other list.	Accepted - text revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5575	76	32			by the Sabin (Missing by)	Accepted - text revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5577	76	37		38	regulatory only when brought against government and/or fossil fuel companies etc? Cases brought by the latter, to try to thwart climate policy/legislation, is not quite this? More like anti-regulatory?	Accepted - text revised	Chris Hilson	University of Reading	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
14235	77	9	77	12	It would seem appropriate here to make specific reference to the use of human rights arguments in climate change litigation. This use has been bolstered by the support, at least in some cases, of the UN Special Rapporteur on Human Rights and the Environment. See: http://www.srenvironment.org For a review of the use of human rights arguments in climate change litigation, see: Savaresi A and Auz J, 'Climate Change Litigation and Human Rights: Pushing the Boundaries' (2019) 9 Climate Law 244	Accepted - text revised	Annalisa Savaresi	University of Stirling	United Kingdom (of Great Britain and Northern Ireland)
35903	77	16	77	16	After the last sentence in line 16 I would add a sentence like this: 'One of the most famous cases is the Dutch 'Urgenda' case in which a reduction scenario identified in the IPCC's AR5 was enforced against the Dutch State: the Courts ordered a GHG reduction of at least 25% by 2020.' References may include the judgements to be found in English at https://www.rechtspraak.nl/Bekende-rechtszaken/klimaatzaak-urgenda as well as the Burgers & Staal 'Climate Action as Positive Human Rights Obligation: The Appeals Judgment in Urgenda v the Netherlands' --> https://link.springer.com/chapter/10.1007/978-94-6265-331-3_10	Accepted - text revised	Laura Burgers	PhD Candidate, University of Amsterdam	Netherlands
14237	77	19	77	19	There seems to be a typo in this line, where the report mentions ';.risk'. It looks to me like this text and the citation that follows should be deleted	Accepted - text revised	Annalisa Savaresi	University of Stirling	United Kingdom (of Great Britain and Northern Ireland)
25301	77	19	77	20	Reformulate Text presented in the subject lines.	Accepted - text revised	Eleni Kaditi	Organization of the Petroleum Exporting Countries (OPEC)	Austria
35901	77	30	77	30	After the last sentence in line 30 I would add the following sentence: 'Human rights-based climate change litigation is seen as increasingly successful and is moreover perceived as generally legitimate, especially in litigation against governments' with a reference to Burgers 2020 'Should Judges Make Climate Change Law?' --> https://www.cambridge.org/core/journals/transnational-environmental-law/article/should-judges-make-climate-change-law/D9B088113959571B24E97F5E976CA107	Accepted - text revised	Laura Burgers	PhD Candidate, University of Amsterdam	Netherlands
13615	77	31	77	39	Suggest expanding significantly the discussion on "attribution science", along with the inclusion of models of country allocation and effort sharing (such discussions may require modelling and inclusion in multiple chapters, including those covering the science and data of GHG emissions). See e.g., the work of Richard Heede; Yann Robiou du Pont; and Myles Allen.	Rejected. It is not possible to 'expand significantly' the discussion on attribution science in this section - it is outside the scope of the chapter. The suggested references (du Pont and Allen) are studies of attribution science, relevant for the chapter that deals with this matter. The references cited in this part are of scholars who are discussing the use of attribution science in climate litigation.	Stuart Bruce	Wilmer Cutler Pickering Hale and Dorr LLP	United Kingdom (of Great Britain and Northern Ireland)
5579	77	9			the first UN one listed is international not supranational? This also affects the next sentence (as there is already a role).	Accepted - text revised	Chris Hilson	University of Reading	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
5581	77	10			space before final brackets	Accepted - text revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5583	77	19			rogue risk word?! Where do the brackets after then belong?	Accepted - text revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5585	77	20		21	Private actors have also been defendants to climate change litigation' - but the prior sentence has just said that cases have been brought against companies. Cpmpanies are also private actors, so this is repeating unless we are told what specific types of private actor other than companies are envisaged here.	Accepted - text revised	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
42103	78	23	78	30	<p>Please consider adding to the indicated paragraph: Media play a crucial role in mainstreaming low-carbon lifestyles and breaking the social silence (also known as the spiral of silence) around climate change (McLoughlin et al., 2019). For example, several studies have shown that while most people in the UK are in favour of renewable energy technologies, they don't think other people are. (ECIU, 2014) 'Talking climate', allowing the links between different low-carbon behaviours to be made 'conscious', and positively influencing the perception of social norms in the process, is a crucial element in mainstreaming low-carbon lifestyles in any cultural context (McLoughlin et al., 2019).</p> <p>References:</p> <p>ECIU - Energy & Climate Intelligence Unit (2014). Study shows widespread misconceptions about energy and climate change. Retrieved from: http://eciu.net/press-releases/2014/survey-reveals-widespread-misconceptions-about-energy-and-climate-change.</p> <p>McLoughlin, N, Corner, A., Clarke, J., Whitmarsh, L., Capstick, S. and Nash, N. (2019) Mainstreaming low- carbon lifestyles. Oxford: Climate Outreach</p>	Accepted: the suggested literature is reviewed	Annamária Lehoczky	Másfél fok (NGO)	Spain
12331	78	35	78	35	Please provide an example- or explanation of "the numerous professional challenges" associated with media representations of climate mitigation. The sentence on its own is not sufficient.	Accepted: the sentence has been revised	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
42107	78	35	78	37	<p>Please consider adding to the indicated paragraph: If scientific information is misinterpreted by the media or science fiction is not clearly separated from the reality, it can cause more harm than good. Researchers who have looked into the public understanding of scientific notions have argued that movies, television programs, and novels have been very effective not only at blurring the boundary between fiction and scientific facts, but also, as a result, at generating misconceptions. Kádár et al. (2015) found that even the single viewing of the science fiction film, <i>The Day After Tomorrow</i>, resulted in generating diverse misconceptions regarding the concept of global warming. Thus, to provide the public with accurate, reliable, timely and relevant climate change information and boost action, the role of climate communicators and educators as intermediaries between the scientific and media communities is more important than ever (Lehoczky et al., 2020). In addition, scientists and science communicators need to be aware of the communication challenges of certain notions and concepts, as there are several terms that have different meanings for scientists and the public (Sommerville & Hassol, 2011; Corner et al., 2015).</p> <p>References</p> <p>Corner, A., Lewandowsky, S., Phillips, M. and Roberts, O. (2015) <i>The Uncertainty Handbook</i>. Bristol: University of Bristol</p> <p>Kádár A., Farsang, A., Ábrahám, E. (2015): The impact of science-fiction films on the geographical knowledge of students. <i>Földrajzi Közlemények</i> 139. 4. pp. 302–317.</p>	Noted	Annamária Lehoczky	Másfél fok (NGO)	Spain
4629	78	41	78	45	Creative media approaching children and youth is very relevant to rank climate change and impacts among their priorities	No concrete suggestion	Leonardo Barreto	Austrian Energy Agency	Austria
15411	78	41	78	45	Creative media approaching children and youth is very relevant to rank climate change and impacts among their priorities	No concrete suggestion	Simone D'Alessandro	University of Pisa	Italy
5057	78	1	79	21	This section is about the impact of mass media coverage on public agreement on energy systems. But this content of mass media impacts, it is rather a role that mass media could play its role, might fit into Chapter 3.	Rejected. We feel public agreement is necessary to discuss in Ch 13	Midori Aoyagi	National Institute for Environmental Studies	Japan
13921	78	1			In section 13.9.4 I miss again the role of think tanks in building consensus, bridging scholars' work and policy, but also communicating to the wider public, as well as traditional and social media	Noted. This will be dealt with more in Sec 3	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
12333	79	1	79	2	The sentence is "how certain framings (...) influence public understandings". Please give an example- or explanation of such framings.	Noted. We will elaborate	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
42105	79	1	79	6	<p>Please, consider adding to the indicated paragraph: Adopting stronger language on climate change is one of the greatest evidence of re-framing to better convey the seriousness of the problem: the prestigious British daily newspaper, The Guardian has updated its style guide to introduce terms that more accurately describe the environmental crisis unfolding around the world, for example instead of "climate change" the preferred terms are "climate emergency, crisis or breakdown" (1). The Guardian's decision has prompted various other media outlets around the world to reconsider the terms they use in their own coverage (2).</p> <p>References: 1 https://www.theguardian.com/environment/2019/may/17/why-the-guardian-is-changing-the-language-it-uses-about-the-environment 2 https://www.theguardian.com/environment/2019/may/24/media-outlets-guardian-reconsider-language-climate</p>	We will follow IPCC terminology	Annamária Lehoczky	Másfél fok (NGO)	Spain
12335	79	7	79	15	Please provide a definition/explanation of "climate change counter-movements". This paragraph could also do with some more information, e.g. what motivates these groups, who funds them, how are they organised.	This section text is now considerably changed	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
12337	79	23	79	23	The whole of Ch.13 is broadly about enabling conditions, which makes this sub-heading slightly misleading. Please consider changing this sub-title to focus more specifically on the temporal aspects (acceleration/path dependency) of policy, which would be more accurate. These aspects are also (as the chapter states) 'concepts' and not [enabling] 'conditions'.	Noted. We will finalise the section once the entire SOD is written and take into account this comment	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
10889	79	23	82	44	This section would benefit from giving greater consideration to the political framing of climate change and climate policy and the effects that discourses and narrative competition can have in creating or undermining favourable conditions for climate policy development.	We have changed the focus of this section. We hope the political framing is now covered in 13.2, 13.3, 13.4, 13.8	Ian Bailey	University of Plymouth	United Kingdom (of Great Britain and Northern Ireland)
5617	79	4			comma after 2016 bracket	done	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5615	79	5			remove ;	done	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
43641	79	16			Important contribution. There is also a role of dedicated think tanks feeding the media and policy makers, e.g. the Heartland institute. Should be covered also in the academic literature.	noted	Felix Creutzig	MCC Berlin	Germany
5613	79	20			missing citation mentioned?	noted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
16391	79	23			In Section 13.10 Enabling conditions and acceleration, a treatment of the acceleration from mitigation strategies to limit global military GHG emissions from transportation, manufacturing and provisioning might be included for accuracy and clarity.	Noted. Space limits suggest it will be hard to incorporate this here	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
16393	79	23			In Section 13.10 Enabling conditions and acceleration, a brief treatment of government subsidizing the potential of drilling infrastructure from the oil/gas sector being used to develop wells and reservoirs for hot dry rock geothermal energy. Briefly, hot dry rock geothermal does not require endemic water resources nor is it restricted to tectonically active regions. Instead drilling is done with deep wells and heat extraction for electricity generation uses a closed-loop system typically with either water or CO2 as the heat transfer fluid. The development of appropriate drilling technology to develop hot dry rock geothermal wells and reservoirs is a current area of investment by, e.g. oil companies in Texas, and may provide an avenue for rapid energy transition. Government subsidy would provide oil and gas companies an incentive to transition to being primarily geothermal energy companies in some scenarios. Likewise, developed country could fund oil and gas companies to develop hot dry rock geothermal power in developing countries and offset, e.g. planned coal power. Nearly all of the cost of geothermal energy is upfront.	Rejected. This is a very specific suggestion around a very specific technology and as such space is too limited to cover in such detail in this chapter	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
28173	80	31	80	32	There is repetition of the same sentence on At 32 the same time as ensuring the presence of the necessary enabling conditions for a policy goal,	changed	Damalie Akwango	National Agricultural Research Organisation	Uganda
43017	80	31	80	32	Remove repetition 'At the same time as the presence of the necessary'	changed	christophe cassen	CNRS-CIRED	France
13711	80	37	80	37	There is no author mentioned in the reference (2016) after 'positive institutional lock-in'.	noted, section changed	Lisanne Groen	Open University of the Netherlands	Belgium
28175	80	37	80	37	Missing gap on the sentence positive institutional lock-in(2016)	noted, section now changed	Damalie Akwango	National Agricultural Research Organisation	Uganda
5609	80	17			why caps I for international? And N in the line below?	noted, now changed	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5611	80	19			where is the close bracket from the line before? Or delete the one before 'energy'?	noted, now changed	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5603	80	31		32	Sentence is repeated twice.	noted, section now changed	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5605	80	37			the idea of stickiness first came from Lazarus (see my comments above).	noted, section now changed	Chris Hilson	University of Reading	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
5607	80	37			space needed before 2016 brackets	noted, changed	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
13923	80	47			There is also a tendency to "fossilise" renewable energies, recurring to the narratives of new dependencies and new vulnerabilities, for instance regarding critical minerals or renewable technologies. See for instance Raman, S. (2013): "Fossilizing Renewable Energies", <i>Science as Culture</i> , 22 (2): 172-180.	noted	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
18783	81	7	81	8	Meckling et al 2017 Meckling, J., Sterner, T., and Wagner, G. (2017). Policy sequencing toward decarbonization. <i>Nature Energy</i> , 2(12), p. 918. doi:10.1038/s41560-017-0025-8. not in reference list	noted, section now changed	thomas Sterner	Univ of Gothenburg	Sweden
10287	81	10	81	11	Increases in ambition of climate policies during changes in government are very unlikely to stay. At least that is what we find based on Canadian (provincial government changes - Ontario) and USA (Obama Policies) experience.	noted, section now changed	Aglaia Obrekht	Environment and Climate Change Canada	Canada
19919	81	37	81	37	There are distinct advantages and disadvantages for placing evaluation in the hands of governmental or independent organizations. These are explored in the climate sector in the following publication: Schoenefeld, J., & Jordan, A. (2017). Governing policy evaluation? Towards a new typology. <i>Evaluation</i> , 23(3), 274-293.	noted, section now changed	Jonas Schoenefeld	Institute of Political Science, Technical University of Darmstadt	Germany
44721	81	37	81	37	Is there a country where such an independent "enforcement authority" exists? If so, please name the country (for "evaluation", it's surely the UK). If not, then better not to mention it.	noted, section now changed	Oliver Geden	German Institute for International and Security Affairs	Germany
28177	81	39	81	43	This can be abused with political leaders who change policies as per what favours their political interests	noted, section now changed	Damalie Akwango	National Agricultural Research Organisation	Uganda
5601	81	6		8	Ambition can be increased by changing policies in a gradual, incremental fashion ...for example by the sequencing of progressively more stringent policy instruments ... or increasing the ambition of existing policies' - this is circular. I think mention of increasing ambition of climate targets would make more sense.	noted, this section is changed and we hope 13.2 and 13.8 now covers this better	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5589	81	15		16	Two lots of 'tailored' is not ideal	noted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5591	81	32			Also Richard Lazarus, 'Climate Change Law in and Over Time' (2010) 2 <i>San Diego Journal of Climate & Energy Law</i> 29 (cetrainty v flexibility); and Chris Hilson, 'Hitting the target? Analysing the use of targets in climate law' <i>Journal of Environmental Law</i> (in press 2020). I.e. law as an academic discipline has also examined this temporal aspect (in relation to these two key administartive law values), not just public policy and political science.	noted, section now changed	Chris Hilson	University of Reading	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
4207	82	5	82	5	This idea of conscious / intentional acceleration / transformation is really important and should be a cross cutting thread throughout the whole chapter. As it appears here, it only seems to relate to policy instruments (rather than policy, governance, institutions i.e. the whole chapter). This is misleading.	yes, we see this. We will rectify in the SOD. We have tried to make acceleration more of the focus with a new final section.	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
30353	82	5	82	44	There is much more relevant literature on this topic that is more to the point. Ask Niklas Hoehne to beef-up this section.	noted	Bert Metz	European Climate Foundation	Netherlands
43019	82	6	82	9	Regarding the challenge to decrease investments risk in the low carbon project: Dipak Dasgupta, Jean-Charles Hourcade, Seyni Nafo. A Climate Finance Initiative To Achieve the Paris Agreement and Strengthen Sustainable Development. [Research Report] CIRED. 2019. fahal02121231f / Hourcade J_C., Pottier A., Espagne E., 2018, Social value of mitigation activities and forms of carbon pricing. International Economics, 155, 8-18	noted	christophe cassen	CNRS-CIRED	France
4631	82	32	82	34	examples include the engagement of citizens in renewable energy communities, renewable self-consumers and prosumers, who participate in energy markets, for instance providing flexibility services to the electricity grid as well as the consumption of goods and services that have a low carbon footprint (e.g. regional food, use of bicycles)	noted	Leonardo Barreto	Austrian Energy Agency	Austria
15413	82	32	82	34	examples include the engagement of citizens in renewable energy communities, renewable self-consumers and prosumers, who participate in energy markets, for instance providing flexibility services to the electricity grid as well as the consumption of goods and services that have a low carbon footprint (e.g. regional food, use of bicycles)	noted	Simone D'Alessandro	University of Pisa	Italy
4633	82	39	82	44	Please mention some concrete examples of the role of intermediary actors.	text changed	Leonardo Barreto	Austrian Energy Agency	Austria
15415	82	39	82	44	Please mention some concrete examples of the role of intermediary actors.	text changed	Simone D'Alessandro	University of Pisa	Italy
5593	82	15			commas needed before 'when' and 'note'	noted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5595	82	24			Starting sentence with 'See also' is not ideal - makes it look like a footnote. Same in line 36 ('see')	noted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
13925	82	36			A reference seems to be lacking here: 'exnovation' (2018)?	text changed	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
13927	82	37			A good case of exnovation is the EIB decision not to finance gas infrastructures from 2021 on: EIB (2019), EIB Energy Lending Policy. Supporting the Energy Transformation, 14/XI/2019. https://www.eib.org/attachments/strategies/eib_energy_lending_policy_en.pdf	noted, helpful but text changed	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain

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5597	82	40			is 'and' corect here?	no, noted. Will change	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
5599	82	42			meadiating and making connections seem rather overlapping? In any case it should be 'make connections'?	noted	Chris Hilson	University of Reading	United Kingdom (of Great Britain and Northern Ireland)
25921	82				If possible, it would be helpful to have a review/list of country-specific case studies (for example in a table)	there is a new section on GND / stimulus packages which brings in countries	Béatrice Cointe	Centre de Sociologie de l'Innovation i3, CNRS UMR9217	France
19921	83	1	8	36	An additional point should be added, highlighting the need for further research on climate policy monitoring and evaluation systems. These systems form the backbone of some of the most important climate governance approaches (e.g., the 2015 Paris Agreement), but have been insufficiently explored. In addition to theoretical/conceptual arguments about how M&E systems should ideally work, researchers need to explore how they actually work in situ, and what challenges they may face. This should be done in the Global North and the Global South with a view to the support that may be needed to improve climate policy M&E systems.	this is now in section 13.6	Jonas Schoenefeld	Institute of Political Science, Technical University of Darmstadt	Germany
4189	83	1	83	1	A good first start at future research needs, but it is pitched at too general a level and seems to draw rather selectively on material on the whole the chapter. Perhaps all Cas could be asked to specify their '5-10 top research needs'?	Further research has been produced along the lines of your suggestion and then reduced to fit space.	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
12339	83	2	83	36	Please consider making this overview more succinct, reducing the number of points. Several points can be fused together, e.g. bullet point 1 with 11; and bullet points 8, 9 with 10.	this section is likley to be revised but yes to 8-10; we think slightly different topics for 1 and 11 but willclarify	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway
4191	83	7	83	9	This is an important cross cutting point (see above). There have been some useful reflections on why the literature on policy evaluation has not kept up the with the growth in the wider climate policy/governance literatures. See for example: Schoenefeld; Hilden; Mickwitz.	noted	Andrew Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
34893	83	7	83	9	Mainly in south if the authors are talking about developing countries	will clarify, but text changed	Cintya Berenice Molina Rodríguez	El Colegio de México A.C	Mexico
35081	83	7	83	12	It is important to clearly feature that further work is needed to better understant efficiency and efficacy of climate change policy, in ex ante and ex post, evaluation exercises. This also in the context to better monitor and follow up climate policy implementation, and financing, that will enter into a phase of enhanced transparency under the Paris Agreement.	we hope this point is now made in 13.6	Marco Heredia-Fragoso	National Institute of Ecology and Climate Change	Mexico
28179	83	15	83	16	Is it climate leakage or linkage? Cross check?	leakage, but text changed	Damalie Akwango	National Agricultural Research Organisation	Uganda
12341	83	17	83	21	This point reads as quite negative towards the prospects of behaviour change for climate mitigation, which is not fully representative of the literature in this chapter or more broadly. Please consider the language of this point and the pessimistic signals this currently sends.	will reword but text changed and now mainly discussed in 13.3 and 13.4	Maria Malene Kvalevåg	Norwegian Environment Agency	Norway

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28181	83	17	83	23	In addition, there is limited knowledge and skills on the actually measurement of the GHGs Emmissions. There is need for further research on customising the existng tools and methodologies for monitoring and measuring GHGs to developing countries situations.	yes we agree but other chapters are leading on this issue	Damalie Akwango	National Agricultural Research Organisation	Uganda
37609	83	35	83	36	Research on conditions for accelaration should also be linked to how this needs to be integrated into national climate governance - what are the success factors for national climate governance to enable transformation and accelaration in line with Paris Agreement?	accept	Michiel Schaeffer	Climate Analytics	Netherlands
16395	83	1			In Section 13.11 Further research, consider adding a bullet point related to global military emissions and international policy to limit these.	this is not really the focus of our chapter	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
16397	83	1			In Section 13.11 Further research, consider adding a bullet point related to hot dry rock geothermal energy and the potential for government subsidy programs to fund oil and gas companies to transition to the geothermal industry, thereby leading a transition in the energy sector. Plant cost is mostly upfront, and funding provided by developed countries might be used to install geothermal power generation in developing countries to help decarbonize their energy sectors, while at the same time facilitating oil and gas companies to transition their assets to increase drilling capacity for hot dry rock geothermal.	this is not really the focus of our chapter	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
16399	83	1			In Section 13.11 Further research, consider adding a bullet point related to the need for a new regulatory framework to address the risk of nuclear arms proliferation as nearly 30 new countries seek to acquire nuclear power.	this is not really the focus of our chapter	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
13929	83	36			Again, I miss some more remarks on the need to deepen our knowledge on some co-benefits like energy security, but also more research on instruments like border carbon adjustments	Energy security is the focus on the energy chapter	Gonzalo Escribano	Universidad Nacional Educación a Distancia (UNED) and The Elcano Royal Institute	Spain
9425					table 13.4 should be explaied within the body of the chapter text. And it is not clearly readable	agreed	ANNA LAURA PISELLO	DEPARTMENT OF ENGINEERING - UNIVERSITY OF PERUGIA, ITALY	Italy
12699					there is very little assessment in the chapter. A lot of the text is textbook stuff which is interesting to a reader, but not necessarility very informative to policy makers. In my view, more emphasis can be placed on the assesement of what works where and why (empirical question), rather than discussing the variety of concepts and theories linked to the topic of the chapter	we hope this improved in the SOD	Robbert Biesbroek	Wageningen University	Netherlands
12701					It would be great if the authors could be able to consider regional differences more explicitly. That would make it easier to connect to the regional chapters in WG2	accepted, we hope this improved in the SOD	Robbert Biesbroek	Wageningen University	Netherlands

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
12705					The narrative in WG2 will involve the 'solution space' in which policies and institutions play an important role in opening up and closing down possible climate responses. Would this framing also fit here? I can imagine it is a nice way to connect the various policies and responses (both M&A). See for example: Haasnoot et al (in press) Defining the solution space to accelerate climate change adaptation, Regional Environmental Change, online first	will look up reference	Robbert Biesbroek	Wageningen University	Netherlands
12707					although the chapter discusses a wide range of policy and polity related issues, there is very little discusion of politics. I find it strange that the links between the three are not discussed more centrally here, see for example Treib et al (2006) Modes of governance: towards a conceptual clarification, Journal of European Public Policy. in contrast to adaptation, there is a vast body of literature on the politics of mitigation the authors could draw from.	accepted, will ensure in SOD for relevant sections	Robbert Biesbroek	Wageningen University	Netherlands
12709					I like the scope of the section on acceleration, but it would be great if the authors could combine multiple dimentions here to talk about the solution space to accelerate climate mitigation, for example by talking about the linkages between biophysical and socio-political systems that determine the depth, scope and pace of acceleration. In my view, something like this could be nicely visualised (at leas conceptually or for an archetype set of countries).	We will find references and think about this, but thanks and we hope it is improved in SOD	Robbert Biesbroek	Wageningen University	Netherlands
12717					Perhaps it is worth exploring the 'solution space' to accelerate mitigation in this chapter a bit more explicitly. This concept connects the biophysical and societal systems as well as the climate responses, barriers and limits, and possible pathways, see Haasnoot et al (in press) Defining the solution space to accelerate climate change adaptation, Regional Environmental Change, online first	yes, will read this. We know acceleration section has to be improved for the SOD, and we hope it has been	Robbert Biesbroek	Wageningen University	Netherlands
12945					Figures definitely need improvement in readability	accepted	Prashant Goswami	Institute of Frontier Science and Application	India
15657					If will make it easier for policy makers and researchers if some of the section discussions are re-aligned into Regional discussions: Global North, Global South; or, Americas (North America, Central and South America), Europe, Asia, Asia-Pacific, Africa, Middle East and the Mediterranean, Oceania, etc. Or Developed Parties and Developing Parties, etc. Or, Annex I and Non-annex I countries.	Noted. An interesting suggestion. But this will be very hard to do given the approved plenary outline, which is not organised by region.	Joseph Essandoh-Yeddu	Energy Commission	Ghana

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20297					This chapter does not work very well (a Driver, pressure, Stae, Impact, response (DPSIR) framework (i think time or tatget dates should be include with this - perhaps a link to UN SDGs) would work well here. Issues are mainly compartmentalised into terms such as "waste management " or "transport" etc. There is little analysis as which issues from many of these compartmental terms provide the key policy drivers and how they interrelate. The tables are useful – but a nightmare for the reader. Disappointed that many of the policy areas in waste management such as supply chain, waste collection (perhaps the biggest challenge for both authorities and businesses in adoption the “circular economy” – and global pollution of waste into our ecosystems - not even mentioned), transport - nothing on supply chain intervention are, etc such as (Clue – modern logistics, smart ICT systems linking into next chapter, proximity principle and the list goes on). Does not need to be too detailed in this chapter but sufficient to highlight the policy drivers for attention.	Rejected. Our organisational structure is derived from the plenary approved bullets and we are unable to completely re-organise the material. Thank you for the suggestion	Paul Dumble	Paul's Environmt Lentd	United Kingdom (of Great Britain and Northern Ireland)
25537					Please take care not to use value-judgement terms such as 'important', 'significant' and also prescriptive terms such as 'need' and 'must'. Some readers will interpret these stataments as policy prescriptive.	Noted. Thank you for the suggestion and we hope they have all gone from the SOD except when they are directly related to a journal article recommendation	Sarah Connors	IPCC WGI TSU	France
25571					As a reader who isnt familiar with all the topics being discussed in your chapter, it might help many Exective Summaries to include subheadings to cluster the statements by topic or overarching chapter themes.	agreed, will do	Sarah Connors	IPCC WGI TSU	France
28817					Given CDR will predominantly be undertaken within national boundaries and subject to national governance, some exploration of the emergence of new institutional forms, policy experiments and actions related to CDR would be useful. Further, it is suggested that such processes may have a positive impact on the pace of removal capacity, allowing the emergence of the net-negative world that is required post 2050.	CDR is to be covered in Ch 12	Paul Rouse	Carnegie Climate Governance Initiative	United Kingdom (of Great Britain and Northern Ireland)
33111					It is still not clear how national climate policy guide and help individual, household and local communities as a whole to contribute to climate change mitigation and adaptation. There are still lacks in all walks of life approaches in national level climate policies. Local governmental organisations are not trained and not aware of how to implement long-term climate change mitigation and adaptation. In many developing countries, climate change policies are still paper based and remained in the desk, they are lack in collaboration between horizontal and vertical administration. It seems that climate change imitation and adaptation are the jobs of some environmental groups in against involvement of all professionals. There are still lack of participation from all walks of life particularly from construction companies, engineers and large scale development implementing stakeholders.	agreed - we hope the chaper makes this clearer now	Edris Alam	Rabdan Acadmey	United Arab Emirates
35239					There is a substantial section on lock-in in Chapter 6 page 111, lines 1-35. Chapter 13 and Chapter 6 materials need to be made consistent with one another.	noted	Llewelyn Hughes	Australian National University	Australia

Comment ID	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
36303					The chapter well captured the situations and perspectives of industrialized and emerging economies, but overlooked the situations of poor, low income, and mid-income countries. It requires a real balance to be globally relevant.	noted, we hope the SOD has improved this	Youba Sokona	South Centre	Switzerland
40303					This is an overall comment: Throughout this chapter it needs to better reflect three types of justice, i.e. it should include climate justice, environmental justice and also energy justice. This chapter should better reflect Chapter 1 which has some of these discussions and also needed is a further examination of 'just transition' which features strongly in Chapter 1.	noted - we hope the SOD has improved this	Raphael Heffron	Centre for Energy, Petroleum, Mineral Law & Policy	United Kingdom (of Great Britain and Northern Ireland)
40305					This is an overall comment: I also think that that in law or legal jurisprudence there exist principles of climate, environmental and energy law. For an account of some of these – see the following paper which discusses these three sets of principles: Heffron, R. J., Ronne, A., Bradbrook, A., Tomain, J. P. and Talus, K. 2018. A Treatise for Energy Law. Journal of World Energy Law & Business, 11 (1), 34-48.	noted, will read	Raphael Heffron	Centre for Energy, Petroleum, Mineral Law & Policy	United Kingdom (of Great Britain and Northern Ireland)
45727					In the whole section of this chapter, it would be better to deal with more detailed relationship between climate change policy and socio-economic conditions in countries. Chapter 15 of IPCC AR5 tried to approach the part of the above matter at the executive summary “Differentiation by sector, which is quite common, reduces cost-effectiveness that arises from the changes in production methods, consumption patterns, lifestyle shifts, and technology development, but it may increase political feasibility, or be preferred for reasons of competitiveness or distributional equity.” In addition to above mentioned items, in-depth analysis on factors of the differences in climate change measures by countries would better be addressed in AR6. Existing literatures tend to focus on the environment aspect, however, the climate change measure in each country has own background situation such as domestic natural resource potential, industrial structures, type of governance and so on. Carbon taxation, for example, it depends on whether a country is a big government or a limited government. Higher welfare countries tend to have higher tax and social security contributions and acceptance of additional tax is also higher in such countries. When comparing carbon price systems and their levels, it is essential to understand the background of energy and socio-economic conditions in each country.	noted , we also think this is a chapter 1 . We have tried to do this, more secifically in SOD 13.8	Junko Ogawa	The Institute of Energy Economics, Japan	Japan
48077					Comments on ES only. I see the interest of counting the number of laws related to climate change. It could be equally important to assess the lack of reference to climate change action in recent laws for key sectors (eg building, agriculture, transport) were mitigation would be expected. Several national climate change committees have been established and some provided independent assessments of existing legislation.	Noted. This would be interesting to do, but would likely require the authors to do primary work. If this is available in the public literature we will note it.	Valérie Masson-Delmotte	CEA, IPSL/LSCE	France

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48079					ES : reference to air pollution. Potential for a more quantitative assessment of the actual potential and limits of such approaches in close coordination with WGI (eg chapter 6 on SLCF).	Noted. Thank you for this suggestion. Some of these quantitative assessments may be a better fit in Ch 3 or 4.	Valérie Masson-Delmotte	CEA, IPSL/LSCE	France
48081					ES : reference to factors influencing an individual's attitude. What about education and access to climate change information (including environmental labels related to GHG emissions)?	Chapter 5 is the lead chapter on this. We have touched on it in 13.3.	Valérie Masson-Delmotte	CEA, IPSL/LSCE	France
48083					ES : is this chapter envisaging to explore the role of citizen assemblies (amongst innovative forms of deliberations and participatory processes)?	We will consider this . Chapter 5 is the lead chapter on this issue.	Valérie Masson-Delmotte	CEA, IPSL/LSCE	France
48085					There is a potential for this chapter to also consider regional climate information and storylines in collaboration with WGI (this can be relevant for the regional context)	Noted. We are open to the suggestion, but feel it might be a challenge to integrate given our approved bullets.	Valérie Masson-Delmotte	CEA, IPSL/LSCE	France