IPCC AR6 WGIII – Second Order Draft Review Comments and Responses – Chapter 13

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
46261	0	0			The definitions of institutions on the one side and governance on the other side differ throughout the chapter. Institutions are defined as "rules, norms, conventions" on p. 9, whereas on p. 13 organisations belong also to institutions. Governance is being defined on p. 9 as structure, processes and actions used by the public and private actors, whereas in the ES it comprises formal laws, strategies, governmental organisations, voluntary associations etc. The overlaps e. g. with organizations (institution or governance?) as well as with rules (institutions) and formal laws (governance) might be confusing. Please revise, also checking the definitions in the glossary.	Noted. Accepted in that we are very careful to follow the glossary for institutions and governance. 13.2 also provides a definitional overview.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
19861	0				Consider replacing the term "offset system" by "baseline and credit system" throughout the chapter. Offsetting is a less precise term.	Noted. However, offsets is widely used in the literature and policy discourse. No change.	Axel Michaelowa	University of Zurich	Switzerland
31057	0				Military contributions to greenhouse gas emissions are missing from Chapter 13. The values in society that promote nationalism also promote military emissions.	Noted, there is a related reference in 13.9.5	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
31079	0				A detailed treatment of nuclear energy is missing from Chapter 13. This ought to include information about the current plans of about 30 new nations to develop new nuclear power programs, thereby doubling the number of countries with nuclear power programs. The text ought also to include a treatment of nationalism and the risk of nuclear arms proliferation as new countries develop the technology. Some wil be dishonest actors, looking to develop arms instead of energy. A pathway for the safest development of nuclear energy by these nations ought to be explicitly laid out and a new treaty ought to be promoted, banning the use of any experimental or research reactors by these new countries, and instead mandating small modular reactors. New protocols related to materials enrichment facilities also ought to be adopted. Note that Saudi Arabia is now developing nuclear materials enrichment, and whether this is strictly for its new nuclear power program remains to be seen.	Rejected - nuclear energy as a source of energy is discussed in the sectoral chapter on energy and is outside our scope for ch 13.	Daniel Helman	College of Micronesia-FSM	Micronesia, Federated States of
15291	0				It is suggested to fully address carbon leakage. It is also argued that there is no carbon leakage due to the shift of industries as a result of mitigation policies, and that the shift of these industries is mainly determined by the cost price of production factors, not due to carbon regulation, so there is no carbon leakage. It is suggested that the discussion of carbon leakage in this chapter should reflect a balance of views. Reference: World Bank. International Trade and Climate Change: Economic, Legal, and Institutional Perspectives, Overview [R]. 2007. Reinaud J. Issues behind Competitiveness and Carbon Leakage [R]. IEA Information Paper, 2008. Wang M. Limitations of global governance on carbon tariff and solutions to relevant international regime [J]. China Population, Resources and Environment, 2014, 24 (4): 6-10. Wang M. Invisible carbon tariff: concept and international governance [J]. Climate Change Research, 2020, 16 (2): 243-250.	Noted. Issues of leakage are dealt with in 13.6	Government of China	China Meteorological Administration	China
22469	0				In this chapter, small and medium sized companies and craftsmen tend to be under-estimated (whereas their role is important in such processes, in particular to find local solutions)	Noted. This is a challenging point. Given the range of topic covered by the chapter, we have not done justice to the specific context of small and medium companies. However, there is a limited literature to draw on.	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
22471	0				Part 6 on policy instruments could be further developed, with a special attention to the rationales behind instruments (equalization of marginal costs, acknowledgement of market imperfections and failures, etc.). For example, Social/Notional Value/Cost of Carbon as the tentative bridge across the gap between the marginal technical costs of market and non-market instruments could be studied. Please consider mentioning the importance of “non-economic” policy instruments as well, such as awareness campaigns or corporate actors.	Noted. We mention the importance of economic policy instruments in 13.5 and in 13.6. Chapter 5 is the home of behaviour and an extended assessment is there. We have included a box on the Social Cost of carbon in 13.6	Government of France	Ministère de la Transition écologique et solidaire	France
22473	0				Please consider the following additional references regarding the carbon tax: On the use of carbon tax revenue: Klenert, D. et al., 2018, Making carbon pricing work for citizens, Nature Climate Change 8, 669-677. On distributional issues : Williams, R. et al., 2015, The initial incidence of a carbon tax across income groups, National Tax Journal, 68(1),195-214. Cronin, J. et al. 2019, Vertical and horizontal redistributions from a carbon tax and rebate. Journal of the Association of Environmental and Resource Economists, 6,169-208. On price ceiling: Pizer, W. 2002. Combining price and quantity controls to mitigate global climate change, Journal of Public Economics 85(3), 409-434. On carbon tax in British Columbia: Rivers, N. and B. Schaufele. 2015. Salience of carbon taxes in the gasoline market, Journal of Environmental Economics and Management 74, 23-36. Yamazaki, A., 2017, Jobs and climate policy: Evidence from British Columbia's revenue-neutral carbon tax. Journal of Environmental Economics and Management 83, 197-216. On carbon tax in Sweden: Andersson, J. Carbon taxes and CO2 emissions: Sweden as a case study. American Economic Journal: Economic policy 11(4), 1-30. On the smaller regressive impact of carbon taxes in developing countries that is missing: Dorband, I., Jakob, M., Kalkuhl, M. and Steckel, J., 2019, Poverty and distributional effects of carbon pricing in low-and middle-income countries - a global comparative analysis, World Development 115, 246-257	Noted. Thanks for your suggestions. Several of these are cited. We now have a box on policy interactions of carbon pricing and other instruments in 13.7	Government of France	Ministère de la Transition écologique et solidaire	France
81075	0				On theme of trying to connect technical/numbers with policy and lessons: from my Entire Report comment MG23). to what extent is there connection between the trends in policy coverage covered in this chapter, with the developments in the international climate regime? The coverage of climate legislation by 2007 seems quite focused on developed countries - to what extent may this be linked to UNFCCC leadership requirement and/or Kyoto Protocol and its entry into force in negotiations? If so say so. Should this be turned round to say that there was a major surge of climate legislation after the adoption (1997), rulebook (2001), national ratification, or entry-into-force (2005) of the Kyoto Protocol - followed by negotiations on “post-2012” regime that increased pressure globally at least until the difficult aftermath of the collapse of negotiations at Copenhagen? I know AR6 is intended to assess literature since AR5, but AR5 coverage of this does not seem at all strong. It seems there was little additional legislation adopted until about 2017 when it expanded particularly in APC - was Annex I alrady largely covered?	Accepted : This is now covered in the cross chapter attribution box (found in ch 14)	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
11697	0				Land-use is only mentioned in this chapter 3 times. Land-use policies are key to development of human activities in most if not all developing or developed countries in order to develop responses at scale (mitigation or adaptation) there must the appropriate policy development of capacity (Urban or rural) and capability (governance, human and financial resource) related to land-use planning and development activity. For Land-use planning and development In most countries, the process of governance requires a Parliamentary Act or Decree often with enabling national regulation which establishes local gobernance at lad plot or comunity level in the form of a licensing and permitting function. This function is usually carried out by the municipalities and associated government entities (such as the Environment Agency). These can be supported by codes of practice, technical guidance, standard operating procedures (often linked by articles in Decrees in Middle East and African countries) and working plans which demonstrate compliance with these and other (e.g. Labour laws, HSE) legal requirements by operators. Any action to address climate change from infrastructure development, building, industry, urdan, rural and AFOLU developments action will be governed through the Land-use planning systems.	Noted. ch 13 National and Sub National Policy and Institutions is meant to assess institutions and policies in generalised ways about institutions and policis rather than specifics. It has been agreed that land use policies would be in the land use chapter, and this is the case for all sectoral chapters and policies.We have sought to include more references such as noting land use as a channel for leakage in Sec 6	Paul Dumble	Paul's Environment Ltd	United Kingdom (of Great Britain and Northern Ireland)
11699	0				Waste management is mentioned in 13.3.1 Introduction and a further five times in Chapter 13. Food waste is not mentioned in the 30 mentions of food in the Chapter. There seems be a disconnect with a core policy area (waste) of what will become the resource recovery hub of the emerging circular resource economies which if applied sustainably could significantly reduce supply chain emissions from human activities (all of which produce waste). The informal sector mentioned twice in section 13.3.1 is only mentioned in one other place in the chapter. National and sub national policies are key in implementing these sustainable policies. As AR6 should be calling for action at national and sub national level, a number of examples of best practices guiding policy development in the UK are included below (mainly construction wastes). Food waste information can be found in the Global Environmental Outlook UNEP (2019a) and Information on waste utilised as an economic resource by the informal sector in the Waste Management Outlook for West Asia UNEP (2019b, see p35 for estimates of uncollected waste and waste collected by informal sector) and other reports such as the Global Waste Management Outlook (UNEP, ISWA (2015). In the UK, the design aspects urban development and the scale of the indirect supply chain impacts of soils and stones in terms of process, transport and distribution emissions have been captured in for example, a recent report by the Royal Academy of Engineering (2019) 'Sustainable Living Spaces'. CL:AIRE(2020) is an digital sustainable land reuse and training platform supporting UK government policy and regulation. Bristol University's ICE database and online tools are useful in quantifying embedded soil and stones emissions in the supply chain (Interdisciplinary Circular Economy 2021) and practical guidance outlined in construction and logistics support systems such as BREEAM (BRE2020) and the use of Construction Consolidation Centres in reducing emissions as well as considerable cost savings from materials that would normally be lost or damaged (WRAP 2010). Research on mineral based construction materials is being cared out at the UCL Interdisciplinary Circular Economy (2021) Centre for Mineral-Based Construction Materials. This is taken from	noted. ch 13 National and Sub National Policy and Institutions is meant to assess in generalised terms institutions and policies rather than in specifics. We agree that institutions and policies are central to this but specific policies would need to be in the relevant chapter due to reasons of length.	Paul Dumble	Paul's Environment Ltd	United Kingdom (of Great Britain and Northern Ireland)
70625	0				Even if WG3 focuses on mitigation, consideration for adaptation is insufficient compared with Ch.14. Relevant mentioning of adaptation related to mitigation will strengthen the chapter and enhance an integrated approach between mitigation and adaptation.	noted.13.8 is a now a stand alone chapter on the links between national and sub-national policies and instutions for mitigation and adaptation.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
70627	0				While Ch.14 starts with key findings from and development since AR5, Ch.13 adopts a different approach. Since the approach of Ch.14 looks useful, I wonder if Ch.13 would adopt a similar approach, i.e. having a section on key findings from and development since AR5.	We hope that the new, restructured 13.1 fulfils this request. We do not have a particular section on key findings and developments since AR5 but lay out the broad points in the introduction.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86079	0				Distributional effects, political constraints to carbon pricing should be discussed consistently with what done in chapter 5 (see e.g. Carattini, Carvalho, and Fankhauser WIREs CC 2019; Klenert et al. NCC 2019 as reviews).	Noted. Thanks for your suggestions. Sec 6 now has a distinct discussion of distributional effects of carbon pricing. Political constraints are mentioned but not dealt with extensively.	Carattini Stefano	Georgia State University	United States of America
50385	0				In the examination and evaluation of a country's policy in climate change mitigation, it is better to study what policies have been set in the broader areas related with climate change and that how much these policies are real and practical.	Accepted. Yes our approach through the chapter is to provide an overview of 'direct' climae policies as well as other policies / goals which may not have climate as the priority, but which also have a beneficial effect	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
50387	0				It may be appropriate to provide and promote special climate regulatory impact assessment instruments to better analysis of a country's achievement in its climate action.	Noted. See 13.6	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
50389	0				It will be worthwhile to study how many states have set and held educative programs for the politicians, regulators and officials about climate change mitigation and adaptation.	Noted. This is an interesting suggestion but we did not find literature on this topic	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
50395	0				The most governance model in many countries to mitigate the climate change, has been command and control approaches and governmental actions. In a public good like climate change adaptation and mitigation, participation of the various governmental and non-governmental groups is required. However, there are very limited opportunities and competence-sharing for non-governmental sectors to participate seriously in climate governance. It would be recommendable to states to provide more self-regulation and co-regulation instruments and a facilitative place to the participation of various groups and sectors in climate governance.	Noted. This is discussed in 13.2 on procedural justice, 13.4 with regard to actors, 13.5 in respect of sub-national actors, and in 13.6 with regard to voluntary instruments	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
58289	0				There should be a mention of the effect of the policy of government as the insurer of last resort, e.g., for flooding. Since insurance is treated more in depth in Chapter 15, there could be a reference and link.	Noted. We decided this is outside the scope of our chapter.	Government of United States of America	U.S. Department of State	United States of America
58291	0				Is this chapter just focusing on climate and environmental policy institutions, or should it also include institutions that manage or consider climate change (i.e., defense and security organizations and their sub-organizations that deal with climate change issues)?	Noted. This chapter is only looking at National and Sub National policy and institutions for climate mitigation. Your suggestion is outside our scope although there is a discussion of the benefits of coordination in 13.7 and 13.9	Government of United States of America	U.S. Department of State	United States of America
58293	0				The focus of equity here is on social factors (e.g., marginalized groups), without enough on owners and workers in exposed sectors (e.g., energy, agriculture). These actors heavily influence the policy process, and discussion of equity should include them as well. As with other groups, policies that include them are likely to be more popular. Granted there is a box on the Just Transition, but the concept is not well integrated into the chapter.	Accepted. The Just Transition Box of SOD 13.9 is deleted and now that information is in Chapter 4. ch 13 now integrates justice issues throughout the sections.	Government of United States of America	U.S. Department of State	United States of America
58295	0				More examples throughout the chapter of failed or unpopular policies would be illuminating. For example, why did the 2016 initiative for a carbon tax in the state of Washington, USA, fail? Learning from these events is key to successfully putting a price on carbon.	Noted. Useful point but space limits have made it hard to fully follow through	Government of United States of America	U.S. Department of State	United States of America
58297	0				The insurance industry is addressed in Chapter 15, but Chapter 13 should still include a discussion of insurance policy, including Federal insurance policy.	Noted. As you say, the finance chapter is the lead chapter on this and we have left the assessment to them.	Government of United States of America	U.S. Department of State	United States of America
58299	0				Transition risk is discussed in Chapter 15, but Chapter 13 should still discuss how policies can address it.	Noted. We do provide links to the transition discussions in the chapter (13.7 and 13.9).	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58301	0				Section 13.9 seems somewhat redundant with Chapter 17.	13.9 has been restructured so that it includes more information that chapter 17 does not. However, SOD 13.9's focus on economy wide policies for acceleration and transformation is squarely within the chapter 13 scope.	Government of United States of America	U.S. Department of State	United States of America
17655	0				Climate change litigation Courts have in Australia and Oceania as well as the Netherlands and other parts of Europe interpreted laws to impose obligations on governments. The high light case is Urgenda in the Netherlands which was buttressed by strong legislation. I believe these should be discussed and the fact that results such as Urgenda may inhibit some governments from passing similar laws. Standing is the big issue generally. This could be discussed in the report and also mention made of international guidance on public participation as a step that may stave off litigation. Australia and Oceania There are several cases here where the judge did stretch the legislation to find that an action would not achieve sustainable development. Gloucester case in NSW is one and Yorke peninsula case is another in SA, there are some in Victoria as well. These could be added. In Oceania there are several cases Framhein v Attorney General Challenge to Cook Islands Government's move to increase and expand its Purse Seine Fishery in Cook Island's Court of Appeal. Government failed to act consistently with its international obligations to conduct an EIA and to comply with the precautionary approach, or to have any or proper regard to the impact on bycatch species and on artisanal and subsistent fishers when making the decisions. Court did not set aside the government's decision, however. Mas Solo Investment Ltd Case Solomon Islands Court of Appeal upheld the High Court's decision to award the plaintiff respondents $3.2 million for trespass, nuisance, and environmental damage relating to the unlawful felling and removal of Tubi from the plaintiff respondents' land.	Noted. Litigation is now in 13.4. We have given it a substantial amount of space as a new and emergent area since AR5	Jennifer McKay	University	Australia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
17657	0				4 The obligation of the State to Protect and facilitate peaceful assembly under Article 21 of the International Covenant on Civil and Political Rights (ICCPR) and General Comment 37 Increased environmental activism has been met by State legislation that attempts to control protests rather than facilitate them. Article 21 states:- " The right of peaceful assembly shall be recognized. No restrictions may be placed on the exercise of this right other than those imposed in conformity with the law and which are necessary in a democratic society in the interests of national security or public safety, public order (ordre public), the protection of public health or morals or the protection of the rights and freedoms of others." A total of 184 of the 193 States Members of the United Nations recognize the right to peaceful assembly from Article 21 of ICCPR in their constitutions. and in 2020, General Comment No. 37(GC37) was adopted to further articulate it and recommend means of implementation. Hamilton argues that despite the obligation on States in Article 21 to facilitate and protect peaceful assembly, State laws have sought to manage or control all aspects of assemblies. Below is a preliminary examination of the type of protest chilling provisions in Australian, English, Canadian and US laws Table 1 Examples of provisions of laws that reduce the likelihood of protests or assemblies on environmental issues ---------- •Enhanced penalties for damage to critical infrastructure with wide definition examples from Canada , Colorado , North Carolina, Oklahoma, North Dakota, New South Wales, Queensland, inter alia •Penalties for individuals and groups conspiring in actions listed herein •broad discretionary powers to police, on several domains such as carrying a device that could be used to lock on,	Noted. 13.4 provides an overview of climate litigation at the national and sub-national level. 13.2 discusses cimate legislation and procedural justice. Sec 5 discusses access to decision making. All these touch on the themes of this comment	Jennifer McKay	University	Australia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
17659	0				•Prohibitions on protests on public roads •Prohibitions on protests on private land or plants •impose bureaucratic procedures and costs for permissions and authorizations •impose onerous obligations to pay for clean-up, •prohibit the use of the internet, •criminalize possession of hardware that may be used to lock on, •limit noise •limit placards •reduced penalties for motor vehicle operator who unintentionally causes injury or death to a protester during an unpermitted protest is not liable for such injury or death •protesters engaged in Economic terrorism if disrupt traffic with up to 25 months in prison --- --- The increase in laws controlling environmental protests has been notable in Australia the Asia Pacific and the US .In partial response, the UN mandate of the Special Rapporteur on the rights to freedom of peaceful assembly and of association, was renewed for a further 3 years in July 2019 There have been many reports of abuses via state conduct and the UN has written to jurisdictions in Australia and in the US. Australian laws cited as disproportionate in restricting protests are the Tasmania the Workplaces (Protection from Protesters) Bill 2014 and the Queensland Summary Offences and Other Legislation Amendment Act 2019. Courts have also addressed the issue of restrictions on protest on private or public land. Judge Lindblom in England stated in 2012:- "On the one hand society values (or purports to value) public engagement with the polity by guaranteeing rights such as the right to peaceful protest whilst on the other hand shoring up the rights (largely) of a few to buy, to	Noted. We have given climate ltigation as much space as is possible. Section 13.4 provides an overview of how it can be used as a tool for climate mitigation.	Jennifer McKay	University	Australia
17661	0				The chilling effect of some of the anti-protest laws with criminal sanctions and further threats of civil damages suits has led many ENGOs and lawyers in human rights groups to publish jurisdictionally relevant guidelines for protesters. For example in the US, a group of climate lawyers (EX Harvard) founded the Climate Defense Project where they have published a legal guide for activists to protect themselves and invoke the climate necessity defense . They state "that despite no one being acquitted based on the climate necessity defense, it is a form of activism in itself. Just by presenting the defense, activists get a chance to educate people about climate change draw attention to their cause and give power to the people (people (represented by a jury) to take back their climate future. Suddenly the trial is not about whether the activists committed a crime- it is about governments' failure to address climate change." The next section will outline the origin of the defense and the two tests for the two limbs of the necessity defense and in the UK, USA and France .	Noted. We have given it a substantial amount of space as a new and emergent area since AR53.4 provides an overview of how it can be used as a tool for climate mitigation.	Jennifer McKay	University	Australia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
5165	0				I still believe it will make it easier for policy makers and researchers if some of the section discussions are re-aligned into Regional discussions at least based on the AR6 regions: DEV = Developed countries; EEA = Eastern Europe and West-Central Asia; LAM = Latin America and Caribbean; AME = Africa and Middle East; APC= Asia and developing Pacific.] Or Developed Parties and Developing Parties, etc. Or, Annex I and Non-annex I countries. Even though, the Chapter Response indicated in the FOD review that, it would be very hard to do that since the approved plenary outline is not organised by region. I however still believe such an editorial innovation will be acceptable since the approved plenary outline is not cast in stone. I have done that a couple of times in some previous reviews. For instance, I was not expected to comment on own my Chapter as a Review Editor, I still went ahead and commented and my suggestions were accepted by the Chapter consequently helping to improve it. So once a while, an outlier is accepted if it makes sense.	Noted.	Joseph Essandoh-Yeddu	Energy Commission	Ghana
43479	0				In the examination and evaluation of a country's policy in climate change mitigation, it is better to study what policies have been set in the broader areas related with climate change and that how much these policies are real and practical.	Accepted. This fits with our approach to the chapter.	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
43481	0				It may be appropriate to provide and promote special climate regulatory impact assessment instruments to better analysis of a country's achievement in its climate action.	This is a repeat comment. But yes, noted and please see 13.6.	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
43483	0				It will be worthwhile to study how many states have set and held educative programs for the politicians, regulators and officials about climate change mitigation and adaptation.	Noted. We don't have that information. There is a discussion on systemic constraints and actors in 13.3. and 13.4	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
43489	0				The most governance model in many countries to mitigate the climate change, has been command and control approaches and governmental actions. In a public good like climate change adaptation and mitigation, participation of the various governmental and non-governmental groups is required. However, there are very limited opportunities and competence-sharing for non-governmental sectors to participate seriously in climate governance. It would be recommendable to states to provide more self-regulation and co-regulation instruments and a facilitative place to the participation of various groups and sectors in climate governance.	Accepted. This fits with our approach to the chapter.	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
66025	0				The EU policy package for buildings is not limited to EE policies. There are 20 instruments aiming at the decarbonisation of EU buildings.	Noted. No specific change suggested	Yamina Saheb	OpenExp	France
10073	1	1	7	44	In general, this chapter has improved greatly since the FoD (which in turn was a significant improvement on the rather disappointing (equivalent) chapter in AR5. It covers the most relevant relevant topics and themes in sufficient detail, is well written and is (more or less) logically structured. Congratulations to the editorial leadership team and to the CAs. The main task as I see it is 1. to standardise the terminology used (where appropriate - for examples, see below); 2. knit the various sections together more tightly; 3. draw out and evidence the general findings more systematically.	Noted.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
31163	1	1	1	1	In keeping with AR5 and SR1.5, this chapter uses terms/concepts related to transformation often (81 occurrences), e.g., transformation, transformative change, transformative potential, transformative capacity. However, these terms are rarely defined (perhaps this is left to e.g. the SPM?) and little reference is made to e.g. glossary definitions. Section 13.9.3 is titled "From incremental change to transformation", but incremental change is not, to my knowledge defined or compared to transformation (the terms are implicitly contrasted). These terms are used explicitly, but somewhat differently, elsewhere, in Ch. 1 of the WGIII SOD p. 51 ln. 41 states "This report uses the term transition as the process, and transformation as the outcome or objective, of large-scale changes in technological, economic and social systems." This does not seem to be standardized with the glossary for example, which e.g. defines a societal (social) transformation in part as "A profound and often deliberate shift initiated by communities toward sustainability" (p. 47) i.e. a process not an end state. Similarly the glossary states a transition (p. 48) "can be based on incremental or transformative change", implying that transformative change is a component of, not an end result, of transition. Can you clarify what you mean by transformation, incremental change, transition?	Accepted. We have introduced consistency of terms. We use IPCC glossary terms for institutions, governance, transition and transformation. 13.2 explains the various other terms used. 13.9 has been substantially restructured and the term incremental is no longer used.	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
83959	1	1	1	1	I checked the chapter and I couldn't see any detail on the impact of shareholder primacy in company law and efforts to change national laws that entrench such shareholder primacy (particularly in the UK and US), and to move towards a system of company law that requires companies to address climate/environmental risk and impacts. For example, there is a growing movement to change company law to require directors to take into account climate risk as part of their directors duties (in the UK, further amendments to s172 of the Companies Act are proposed by Better Business Act; there have also been efforts to create new legal models for business, such as the Benefit Corporation in the US, or B Corp certification used across the world, and to develop model contract clauses for businesses to use which address climate risk within those contracts (such as the Chancery Lane Project). I note that Chapter 15 deals with efforts to develop ESG disclosure regimes, but changes to company law are also critical (and perhaps more important) in placing greater legal responsibility on companies to address climate impacts. Could you please consider these points, and whether it would be helpful to include this as part of the analysis of national policies/institutions on climate change.	Noted. We do have a new section on climate liigation 13.4.3 which provides an overview of litigation as a tool for climate mitigation, noting that it has also been used in cases against companies. We also mention disclosure requirements in 13.6. Thes are rleated to but we agree are not centrally addrssing questions of company law	Danielle Mawer	Bates Wells Braithwaite	United Kingdom (of Great Britain and Northern Ireland)
86541	1	1	146	43	It is unclear, which generalizeable knowledge can be derived from this chapter, even with domain limitations on generalizeability.	Noted. We seek to tighten our articulation of high level learnings in the ES	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
86543	1	1	146	43	How are the assessments arrived at? Is there any protocol? Which protocol?	Different LAs have different approaches. In many cases across the chapter, a semi systematic literature search was undertaken for all the key topics within a section; often more than one. Other LAs relied on their knowledge of the literature supplemented by searches.	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
86545	1	1	146	43	Lots of sources are under review. This may impact final editing and the evidence supported according to IPCC editorial guidelines.	Noted. Only accepted sources have been retained.	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
86547	1	1	146	43	The Laws and Policies of the world are quantified according to exisitence, but not quantified according to strength. We know from first-hand research that the latter is a difficult challenge. Unfortunately, the existence of a law does not tell us too much about its contents.	Noted. We use the Laws of the world to assess coverage which we agree does not tell the whole story. We also cite a study trying to quantify the effects of the spread of laws and policies over time in Sec 13.2	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
86549	1	1	146	43	Chapter 13 reads as if Chapter 14 does not exist. And there is a clear domestic-international interface between both chapters. How is that dealt with? It is exactly this interface which has most to offer to decision-makers.	Accepted. We have provided a linking sentence in 13.1 and various links throughout chapter.	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
86553	1	1	146	43	The excessive use of the subjunctive indicates that there are problems with systematic evidence. The point for an assessment report is what reproduciable evidence there is and where the gaps in research are.	Noted	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
86555	1	1	146	43	The diligint use of boxes, tables, and figures is appreciated and livens up the chapter.	Noted	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
17653	1	1	130	1	overall excellent work but it needs to add in court decisions in various jurisdictions especailly Australia where ESD is being used to stop private sector approvals on polluting mines. Brave jusdges but an exemplar. The Rocky Hill case Gloucester case in NSW is one example. And if some do become aware and protext about corruption in the permit giving process for fossil fuels, then they are targeted under anti protest laws. In addition the treatment by sme judges of environmental protesters is enableing more protests. There is much to reflect on in cases such as Kindgnorth in the UK and Rolles in Australia Happy to provide text at a later time for a new subsection. Prof Jennifer McKay	Noted. I hope you are happy with the updated section.	Jennifer McKay	University	Australia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28965	1	1	1	1	Overall – really welcome the new addition of institutions to this chapter.	Thanks	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
12059	1	1	80	38	The absence of CDR from the chapter, given the critical role national and sub-national polices and institutions will have in its evolution is an important gap. CCS is touched upon. However, not referencing CDR when, for example, exploring processes through which society will build agreements and take action, given the scale of action, required appears to be an important gap. Equally, not considering possible incentives through policy formulation for CDR appears to be an important gap in the analysis as does the absence of CDR in the discussion of policy assessment criteria.	Noted. This is outside the ch 13 scope. CDR is assessed in chapter 12, to tbe best of our knowledge	Paul Rouse	Carnegie Climate Governance Initiative (C2G) - The Carnegie Council for Ethics and International Affairs	United Kingdom (of Great Britain and Northern Ireland)
52623	2	10	2	10	It is better to use a different title here to be consistent with other sub-sections which don't have an introductory section.	Noted and changed. Thank you	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
10075	2	20	2	25	Section on Actors - from a quick look at the table of contents, I think this section would make more sense placed earlier in the text - and certainly before the more structural factors - Section 13.4	Noted. We have placed section on actors earlier (now 13.4) but it is after structural factors (13.3) I hope you think this is acceptable.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
52627	2	26	2	32	For a logical flow of knowledge, it would make sense to re-arrange the content of section 13.6 as follows: 13.6.1 Taxonomy and overview of mitigation policies; 13.6.2 Economic instruments; 13.6.3 Regulatory instruments; 13.6.4 Other policies; 13.6.5 Evaluation criteria; 13.6.6 Empirical evidence on policy interactions. Same goes in re-arranging the content in the section itself in pages 34-54.	Noted. The Las found the existing structure more useful.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
54385	3	1	7	43	Section I does not seem to add much beyond the recent special reports and HS are often very generic (e.g. attention to equity and justice needed for fair climate policy...), while especially Sections III and IV present new and more specific insights. Is this because of how the literature has developed? Maybe more could be pulled from the chapter?	Accepted. This has now been rewritten so that it says what has been built on from AR5; what is new etc.	Sabine Fuss	MCC Berlin	Germany
52621	3	5	3	5	Remove this line from the Table of Contents	Rejected. NO reason is given, and all our sections and sub-sections are chosen and assessed on evidence.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52625	3	9	3	9	It is better to use a different title here to be consistent with other sub-sections which don't have an introductory section.	Accepted. The term 'Introduction' has been removed	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
17631	3	35	4	40	some states have passed laws to inhibit protests against GHG emitters. This contravenes international law ICCPR art 21 gc 37 but alos some domestic laws and protections on freedom of assembly. In Australia we had some very draconian laws attempted to be passed in Tasmania but the law was partly struck down as being too wide. Brown v Tasmania 2017. In a recent case about GHG activists protesting about continued operation, Rolles v Qld, the judge refused to take evidence on the impact of shutting down the transport of coal. in Kingsnorth in the UK the judge did accept that even shutting down the plant for 3 days would have an impact on Kent. in Rolles this was denied. However, the sentencing did consider the motives of the protester Rolles and that he gunuinely did belive in climate change. The panalties were reduced by 50% in the appeal case.	Noted and Thanks.	Jennifer McKay	University	Australia
77753	4	1	7	44	The problem with this executive summary is that it covers too many issues, which leads to a large number of short, superficial and generic statements that lack the key messages that policy makers should take away from this chapter. This also translates into the same problem in the SPM. The only way this can be solved I think is by greatly reducing the number of issues that are covered in the ES, making room for the really important points to be elaborated. This is a crucial step to make the chapter more useful to policy makers. See further comments on some of the follwing bullets. This does not mean that the other bullets are OK!	Accepted. It is now rewritten but since we have approved bullets, we do need to cover all topics, inlcuding in the ES. However, clearly emhasis will vary across bullets	Bert Metz	European Climate Foundation	Netherlands
22307	4	1	4	1	Reading this summary it is difficult to figure out if there is any possible "best way" to improve climate policies. Even if "Evaluation of carbon pricing experience" (13.6.3.3) argue that "Economic theory firmly suggests that carbon pricing is effective in reducing emissions"	Accepted. Now rewritten, including on C pricing	Government of France	Ministère de la Transition écologique et solidaire	France
28967	4	1	4	1	While it is useful to highlight that 46 countries have formal climate laws, the statement is somewhat misleading because it is both possible and sometimes politically easier to pursue indirect climate policies. In other words, a much more important message is that myriad direct and indirect policies can be promulgated under “indirect” laws. For example, an energy law an create policies to promote the deployment of non-fossil energy. How many such “indirect” laws have been passed in how many countries? This point is acknowledged in full text but should be brough forward in the executive summary.	Accepted. This is central to our chapter and made clearer in 13.2	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
86315	4	1	82	11	Consider inclusion of a representative model for the co-ordination and reconciliation of the mechanism for implementation of the policies of local municipalities of towns and cities, provinces and states and upto the national level. This may be helpful to avoid overlaps and conflicts and streamlining the administration of the policies in a seamless manner and at an optimum cost.	Noted, coordination issues for implementation of local municipalities is discussed.	RABIZ FODA	Hydro One Networks Inc.	Canada
79259	4	1	146	43	My comment here refers to the whole Chapter. The new version of the Chapter is well structured, clearly written and rather exhaustive. While other aspects and perspectives could have also been investigated (such as the one on “maladaptation” which I mentioned in the review on the first-round version), I believe the authors have largely succeeded in providing a broad overview, encompassing many relevant issues and digging deeper in the analysis on some of them	Thanks.	Simone Borghesi	University of Siena	Italy
84817	4	2	7	43	Suggest land tenure matters be referenced in the executive summary to this chapter also (see AFOLU content and findings). Also, incentives and regulation could be emphasised more in the findings at lines 4-10 on p4)	Noted but there is limited space for sectoral issues, which are in the Sectoral chapters.	Emily Gerrard	Comhar Group Pty Limited (law firm)	Australia
12493	4	4	4	10	Reading this summary it is difficult to figure out if there is any possible "best way" to improve climate policies. Even if "Evaluation of carbon pricing experience" (13.6.3.3) argue that "Economic theory firmly suggests that carbon pricing is effective in reducing emissions"	Noted. The ES has been rewritten.	Fay Farstad	CICERO Center for International Climate Research	Norway

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
79247	4	4	4	4	I think the expression "equally prevalent" is somehow misleading. I would suggest replacing it with equally important or something similar. Moreover, in my view it is not so clear what are the two policies which you compare: on the one hand climate laws, on the other hand national strategies? But climate laws are often at national levels so they are part of a national strategy. The term national strategies should probably be defined here or replaced with something clearer	Noted, removed.	Simone Borghesi	University of Siena	Italy
43327	4	5	4	5	Number of countries with climate laws are considerably higher today - especially those with legally binding net zero targets	Noted. The Figure 13.1 has been updated. 13.9 discusses net zero targets	Ermenegilda Boccabella	Caelex	Belgium
5133	4	5	4	7	2017 is four years ago - it would be nice to have more up-to-date information	Accepted. The information has been updated using the same methodology as the underlying published paper.	Lina Hollender	n/a	Germany
52581	4	6	4	7	Use the following reference to provide data for 2020: https://www.lse.ac.uk/granthaminstitute/research-areas/climate-change-governance-legislation-and-litigation/	Noted. The methodology and categories used across sources differ, so we have used the suggested and other sources, but consistent with the methodlogy used earlier to enable comparability	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
77755	4	11	4	15	The second sentence contains a much clearer message. Make that the headline statement, followed by some examples	Noted. The ES has been rewritten.	Bert Metz	European Climate Foundation	Netherlands
17633	4	13	5	17	climate activists are often marginalized in societies and their voices suppressed.	Accepted. This is addressed in Sec 13.2 and 13.5 relating to procedural justice and representation	Jennifer McKay	University	Australia
77757	4	16	4	21	Clear messages lacking. Paragraph could be deleted	Noted. The ES has been rewriiten.	Bert Metz	European Climate Foundation	Netherlands
12495	4	16	4	16	Even though this is the executive summary, it would be useful to define what is meant by 'ambition gap' for a non-expert or policymaker audience.	Noted. The ES has been rewritten and ambition gap does now not appear.	Fay Farstad	CICERO Center for International Climate Research	Norway
77759	4	22	4	26	what is the message here? I don't think this is such an important issue	Noted. The ES has been rewritten.	Bert Metz	European Climate Foundation	Netherlands
70629	4	23	4	25	Comparison of 'mitigation focused institutions' with 'sector focued or institutions oriented to multiple objectives' looks like comparing apple with orange. Rather, comparison between 'mitigation and adaptation' or between 'sector specific and cross-sectoral' would look more logical.	Accepted. Altered.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
77761	4	27	4	34	the only relevant message in the paragrpah seems to be in line28: "there is no single template across countries"; why take so many words to convey it	Noted. The ES has been rewritten.	Bert Metz	European Climate Foundation	Netherlands
79249	4	29	4	30	I suggest replacing ; with , to separate the terms of the list. Indeed, all these terms refer to an expression ("shape domestic climate governance") which appear in the following line	Noted. ES has been rewritten and takes account of this	Simone Borghesi	University of Siena	Italy
77763	4	35	4	39	The EGR 2019 contained a much more useful set of conclusions than this very generic statement	Noted. The ES has been rewritten.	Bert Metz	European Climate Foundation	Netherlands
77765	4	41	5	1	I would rather see a clear statement on the consequences of not paying attention to equity and justice. This is too vague.	Noted. The ES has been rewritten.	Bert Metz	European Climate Foundation	Netherlands
63273	4	41	4	44	Would recommend inlcuding eco-justice for vulnerable communities who are likely to feel the impact of climate change more than others (e.g BIPOC and LGBTQ+)	Noted. This is within the chapter text	Government of Canada	Environment and Climate Change Canada	Canada

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
52629	4	41	4	44	Needs to emphasize global equity in developing world as well as subnational components for equity and justice	Noted. However, the topic suggested is within the scope of Ch 14	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
10829	5	4	5	5	Do not results reported in §13.4.2. deserve to be mentioned in this summary?	Noted. The ES has been rewritten.	Philippe Waldteufel	CNRS	France
2175	5	4	5	42	This chapter summary lacks any discussion of organized efforts to obstruct climate action that are discussed in this chapter as detailed below. This obscures and minimizes the five clear statements in the report (detailed below) that discuss the role of power and incumbent interests to obstruct meaningful climate action through an organized and well-funded effort. The chapter summary needs to contain a clear and unambiguous statement regarding the extensive peer reviewed literature that demonstrate that the large scale organized efforts to obstruct climate action constitute a significant barrier to climate mitigation efforts.	Accepted, included in the ES.	Robert Brulle	Brown University	United States of America
2177	5	4	5	42	Section: 13.4.4, page 13-28, lines 24 - 31	Noted	Robert Brulle	Brown University	United States of America
2179	5	4	5	42	Misinformation can be disruptive by rapidly spreading through social media (Walter et al. 2018). Accurate transference of the climate science has been undermined significantly by climate change counter-movements, particularly in the US (McCright and Dunlap 2000, 2003; Jacques et al. 2008; Brulle et al. 2012; Boussalis and Coan 2016; Farrell 2016a; Carmichael et al. 2017; Carmichael and Brulle 2018; Almiron and Xifra 2019; Boykoff and Farrell 2019) in both legacy and new/social media environments with misinformation (van der Linden et al. 2017). Climate change counter-movements have utilised media as a conduit to spread misinformation about the causes and consequences of climate change (Brulle 2014; Farrell 2016a,b; Supran and Oreskes 2017).	Noted, new text in 13.4.	Robert Brulle	Brown University	United States of America
2181	5	4	5	42	Section: 13.5.1, page 13-29, lines 37 - 39	Noted	Robert Brulle	Brown University	United States of America
2183	5	4	5	42	Another set of organisations aims to undermine established climate science and oppose proposed climate action (Brulle 2014, 2019). These may be think-thanks, philanthropic foundations, or looser activist networks (Brulle 2019).	Noted	Robert Brulle	Brown University	United States of America
2185	5	4	5	42	Section: 13.5.1, page 13-30, line 2 - 5	Noted	Robert Brulle	Brown University	United States of America
2187	5	4	5	42	Because big corporate actors often have good access to political systems, control material resources and are favoured by domestic cultures and traditions, they often play key roles when it comes to influencing, adopting and implementing climate governance (Pulver and Benney 2013; Mildenberger 2020) (limited evidence, medium agreement).	Noted	Robert Brulle	Brown University	United States of America
2189	5	4	5	42	Section: 13.5.2, page 13-32, lines 17 - 33	Noted	Robert Brulle	Brown University	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
2191	5	4	5	42	Corporate actors' positions and ability to influence climate policy vary across differing groups of corporate actors, countries and climate issue-areas (Skjærseth and Skodvin 2010; Boasson and Wettestad 2013; Boasson 2015; Boasson et al. 2020) (medium evidence, medium agreement). Corporations may gain influence through the material endowments they control (MoeSingh 2012), have superior access to the domestic political system (Mildenberger 2020) or greater success in shaping cultural-institutional features (Boasson 2015). The fossil fuel industries have been important agenda-setters, for instance in the USA (Dunlap and McRight 2015; Supran and Oreskes 2017; Downie 2018) in the EU (Skjærseth and Skodvin 2010; Boasson and Wettestad 2013), in Australia (Ayling 2017), China and India (Blondeel and Van de Graaf 2018), and in Mexico (Pulver 2007), but they have had differing positions across countries (Kim et al. 2016; Nasiritousi 2017). In the US, the oil industry has underpinned emergence of climate scepticism (Dunlap and McRight 2015; Farrell 2016a; Supran and Oreskes 2017), and its spread abroad (Dunlap and Jacques 2013; Engels et al. 2013; Painter and Gavin 2016).This topic needs to be added to the summary.	Noted	Robert Brulle	Brown University	United States of America
85421	5	4	5	8	Climate policy making is mobilized, influenced and adopted by a number of actors, including 7 corporate actors, politicians, international organizations, environmental organizations,8 civil society and units specialized in environmental protection of the armed forces.The participation of the armed forces in the formulation of climate policies is important, since they are the units that participate directly in support of mitigation when natural phenomena that affect the countries occur, taking into account that in the political constitutions of the States is determined the participation of the armed forces in support of the protection of the environment produced by climatic variations.	Noted. The section and discussion focuses on groups engaged in influecing the policy process. We do not include the armed forces in this category	victor arturo miranda alfaro	Gobierno	Peru
77767	5	6	5	11	so what? is this something policymakers do not yet know already?	Noted. This has been rewritten now.	Bert Metz	European Climate Foundation	Netherlands
52631	5	6	5	11	governments are only as motivated as population motivations. Civil society engagement is the key driver for government engagement. There is less willingness by civil society and populations globally to absorb the short term cost needed for effective action. Include this discussion.	Noted. Discussion in 13.3 and 13.4	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
22309	5	7	5	7	While this section is dedicated to show multiple actors' involvment, no point targets corporate actors. The role of corporate actors should be mention among the ones of citizens, media and governements. The literature stresses their "fundamental" role in shaping the effectiveness of climate policies: eg: Benson, P., & Kirsch, S. (2010). Capitalism and the Politics of Resignation. Current Anthropology, 51(4), 459-486. doi:10.1086/653091	Noted and addressed.	Government of France	Ministère de la Transition écologique et solidaire	France
63275	5	8	5	8	Would recommend adding to the end of the sentence ending in "climate policies" - "as governments send the key policy signals to markets and investors about the country's direction."	Noted. The ES has been completely re-written	Government of Canada	Environment and Climate Change Canada	Canada
22311	5	12	5	12	Suggestion to quote the surveys on "Public attitudes towards climate" launched by the European Investment Bank could be useful : https://www.eib.org/fr/surveys/climate-survey/index.htm	Noted. However, due to space limits, this is too detailed for the ES.	Government of France	Ministère de la Transition écologique et solidaire	France
77769	5	16	5	22	Citizen assemblies deserve specific mentioning. See comment in section 13.5	Noted. Citizen Assemblies are mentioned in the text of 13.2	Bert Metz	European Climate Foundation	Netherlands

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
12497	5	16	5	16	Citizen 'engagement' should be changed to citizen 'action' - both to align with the subsequent text and also to avoid confusion with the citizen engagement literature.	Noted	Fay Farstad	CICERO Center for International Climate Research	Norway
2735	5	16	5	22	Citizen´s engagement can alos take the form of involvement of citizens in energy planning deliberations and decision-making, participatory budgeting, involvement in energy communities and other cooperative approaches, involvement in building retroffiting projects, participation in living labs, crowdfunding, digital social markets, idea banks and other initiatives	Noted. This is assessed in 13.4	Leonardo Barreto	Head of center "EU&International"	Austria
10831	5	16	5	22	Citizens are similarly able to, and sometimes happen to, fight against mitigation policies.	Accepted. This is assessed in 13.4	Philippe Waldteufel	CNRS	France
63277	5	20	5	20	would recommend adding to the end of "more ambitious policies" - "or less ambitious, depending on the ideologies of citizens/ political parties." We've seen in the past few years how digital media has influenced the spread of misinformation, forming very loyal ideologists on anti-climate policies.	Noted. Increased text in 13.4	Government of Canada	Environment and Climate Change Canada	Canada
43329	5	25	5	27	Include references to accuracy in media portrail of climate science	Accepted	Ermenegilda Boccabella	Caelex	Belgium
77771	5	34	5	42	So many issues covered that no useful mesages remain	Noted. The ES has been completely re-written	Bert Metz	European Climate Foundation	Netherlands
52633	5	34	5	42	The reason citizens in developing countries are less engaged in support for climate action is because it requires sacrifice of essential elements for a healthy live, including affordable energy and the consequent impact of expensive energy. Include this in the discussion.	Noted. The challenges of mitigation in developing countries are well noted through the report, for eg in Sec 13.7 but also in other sections	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
11043	6	1	6	1	Wide coverage implies that the policies need to be cross-sectoral, or cover multiple greenhouse gases, or operate at a large geographical scale. This contradicts one of our key points in Chapter 14, based on a fair amount of literature (most notably a recent report by Victor, Geels et al) that many of the most policies are those with a quite narrow scope, either sectorally or geographically.	Noted. Wide coverage removed.	Anthony Patt	ETH Zürich	Switzerland
11045	6	1	6	1	The term "stringent" doesn't seem quite right. Regulations can be stringent. I suppose carbon caps and renewable energy quotas as well. But instruments that provide economic incentives -- subsidies and taxes -- aren't really described as "stringent". Nor are policies that provide the supportive environment for transformative change, such as infrastructure planning, or those associated with a just transition, such as retraining workers. There are lots of examples in the literature of policies that one would not describe as "stringent" being effective.	Noted. We have qualified and described the use of 'stringent' more carefully in the main chapter, but it is not used in the ES	Anthony Patt	ETH Zürich	Switzerland
11047	6	1	6	2	I find using the term "well-designed" here to be tautological. We judge whether policies were well-designed by whether they are effective.	Noted. Test has been re-written including to address this point.	Anthony Patt	ETH Zürich	Switzerland
12499	6	1	6	3	The bolded sentence is ambiguous. Suggest breaking it up to clarify the meaning.	Noted and removed.	Fay Farstad	CICERO Center for International Climate Research	Norway
22313	6	1	6	1	Most of the policy instruments mentioned in this chapter relate to economic instruments. Practicioners and social scientists have however stressed the importance of other instruments such as awaraness and accompanying and conselling campaigns, namely for users in a precarious situation or using technological innovations in building. We suggest to include such instruments.	Noted. Yes, some of these issues are addressed in 13.3, 13.4, 13.5, 13.8	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28969	6	1	6	20	Typo in 3rd bullet “20%of”	Noted	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
9715	6	1	6	3	Policy instruments that don't meet the criteria specified still can enable some mitigation. May be you need to add "effective" before mitigation on the first line.	Noted, sentence removed.	Mustafa Babiker	Saudi Aramco	Saudi Arabia
77773	6	4	6	6	The share of emissions subject to policies or legislation is not very releavnt; see the point about the importance of stringency in lines 16-17; so this is not a very relevant point that can be deleted from The ES	Noted but rejected. We think readers would be interested to know what GHG emissions are covered and to what degree. Stringency is another issue.	Bert Metz	European Climate Foundation	Netherlands
12501	6	4	6	12	This is an important point, which should be highlighted also in the SPM. However, could you add a sentence here regarding which sectors have a high or low coverage of mitigation policies? This would be a useful detail.	Accepted - more in 13.6 and Fig 13.3	Fay Farstad	CICERO Center for International Climate Research	Norway
52583	6	4	6	12	Long sentences, break them down. Also, grammer issue in line 5: "is not yet" -'has not been'?	Noted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
77627	6	9	6	12	CH4 and CO2 emissions from industrial production are already subject to mitigation regulations in certain geographies, such as cement and lime under the EU ETS, or CH4 upstream production regulations in the US. Suggest clarifying language saying "not yet covered" to "not yet materially covered" or the like.	Noted. This material is not now covered in the ES	Alex Rau	Climate Wedge LLC	United States of America
58153	6	9	6	12	This language should reflect the underlying chapter text in Box 13.8, that "Only a small share of these emissions are subject to mitigation policies" rather than they are "not yet covered by mitigation policies".	Noted. This material is not now covered in the ES	Government of United States of America	U.S. Department of State	United States of America
22315	6	13	6	14	add justice in "environmental effectiveness and justice"	Noted	Government of France	Ministère de la Transition écologique et solidaire	France
17635	6	13	6	18	the implementation depends as well on knowledge of civil society about the issue and this is often flawed due to false information . It can often be a negative feedback loop from poor information to poor adoption and often active supression. Laws ofter exist to regulate the media and interests can supress info and describe the activists as not peaceful.The stringency of implemnetation is undermined by the above.	Agreed. Text in 13.4 in particular	Jennifer McKay	University	Australia
58155	6	14	6	14	What type of feasibility is referenced here?	Text rewritten. Chapter 3 is the lead chapter on feasibility. 13.9 introduces the feasibility criteria, also set out in Chapter 1	Government of United States of America	U.S. Department of State	United States of America
11049	6	16	6	17	I don't think that equating transformative potential with stringency matches your own description of the criterion, or the criterion's use in chapter 14. The kinds of policies with transformative potential include those that open up new technological options, such technology deployment support or R&D. The German FIT, for example, was transformational, in terms of driving price reductions in PV that would enable massive energy system transformations to come later. Arguably grid expansion, or efforts to increase electrical storage capacity, can create conditions for transformative change, by facilitating much greater shares of intermittent renewables. None of these kinds of policies can be described as "stringent."	Noted and removed the link between transformative potential and stringency	Anthony Patt	ETH Zürich	Switzerland

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
77775	6	16	6	17	This is the key message form this bullet; make that the headline and elaborate by showing that lack of stringency is one of the key factors explaining lack of sufficient action. You could also include that counting the number of laws and policies is not a good proxy for showing progress	Noted. The ES has been re-written but the point here is broadly included.	Bert Metz	European Climate Foundation	Netherlands
58157	6	16	6	17	While the stringency of implementation is an important determinant of the success of a policy, it doesn't seem to be most important for transformative potential. An incremental policy could be fully implemented and never be transformative. It seems that the design and scope of the instrument is what most determines its transformative potential.	Noted. ES has been rewritten. We try to get this across.	Government of United States of America	U.S. Department of State	United States of America
54387	6	16	6	17	But Section 13.6 also stresses design as a key determinant of success.	Noted	Sabine Fuss	MCC Berlin	Germany
77777	6	18	6	23	this is too general; add information about the (relatively low) level of carbon pricing that is in place (see e.g. Climate Transparency Initiative "Brown to Green " reports); point needs to be made that the level of carbon price is totally inadequate to meet Paris goals	Noted. This has been added	Bert Metz	European Climate Foundation	Netherlands
22317	6	18	6	18	A mention could be made about the low level of carbon pricing in the EU. Despite a wider coverage, a low carbon price reduces the impacts of market-based instruments. This is even more important because of the incoming economic crisis: the example of the 2008 crisis shows how it impacted the EU ETS. Low carbon price led Carbon Capture and Storage to fail.	Noted. Low levels of carbon pricing in different jurisdictions are discussed.	Government of France	Ministère de la Transition écologique et solidaire	France
22319	6	18	6	23	We suggest to add a sentence to this paragraph about how carbon pricing can deliver emissions reductions + carbon prices have been very low so far and covered a limited scope	Noted. This is discussed in 13.6 and reflected in the ES	Government of France	Ministère de la Transition écologique et solidaire	France
30577	6	18	6	19	The sentence says 'wiith carbon pricing covering about 20% of global CO2 emissions.' It would be better to add some more explanation or reference for this, e.g. what kind of policies are included in carbon pricing.	Noted. This detail is in the chapter	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan
58159	6	18	6	23	It's important to note here in the Executive Summary that, while 20% of global CO2 emissions are covered by carbon prices, those prices are generally far too low. References: Jenkins, J. (2019) ""Why Carbon Pricing Falls Short and What to Do About It"" Kleiman Center for Energy Policy, U. Penn. World Bank (2019). ""State and Trends in Carbon Pricing"" Cullenward D, and Victor D. (2021) ""Making Climate Policy Work"".	Noted. Low levels of carbon pricing in different jurisdictions are discussed.	Government of United States of America	U.S. Department of State	United States of America
60347	6	18	6	29	The order of the two paragraphs and respective message could be swapped. Regulatory instruments cover by far more emissions than pricing instruments and have as a group probably led to more emission reductions. They seem to be still the primary instrument for emission reductions. Carbon pricing is implemented "to complement or as alternative" to regulatory instruments.	Noted. Carbon pricing is discussed in part because Ch 13 is the only chapter that discusses economy wide carbon pricing efforts in detail. Regulatory policies are discussed in sector chapters and only to a limited extent here due to the number of sectors. The order is not intended to convey relative importance	Niklas Höhne	NewClimate Institute	Germany
79251	6	19	6	19	insert a space after 20%	Accepted	Simone Borghesi	University of Siena	Italy
11053	6	21	6	23	I wouldn't have described the evidence here as robust. I know of a few papers relying on survey instruments making use of hypotehtical scenarios, but not any natural experiments.	Noted.	Anthony Patt	ETH Zürich	Switzerland
79253	6	22	6	22	The expression "can increase the social acceptance of market-based instruments" sounds a bit like a repetition of what already said before	Noted, now rewritten.	Simone Borghesi	University of Siena	Italy
11051	6	24	6	25	As regulatory instruments pre-date pricing instruments, and are more prevalent in many sectors, e.g. buildings, transportation, industry, it might make more sense to describe carbon pricing as complementry to them. I am thinking of an example, e.g. there are a lot of policies related to vehicle emissions or the transition to EVs, and these are strengthened when a carbon price is put on gasoline.	Noted. We seek to convey that they are mutually complementary	Anthony Patt	ETH Zürich	Switzerland

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
77779	6	24	6	25	More needs to be said about the limits of financial instruments and situations where regulation is more effective, such as for emission reduction from automobiles, energy efficiency of houses and other buildings	Noted. We stress the use of regulation in sectoral policy	Bert Metz	European Climate Foundation	Netherlands
58161	6	24	6	39	Regulatory instruments can be a complement to price-based emissions pricing (i.e., carbon taxes) but act more as a substitute to quantity-based emission pricing (i.e., cap-and-trade). Regulatory instruments applied to sectors already covered by a cap can simply have the effect of lowering the allowance price without impacting emissions if the cap remains binding. On the other hand regulatory instruments applied to sectors already covered by a carbon tax can provide additional abatement since they do not impact the level of the carbon tax. References: Fawcett, A., L. Clarke, S. Rausch, and J. Weyant, 2014, Overview off the EMF 24 Policy Scenarios. The Energy Journal 35 (special issue 1) Borenstein, S. et al. (2019) “Expecting the unexpected: emissions uncertainty and environmental market design: American Economic Review 109(11): 3953-77	Noted. We discss the relationship between the two in a box in Sec 13.7	Government of United States of America	U.S. Department of State	United States of America
60275	6	24	6	25	LTN: the summary could also highlight economic instruments beyond market-based. They are also robust and relevant alternatives.	Noted. The revised ES covers a broad range of instruments	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany
5559	6	26	6	26	Should replace Cost" by "price for the customer". Tje production cost remains quite highn and the price for the customer may le low, due to public subsidies.	Noted . The ES has been re-written	Michel SIMON	Retraité/ Pdt d'association	France
77781	6	27	6	29	This statement contradicts AR4 conclusions on the value of voluntary approaches; it is way too optimistic	Noted	Bert Metz	European Climate Foundation	Netherlands
22321	6	27	6	29	"Other, voluntary approaches, such as information programs and voluntary agreements can reduce GHG emissions and support transformation towards low emissions systems (robust evidence, high agreement)" This conclusion - above all "robust evidence" in particular - is not founded on evidence presented in the text on voluntary agreements in Section 13.6, which includes no empirical evaluation measuring the effect of voluntary agreements on GHG emissions.	Noted . This point is well taken.	Government of France	Ministère de la Transition écologique et solidaire	France
11055	6	30	6	30	I think you want the word "adverse" before "distributional." Regulations can also have desirable distributional outcomes (e.g. the US CAFE standards leading to small cars being disproportionately cheaper) that policy makers may decide not to address.	Noted. No adjective was used on purpose.	Anthony Patt	ETH Zürich	Switzerland
77783	6	30	6	33	for pricing policies lowering other taxes has proven to be an effective way to tackle overburdening low income households	Noted.	Bert Metz	European Climate Foundation	Netherlands
60277	6	30	6	31	LTN: Most policies have distributionals effects, not only price and regulatory. It is currently unclear why only these instruments have been singled out. Also, why only business and consumers? This framing does not account all diverse groups affected by implementation of policy instruments. This is better discussed under item IV of the executive summary. The current bullet point could be integrated below or expanded here. https://www.nature.com/articles/s41558-020-00971-x	Now rewritten but also noted.	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany
17637	6	35	6	40	Trading. This is another vexed issue because of poor information as discussed above In an open market with good information trading can work.	Noted. We do not cover this because of space constraints.	Jennifer McKay	University	Australia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
80717	6	38	6	43	This section should emphasize potential interactions among regional environmental agreements, especially the Long-Range Convention on Transboundary Pollution and its Gothenburg Protocol. The Gothenburg Protocol will be undergoing review to include, among other things, CH4 among its regulated gases as an ozone precursor (LRTAP Working Group on Strategy and Review, 2020). The Task Force on Hemispheric Transboundary Air Pollution will be exploring the transport and effects of non-UNECE CH4 emissions to UNECE members (TFHTAP, 2020). This section should also consider whether other climate MEAs will be more effective in regulating CH4 and N2O emissions. For instance, it has been suggested that the Montreal Protocol may be so amended that N2O monitoring becomes part of the Protocol as an initial step towards global regulation. (Solomon, 2020). CITATIONS: Working Group on Strategy and Review of the Convention on Long-Range Transboundary Pollution (30 September 2020) Preparations for the review of the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone as amended in 2012, ECE/EB.AIR/2020/3 – EBE/EB.AIR/WG.5/2020/3 at 13, 14 (see Items 3.3 and 6.3 in Annex I assigning questions for consideration of the TFHTAP, MSW-W, TFTEI, TFFRN, TFIAM, WGSR, WGE and the timing for their completion). TFHTAP (02 February 2021) 2021 plans for TFHTAP (last accessed on 19 February 2021) (“Near-term opportunities included evaluating regional ozone concentration responses to global changes in methane using recent modeling results.”). Solomon, S. Alcamo, J.A., Ravishankara, A.R. (2020). Unfinished business after five decades of ozone-layer science and policy, Nature Communications, 3 (“Halons, HCFCs, HFCs, CCl4, and N2O into the Protocol itself. These data are needed by the Parties to enable them to track progress and assure compliance.”).	Noted. This is outside of the scope of the chapter.	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
80861	6	38	6	43	This section should emphasize potential interactions among regional environmental agreements, especially the Long-Range Convention on Transboundary Pollution and its Gothenburg Protocol. The Gothenburg Protocol will be undergoing review to include, among other things, CH4 among its regulated gases as an ozone precursor (LRTAP Working Group on Strategy and Review, 2020). The Task Force on Hemispheric Transboundary Air Pollution will be exploring the transport and effects of non-UNECE CH4 emissions to UNECE members (TFHTAP, 2020). This section should also consider whether other climate MEAs will be more effective in regulating CH4 and N2O emissions. For instance, it has been suggested that the Montreal Protocol may be so amended that N2O monitoring becomes part of the Protocol as an initial step towards global regulation. (Solomon, 2020). CITATIONS: Working Group on Strategy and Review of the Convention on Long-Range Transboundary Pollution (30 September 2020) Preparations for the review of the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone as amended in 2012, ECE/EB.AIR/2020/3 – EBE/EB.AIR/WG.5/2020/3 at 13, 14 (see Items 3.3 and 6.3 in Annex I assigning questions for consideration of the TFHTAP, MSW-W, TFTEI, TFFRN, TFIAM, WGSR, WGE and the timing for their completion). TFHTAP (02 February 2021) 2021 plans for TFHTAP (last accessed on 19 February 2021) (“Near-term opportunities included evaluating regional ozone concentration responses to global changes in methane using recent modeling results.”). Solomon, S. Alcamo, J.A., Ravishankara, A.R. (2020). Unfinished business after five decades of ozone-layer science and policy, Nature Communications, 3 (“Halons, HCFCs, HFCs, CCl4, and N2O into the Protocol itself. These data are needed by the Parties to enable them to track progress and assure compliance.”).	Noted. This is a Chapter 14 issue.	Gabrielle Dreyfus	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
30579	6	39	6	43	The examples of policies here could have both positive and negative impacts on other countries. It would be better to use more neutral expressions, such as in 13.7, 'One country's mitigation policy can impact other countries in various ways including …'	Noted. Bullet rewritten.	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan
58163	6	39	6	39	This would refer to an increase in fossil fuel prices, correct? As written the sentence could be misunderstood to mean "For example, reductions in quantities and REDUCTIONS of prices of fossil fuels produced and exported and the value of fossil fuel resources tend to negatively affect other countries."	Accepted. Rewritten	Government of United States of America	U.S. Department of State	United States of America
58165	6	39	6	41	Considering that the policy of reducing production would be made by the exporting country, it is important to highlight the potential negative effects on their competitiveness, which is often what prevents this approach from being taken at all.	Accepted. Rewritten	Government of United States of America	U.S. Department of State	United States of America
67569	6	39	6	41	The sentence is confusing. Suggested: For example, reductions in demand for fossil fuels tend to negatively affect countries that are net fossil fuel exporters, as quantities, prices of fossil fuels and the value of fossil fuel resources will decrease (medium evidence, high agreement).	Noted. Bullet rewritten.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
87071	6	19	6	23	Add a sentence: carbon pricing can deliver emissions reductions + carbon prices have been very low so far and covered a limited scope	Noted. This point is included in a revised ES bullet	Philippe Wen	Ministère de l'Éc	France
46263	7	1	7	3	The listed success criteria for accelerating climate mitigation and shifting sustainable development pathways are positive criteria exempt inequality and exclusion. It would be more logical to state e. g. "measures against inequality and exclusion, ..."	Noted. Heading removed.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
58167	7	1	7	44	This section discusses the enablers, which is helpful, but it is also important to address barriers. The following statement from page 76, lines 33-37, should be added: "The key challenges to accelerating climate mitigation and sustainability transitions are the ability for low carbon innovations to emerge in whole systems, the need for greater interactions between adjacent systems, the resistance from declining industries, the need for changes in consumer practices and routines, and coordination challenges."	Noted. Bullet removed and rewritten.	Government of United States of America	U.S. Department of State	United States of America
58169	7	1	7	44	This section begins with a clear statement of the characteristics of successful climate policies, but does not evaluate existing policies according to these attributes. The Executive Summary should more clearly state that carbon prices are too low, explain the drivers behind low prices/free allocations, and explain why key sectors have been excluded from carbon pricing policies.	Noted. This point is made in a revised ES	Government of United States of America	U.S. Department of State	United States of America
77785	7	3	7	3	add "avoidance of" before "inequality"	Noted. Heading removed.	Bert Metz	European Climate Foundation	Netherlands
30581	7	3	7	3	The phrase 'inequality and exclusion' may be changed to 'equality and inclusion' to make the meaning of the sentence clearer.	Noted. Heading now removed.	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan
11057	7	4	7	6	I just don't understand this sentence. What is it that enables accelerated action? Is it the trying to meet multiple objectives? Or is it the integration and cross-societal nature of the response? Perhaps because I don't understand the sentence, I am puzzled by the highest confidence level of robust evidence and high agreement.	Accepted. Bullet rewritten.	Anthony Patt	ETH Zürich	Switzerland

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
52635	7	4	7	12	This ignores earlier arguments about the developing world, as well as equity and justice. Integrated and comprehensive policies are more likely to be possible in the developed world, and unlikely in the developing world given the tradeoffs and limited resources that can be allocated to different policy initiatives.	Noted. This is discussed in various sections in text. Integration across objectives are discussed as an important objective for developing countries in 13.7	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
17639	7	4	7	12	Integration is the holy grail. Not many places have ever achieved in in enironmental management. We need studies of governance of natural resources to show deep and menaingful engagement. There are processes suggested in Aarthus Treaty that could be used.	Accepted. 13.7, 13.8 and 13.9 have sections on this	Jennifer McKay	University	Australia
27917	7	8	7	8	Replace "supportive" with "support".	Noted. Rewritten.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
52585	7	8	7	12	Long sentences, break it down.	Accepted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58173	7	13	7	14	This statement is confusing. Since some climate variability exists separate from climate change, does this statement mean that some countries have and will always have such a "deficit"? If adaptation is a continuous process how could one measure a deficit?	Accepted. Bullet rewritten.	Government of United States of America	U.S. Department of State	United States of America
58171	7	13	7	17	This is not the main concept of Section 13.8.2, "Integrating mitigation adaptation and sustainable development", and doesn't make sense to elevate to the Executive Summary. Suggest the following replacement from the same section: "There is a growing consensus that integration of adaptation and mitigation will advance sustainable development goals and lower emissions of GHGs and that ambitious mitigation efforts would reduce the need for adaptation efforts in the long term. To fully maximise their potential, co-benefits and trade-offs should be explicitly sought, rather than accidentally discovered, and policies designed to account for both."	Accepted. Rewritten to more closely follow a re-structured 13.7 and 13.8	Government of United States of America	U.S. Department of State	United States of America
58175	7	15	7	17	While this consideration is an ethical/conceptual concern that could affect political feasibility, is there evidence that it affects what adaptation or mitigation policies would be beneficial?	Noted. Bullet rewritten	Government of United States of America	U.S. Department of State	United States of America
54389	7	18	7	19	This is an odd sentence.	Noted, altered	Sabine Fuss	MCC Berlin	Germany
77787	7	20	7	22	Needs to be explained; what are these lock-ins?	Noted, removed.	Bert Metz	European Climate Foundation	Netherlands
9717	7	20	7	24	Policies to phaseout fossil fuel subsidies while installing subsidies for clean energy should also address distributional implications of subsidy removal and the new subsidies.	Noted. This is discussed and there is mention of distribution of saved revenues to mitigate adverse economic impacts.	Mustafa Babiker	Saudi Aramco	Saudi Arabia
30585	7	21	7	21	It would be better to insert ', ' (comma) before 'which reinforce…'	Noted, bullet rewritten	Government of Japan	Climate Change Division - Ministry of Foreign Affairs	Japan

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
27869	7	22	7	24	Delete "Deliberate policy attention to phasing out subsidies for fossil fuels and appropriately deploying subsidies for a clean energy transition are important policy tools (medium evidence, high agreement).", as analysis should be on inefficient subsidies that encourage wasteful consumption.	Noted. There is a very deep literature on this as set out in both 13.7 and 13.9	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
52587	7	22	7	24	phasing out subsidies for fossil fuels': This is a policy instrument should be moved to Section III	Noted.There is a deep literature on energy transitions as set out in 13.7 and 13.9	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52637	7	25	7	29	Any changes that are not incremental will lose consensus support around the world, particularly in the developing world.	Noted. This bullet has been rewritten.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
77789	7	27	7	27	nsert "Howeverr" before "There"	Noted. Bullet rewritten.	Bert Metz	European Climate Foundation	Netherlands
77791	7	30	7	34	What can a policy maker do with this? There are so many enabling conditions mentioned that no useful message remains	Noted. Bullet rewrittenn.	Bert Metz	European Climate Foundation	Netherlands
52589	7	30	7	35	How about 'data and information' as enabling conditions? Include this in the discussion also in corresponding section in the chapter itself. Suggested references: Ayers, J., Huq, S., Wright, H., Faisal, A. M., & Hussain, S. T. (2014). Mainstreaming climate change adaptation into development in Bangladesh. Climate and Development, 6(4), 293–305. https://doi.org/10.1080/17565529.2014.977761 Cuevas, S. C., Peterson, A., Robinson, C., & Morrison, T. H. (2015). Challenges in mainstreaming climate change adaptation into local land use planning: Evidence from Albay, Philippines. The International Journal of Climate Change: Impacts and Responses, 7(3), 45–65. https://doi.org/10.18848/1835-7156/CGP/v07i03/37246 Oliveira, B. C. P., Behagel, J. H., & Câmara Moreira, L. S. S. (2015). Ecosynergy: Integrating climate resilience in policy and planning of low emission development strategies. (LEDS Global Partnership Working Paper). http://ledsgp.org/wp-content/uploads/2016/09/EcosynergyProject_V5.pdf	Enabling conditions has been widely discussed and the IPCC has a glossary definition. We use that definition.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
54391	7	32			Write either "behavior and lifestyles" or "behavioral and lifestyle change".	Noted.	Sabine Fuss	MCC Berlin	Germany
77793	7	36	7	43	I would focus this paragraph solely on the COVID recovery packages providing a once in a lifetime opportunity for shifting the focus of economic development to climate and sustainability	Noted.	Bert Metz	European Climate Foundation	Netherlands
52639	7	36	7	43	It is too early to make such a broad statement about the costless nature of multi-objective recovery strategies. There are secondary and tertiary effects that are unaccounted for with such a broad and bold statement.	Noted, removed.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
46265	7	37	75	33	It is suggested to consider the IPBES levers and leverage points model which identifies five overarching types of management (multi level governance) interventions, or levers, and eight leverage points that are key for achieving and accelerating transformative change from current trends to more sustainable pathways (see: Figure SPM 9 of the IPBES Global Assessment Summary for Policy Makers 2019).	Noted. Thanks for your suggestions.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
52591	7	40	7	40	check the verb tense 'were'	Noted, deleted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
10077	8	1	8	43	Too much detail is placed on the 'table' too quickly - I would suggest a slower more gentle entry into the chapter, followed by one encompassing / single statement of how it builds on AR5.	Noted, text changed.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
10833	8	6		7	One should be careful with the word "development". Frequently, developing iinstitutions results in stacking more and more structures, with the effect of slowering or even preventing action and evolution.	Noted	Philippe Waldteufel	CNRS	France
22323	8	7	8	9	We recommand a clearer formulation of the sentence "The scope of both institutions and policy are understood broadly, to include not only those that are not framed solely or primarily as mitigation-focused institutions and policies, but also those that have the effect of impacting climate outcomes."	Noted. Rewritten.	Government of France	Ministère de la Transition écologique et solidaire	France
58177	8	8	8	11	The statement from page 65, lines 8-11, should be added here: "To fully maximise their potential, co-benefits and trade-offs should be explicitly sought, rather than accidentally discovered, and policies designed to account for both."	Accepted. This has been included in the ES	Government of United States of America	U.S. Department of State	United States of America
10079	8	13	9	13	The policy gap relates to the (non) adoption of suitable CC policies; the equally important 'implementation gap' (the implementation of the policies that have been adopted) is something different again. Related to that, how do 'policies' relate to 'laws' (s 13.2.1)?	Noted. Rewritten.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
52593	8	15	8	17	what about 'political actors'	Noted. Section rewritten	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
22325	8	19	8	19	Suggestion to replace "distributional consequences" by "distributional and justice consequences"	Noted. Text rewritten.	Government of France	Ministère de la Transition écologique et solidaire	France
52641	8	24	8	28	The distributional aspects of policy should also be examined and assessed in a cross-border environment, not just domestically, to ensure proper consideration of a just and equitable transition.	Noted. This is outside the scope of our chapter.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
52595	8	32	8	32	enables' --enablers?	Noted. Text rewritten.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
10835	8	41	9	10	This linear summary is frustrating because it does not tell us why this structure was selected. Moreover, one wonders whether anything is missing. For example, it is not clear where this chapter discusses the role of NGO. Yet this role exists (and NGO were mentioned in the SPM).	Accepted. 13.1 text rewritten. NGOs are discussed mainly in 13.4.	Philippe Waldteufel	CNRS	France
3999	9	12	17	16	13.2 National Institutions and Governance Local Content and Participation building is still absent as a substantive topic for discussion. Even though, I got the understanding from the Chapter Response that it was going to be discussed under Capacity Building but this was not done. Even though some Capacity Building issues had been touched it is still vague. I believe it needs a full sub-heading for the deliberation, more so for Developing countries situation. Because as explained during the FOD, one cannot talk of Institution and local Governance particularly in Developing countries without elaborating on the need for Local Content or/Local Participation or Capacity Building. 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. Again, more literature needs to be sought.	Agree with the comment. A discussion of capacity issues has been enhanced. And a section on procedural justice, which speaks to participation has been added	Joseph Essandoh-Yeddu	Energy Commission	Ghana
48707	9	13	9	15	fonts are in different colors/shades?	Noted	Linda Yanti Sulistiawati	Universitas Gadjah Mada	Indonesia
10837	9	13	9	15	Same as the ambition gap, the implementation gap is also discussed in chapter 4	Noted	Philippe Waldteufel	CNRS	France
84585	9	14	9	15	Please add: "Karlsson and Gilek, 2019)" and add the following to the reference list: "Karlsson, M., Gilek, M. (2019) Mind the gap: Coping with delay in environmental governance. Ambio 49, 1067–1075 (2020). https://doi.org/10.1007/s13280-019-01265-z."	Rejected. We do not believe this citation adequately or centrally support the point being made here.	Mikael Karlsson	KTH Royal Institute of Technology	Sweden
12503	9	15	9	15	For a non-expert audience, it would be beneficial to better explain 'implementation gap'.	Noted. For space reasons, we refer back to other parts of the chapter where this is discussed	Fay Farstad	CICERO Center for International Climate Research	Norway
22327	9	21	9	23	"Consistent with usage in this assessment, institutions are rules, norms and conventions that guide, constrain or enable behaviours and practices, while governance is the structure, processes and actions public and private actors use to address societal goals" These two definitions can be discussed, especially concerning the association between governance and structure. Proposal "while governance is the cooperative arrangement, processes and... etc"	Noted. The text has been slightly modified to note the role of organisations as institutions. The text is consistent with the IPCC glossary	Government of France	Ministère de la Transition écologique et solidaire	France
58179	9	29	12		In discussing climate laws it might be helpful to talk not only about laws governing climate action, but also laws responding to climate issues in other countries. One example is climate migration. The UN Human Rights Commission ruled for the first time in January 2020 on asylum on the basis of climate change and even stated that the long-term might see climate change trigger non-refoulement provisions.	Noted. However, this is substantially outside the scope of this section. We do consider laws that are not explicitly for mitigation but that affect mitigation outcomes. The example given here, on vulnerable populations, falls outside the scope fo WG3. No change in the text.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
6129	9	29	12	8	This section does not adequately distinguish between lawmaking via legislators and lawmaking via administrative agencies. Given the prevalence of judicial review of administrative actions, this seems like a serious oversight. Eddy Ventose, Joseph Smith, and Heather Elliott present useful perspectives. While a subsequent section discusses the different types of institutions, the differing approaches to policy-making between legislative and administrative action seems worthy of discussion.	A para has been added that makes clear that some action happens through executive action. And 13.2.2 deals more with this this, through a discussion of strategies, although terminology is used differntly across countries	Matthew Krell	University of the West Indies	Barbados
11063	9	30	10	2	These two paragraphs beg the question of where "climate action" takes place. Maybe this needs to be calrified. The two paragraphs, by placing climate action outside of legislation, imply that it takes place in the private sector. But I think many people would describe climate action as taking place within the public sector, in which the laws related to climate and indeed the climate action themselves. If a country, for example, institutes a ban on fossil heating systems, is that ban climate action, or can the action be found in people's compliance with it, and hence their not installing such systems? I got confused here.	Noted. We have avoided use of the term 'action' which we agree is confusing	Anthony Patt	ETH Zürich	Switzerland
11059	9	30	9	30	govern not "governs" and "is" not "are" assuming "govern" refers to "laws" and "is" refers to "understanding."	Noted	Anthony Patt	ETH Zürich	Switzerland
11061	9	30	9	39	I am not sure this paragraph is necessary. WG3 has used an expansive definition of climate policy since at least AR5.	Rejected. The paragraph describes different approaches to climate law which is needed to set up the rest of the section	Anthony Patt	ETH Zürich	Switzerland
52597	9	30	9	30	are' -- correction 'is'?	Noted. Thank you	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
18505	9	45	9	46	The use of 'small developing countries': this sentence is talking about the potentil incentive for countries to pass climate laws in order to attract international finance. In this instance a more accurate term, such as lower/middle income countries, would be more appropriate as it accurately caputres which countries are being talked about rather than generalizing too much.	Accepted, Thank you.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
52643	10	3	10	13	It is worth noting that the cumulative effect of all of these policies are woefully inadequate to address the scale of the problem, which is reflective of the lack of political will to do much more than symbolic efforts (other than highly developed and rich countries, as in Europe).	Noted. This question is better addressed in other chapters, notably Chs 3 and 4.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52599	10	3	10	3	Add a reference here.	Noted. References from later in the paragraph, which inform this statement, have been added here.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52601	10	6	10	6	Use the following possible reference to provide data for 2020: https://www.lse.ac.uk/granthaminstitute/research-areas/climate-change-governance-legislation-and-litigation/	Noted. This LSE database has been used elsewehre in the chapter. This sentence refers to a different study with a different categorisation of direct laws.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
11065	10	14	10	14	"spread"	Noted. Thanks	Anthony Patt	ETH Zürich	Switzerland

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
52661	10	14	10	27	examples of countries applying climate law should be more inclusive , and not be focused on developed countries alone.	Noted. This paragraph focuses on diffusion, for which the literature particularly cites European examples and the UK law. The remainder of the section provides examples of other jurisdictions, including Kenya and Mexico.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
6127	10	14	10	27	One difficulty in measuring the effect of social movements on policy outcomes is the possibility of "horse-trading" among interest groups. While not directly about climate, Corinne McConnaughy and Christina Wolbrecht's work on the alliances and movement-building associated with women's suffrage gives helpful insight.	Noted. Thank you. For brevity and focus we are lmiting the discussion to climate specific literature, since there is literature available and cited in p 9 ln 26-27	Matthew Krell	University of the West Indies	Barbados
14537	10	16	10	16	"Landmark UNFCCC negotiation events" is unsatisfactory (although I acknowledge this might be the term used by Iacobuta et al). We are talking about a handful of major agreements - treaties, plus CPN Accord. I would change to: "Major landmarks under the UNFCCC regime". I would also change to "have been associated".	Accepted. Thank you	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	United Kingdom (of Great Britain and Northern Ireland)
46267	10	25	10	27	The paragraph states a number of examples to illustrate key messages. If possible, also giving an example to underpin the role of civil society in the legislation would be helpful.	Accepted. Examples added from UK and Germany	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
46269	10	28	10	37	The statements in lines 28 compared to 35 and 36 seem somewhat contradictory. What level/region does "the most common approach" in line 28 refer to?	Accepted thank you. The text has been modified to change the loose formulation of "most common approach"	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
10081	10	38	10	42	The EU offers the best real world example of how to engineer policy durability to promote long term societal commitment to decarbonisation - see Jordan and Moore (2020) Durable by Design, CUP, Cambridge. The same citation can be used wrt the point about outcomes - page 11, line 5-6.	Noted. The point here is to look at national framework laws, and the EU case is less translatable to other cases. No change	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
31119	10	41	10	43	Regarding independent bodies, a recent addition to the literature that may be relevant is Abraham-Dukuma et al. 2021, multidisciplinary composition of climate change commissions doi:10.3390/su122410280	Accepted thank you.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
9189	11	4	11	7	Figure 13.1 Among the 194 countries surveyed in 2007, 32 countries (16%) passed the direct climate law. Compared with 2007, by 2017, 46 countries (44%) passed the direct climate law, and this number is increasing, which is beyond doubt. However, it can also be seen from the graph that the proportion of countries that passed the law in 2012 was higher than in 2017. Was 2012 a turning point? It has been increasing before, but has it been slowing down in recent years? Can you elaborate on this process of change?	Noted. The graph has been modified to use updated years. It is hard to comment on small changes year on year as sometimes it represents repeal of a law in one or more country.	Yongxiang Zhang	National Climate Center	China

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28971	11	5	11	11	Misleading. It's not that a framework law is ineffective, it's in the detail of how the law is constructed that makes the difference. Which detailed provisions of these laws have proven more/less effective?	Accepted. Text has been edited	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
10083	11	12	11	13	This important point deserves more attention and reflection. See also: Le Quéré, C., Korsbakken, J., Wilson, C., Tosun, J., Robbie, A., Andres, R., Canadell, J., Jordan, A., Peters, G. and D. van Vuuren (2019) Drivers of declining CO2 emissions in 18 developed countries, Nature Climate Change 9, March, 213-217. DOI: 10.1038/s41558-019-0419-7.	Due to space limitations, and the addition of a cross chapter box on policy attribution, this issue is not discussed further here.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
28973	11	12	11	15	Seems a bit misleading here that there is so little evidence, but perhaps that is true for "Climate Laws" per se. But, of course, there is much more evidence of effectiveness of policy mixes (perhaps under created the authority of a set of different laws). See some examples from peer-reviewed papers:	Noted. Modified to note that there are also other assessments of policies, which are covered in Sec 6.	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
70631	11	12	11	15	I wonder if this is a realized performance of climate laws and executive actions or an anticipated performance when the targets of climate laws and executive actions are fully achieved. Please check it.	Noted. This is a realised effect. Langauge has been modified to make this clear	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
77629	11	14	11	14	Estimating GHG emissions avoided or reduced by various climate policy laws or frameworks is an important metric to calibrate progress and efficacy of climate legislation, we need more such ex-post quantification of the performance of climate laws in reducing GHG emissions.	Noted. The fact the literature is limited on this front has been mentioned	Alex Rau	Climate Wedge LLC	United States of America
22329	11	14	11	14	"A single study of direct and indirect climate laws as well as relevant executive action finds that existing laws have a measurable and positive effect, reducing global annua emissions by about 5.9 GtCO2" The sentence should be reformulate to underline that despite that reduction, the general trend is still toward an increase of global GHG. So global emissions are not "reducing" but growing less rapidly.	Accepted. Text has been edited to reflect reduction from an estimation of what emissions would otherwise have been.	Government of France	Ministère de la Transition écologique et solidaire	France
48709	11	19	11	21	for detailed and updated climate litigation in Asia and Pacific countries, please see: https://doi.org/10.1017/9781108777810 Climate Change Litigation in Asia Pacific, Jolene Lin and Douglas Kysar, Cambridge University Press, 2020.	Noted. For consistent methodology across regions, we are using data from a single source	Linda Yanti Sulistiawati	Universitas Gadjah Mada	Indonesia
54393	11	20	11	21	This figure is difficult to read and has some odd black bars going over it.	Noted. The Figure has been edited and updated	Sabine Fuss	MCC Berlin	Germany
5561	12	4	12	4	replace Renewables" by "low carbon sources"	Rejected. The data source refers to renewables	Michel SIMON	Retraité/ Pdt d'association	France
12505	12	6	12	6	Denoting the region 'Eastern Europe and West-Central Asia' as 'EEA' can lead to confusion with the 'European Economic Area'. Suggest using a different acronym for the region.	Noted. We are using regions as defined by the IPCC	Fay Farstad	CICERO Center for International Climate Research	Norway
11067	12	9	13	9	I think that covering the NDCs here and in this way works well. In Chapter 14, we don't really go into them in this level of details. It seems litke good home here, as they can not be seen as inherently coupled to national strategies. We probably ought to cross reference this point from Chapter 14.	Noted.	Anthony Patt	ETH Zürich	Switzerland
10085	12	10	12	11	what is the difference between a strategy and a framework law (discussed above)?	This section focuses on strategies which tend to be executive actions, rather than legislation, although some strategies may be enshrined in legislation. This section seeks to provide discussion of executive actions. A para in the introduction seeks to desribe usage of these terms in the section.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
47133	12	25	12	32	By providing an overview of an overall national strategy, NDCs can also attract innovative forms of public and private capital (e.g. green bonds) for mitigation and adaptation investments.	Noted. However, the reviewer does not provide a refernece for this point, and it does not emerge in the literature cited. No change.	Clarence Tolliver	University of Michigan Law School	United States of America
58181	12	25	12	25	Should be corrected to say "Nationally" not "National"	Noted and changed. Thank you	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
70633	12	25	12	25	National Determined Contribution --> Nationally Determined Contribution	Noted and changed. Thank you	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
10087	12	33	12	33	This section should be updated to include the UFCCC's review of NDCs prior to COP 26. e.g. synthesis report 26/2/21.	Accepted. This has been done.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
12507	12	33	12	43	This is a useful overview of NDCs, which should be lifted to both the Executive Summary and SPM as it will be of interest to policymakers.	Noted.	Fay Farstad	CICERO Center for International Climate Research	Norway
18507	12	33	12	43	Any insights on the most common mitigation strategy in NDCs would be welcome.	Noted. The para mentions that RE promotion is the most common approach.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58183	12	33	12	33	Suggest replacing "length" with "time frames"	Here we mean length rather than time frame. However, perhaps time frame is more salient, so have madde this change	Government of United States of America	U.S. Department of State	United States of America
74259	12	35	12	38	This pargraph should be revised to note that increasingly in the United States, individual states are adopting "clean energy standards" rather than renewable standards to reflect that nuclear and other clean, carbon free resources will be needed to achieve carbon reduction targets. https://www.dsireinsight.com/blog/2020/9/25/states-expanding-renewable-and-clean-energy-standards https://www.rff.org/publications/issue-briefs/clean-energy-standards/	Noted. For length reasons, no particular country cases are cited.	Jeffrey Merrifield	Pillsbury Law Firm	United States of America
5563	12	36	12	36	after the brackets, addd "for countries where electricity production is based on fossil souces.	Noted. This level of detail does not sem necessary nor is how information is formulated in the source document	Michel SIMON	Retraité/ Pdt d'association	France
58185	12	44	14	38	This text is very similar in theme to that of Section 13.2.3.1.	Noted. This section focuses on strategies while 13.2.3.1 focuses on institutions. There will, indeed be a correspondence between the two. Given the structure of the section, some repitition in tone may be unavoidable. However, the underlying references and academic material reviewed are distinct, which merits keeping the current structure.	Government of United States of America	U.S. Department of State	United States of America
22331	12	46	12	47	"For example, Brazil's NDC focusses on emissions from land use change, including agricultural intensification to align mitigation with a national development strategy of halting deforestation in the Amazon". Suggestion to update this as it dates from 2018 and it seems that Brazil's NDC and national mitigation plan might have evolved	Noted. We have checked up dated documents and they do not refer to this dimension discussed here. The current reference seems the most suitable	Government of France	Ministère de la Transition écologique et solidaire	France
75017	13	1	13	5	Kenya has not made any such targets in its INDC. The iNDC makes mention of the energy generation but is not explicit on electricity much less a target on the same as mentioned herein	Accepted. This sentence has been removed	Government of Kenya	Kenya Meteorological Service	Kenya
48713	13	1	81	40	why is there no box on Asia and the Pacific? Considering they are also a huge region with various climate problems?	Noted. The EU has distinct regional governance that falls within CH 13. We have introduced this box as a way of capturing the EU experience. Space constraints limit additional boxes here, but the section as a whole seeks to include various country examples	Linda Yanti Sulistiawati	Universitas Gadjah Mada	Indonesia
10089	13	10	13	28	Box 13.1 - very useful. But try and employ the same terminology employed elesewhere in the chapter - e.g. framework laws; climate strategies etc. Non EU specialists will find it easier to understand.	Noted. However, the EU uses quite distinct terminology, which makes consistency a challenge	Andy 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
72315	13	10	13	28	Box 13.1 EU climate policy portfolio and the European Green Deal. While this is an important box with a summary of the EU climate action and policies, there are some minor mistakes that needs to be corrected as well as the need to update it according to the latest policy decision in Brussels (many taken by June 2021).	Noted. The box has been updated and edited	bertoldi paolo	european commission	Italy
52645	13	10	13	28	It is important to mention that there is not uniform belief among European countries in the value of reducing emissions, particularly in Poland and Visegrad Group member countries which rely heavily on coal for affordable energy. This is a microcosm of the global picture, with divisions between rich and poor, and coal-dependent versus post-coal economies.	The box seeks to provide a description of agreed governance arrangements, rather than the process of arriving at these.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
82873	13	10	13	10	May be worth a footnote at least to explain why the EU is in a national chapter. There are good reasons but worthwhile stating?	Noted. Footnote added	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
70635	13	10	13	28	Box 13.1 EU climate policy portfolio and the European Green Deal. While this is an important box with a summaryof the EU climate action and policies, there are some minor mistakes that needs to be correted.	Noted. The box has been updated and edited	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
22333	13	12	13	13	The directive on EU-ETS is directive 2003/87/CE, adopted in 2003	Noted and changed. Thank you	Government of France	Ministère de la Transition écologique et solidaire	France
31121	13	13	13	13	The EU ETS is referred to the EU Emissions Trading Scheme, but its official title in EU documents since circa 2009 is the EU Emissions Trading System	Noted and changed. Thank you	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
31123	13	13	13	14	The text states that EU burden sharing in the 2000s was for "sectors not covered by the ETS". However, until the Effort Sharing Decision came into effect starting in 2013, burden sharing addressed all EU emissions, including those covered by the EU ETS. The Effort Sharing Decision changed this so that burden/effort sharing addressed only non-ETS emissions. See Council Decision 2002/358/CE	Noted and changed. Thank you	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
43331	13	13	13	13	European Union has an emissions trading system not a scheme	Noted and changed. Thank you	Ermenegilda Boccabella	Caelex	Belgium
22335	13	13	13	13	"the EU adopted an Emissions Trading Scheme (ETS) for sectors with large GHG emitters" While this action is important, it is worthy to mention that it did not work until today eg: -De Perthuis and Trotignon, 2014, "Governance of CO2 markets: lessons from the EU ETS", Energy Policy, 75, pp.100-106, doi.org/10.1016/j.enpol.2014.05.033 -Perino, G. New EU ETS Phase 4 rules temporarily puncture waterbed. Nat. Clim. Change 8, 262–264 (2018). -Ellerman, A. D., Marcantonini, C. & Zaklan, A. European Union emissions trading system: ten years and counting. Rev. Environ. Econ. Policy 10, 89–107 (2016)	Noted. Performance of the ETS is covered in Sec 6	Government of France	Ministère de la Transition écologique et solidaire	France
77631	13	18	13	18	EUETS reform of 2017/2018 was the most meaningful of several attempts, putting in place a "market stability reserve" which is the cause of the increase in the carbon price under the ETS to now 40euro/ton.	Noted. Thank you	Alex Rau	Climate Wedge LLC	United States of America
48711	13	18	13	25	names of authors in the box are as large as the content of the box. Maybe smaller fonts?	Noted. Thank you.	Linda Yanti Sulistiawati	Universitas Gadjah Mada	Indonesia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
8705	13	20	24	9	This section fails to capture the potential and risk of partnerships and networked governance. It may be worth to clarify from the beginning that the review is limited to subnational public initiatives and networks. While this would clarify the scope of the section, it does not do justice to the climate governance landscape. A discussion of transnational and multisectoral efforts to address climate change would open another set of questions, challenges and opportunities. You may consider adding such section; taking into account the increasing relevance of public-private cooperation in climate mitigation and adaptation. The constructive cooperation between public sector, NGOs and corporations holds significant mitigation potential (see e.g. the Brazilian soy moratorium, lit from Gibbs et al.)	Mis labelled. This comment likely refers to Sec 3. We discuss transnational and multisectoral initiatives and constraints throught this section - e.g., in 13.6.3. We could not identify the Gibbs et al referece to multisector cooperation in Brasil. Partnerships between different sub-national actors are discussed in section 13.3.4 Partnerships and experiments. The example of Brazilian soy moratorium could be added to the first paragraph of that section. References: https://science.sciencemag.org/content/347/6220/377, https://www.nature.com/articles/s43016-020-00194-5. There is also discussion of public-private partnerships in Chapter 14.	Charlotte Streck	University of Potsdam	Germany
22337	13	21	13	23	"From then on, domestic climate planning was regulated by the EUs Governance Regulation, requiring member states to develop detailed and strategic national energy and climate plans." There is no reference of this regulation : regulation (EU) 2018/1999 of the european Parliament & the Conseil on the energy and climate governance (OJEU L 328, 21/12/2018)	Noted. Not all regulations are cited. In some cases academic material is cited.	Government of France	Ministère de la Transition écologique et solidaire	France
8707	13	22	13	24	Depending ON THE LEGAL ORGANIZATION OF A COUNTRY AS WELL AS THE level of institutional constraints, subnational actors play crucial roles in developing, delivering and contesting decarbonisation visions and pathways (Schroeder et al. 2013; Ryan 2015; Amundsen et al. 2018. [suggested additional sources]) (Section 13.3.3). Note that the authorities of subnational actors, i.e. States within federal systems, depends on the constitutional order of a country. Additional sources: Fuhr, H., Hickmann, T., & Kern, K. (2018). The role of cities in multi-level climate governance: local climate policies and the 1.5 °C target. Current Opinion in Environmental Sustainability, 30, 1–6 K. Bäckstrand, J.W. Kuyper, B.-O. Linnér & E. Lövbrand, 'Non-state actors in global climate governance: from Copenhagen to Paris and beyond' (2017) 26(4) Environmental Politics, pp. 561–579, at 562. Abbott, K. W., Green, J. F., & Keohane, R. O. (2016). Organizational Ecology and Institutional Change in Global Governance. International Organization, 70(2), 247–277.	This is mis labelled but we have tried to respond based on our assumption of the approcpirate location: The legal organization of a country is only one part of its institutional constraints. We revised it to say "Depending on the legal framework and other institutional constraints," We added the references	Charlotte Streck	University of Potsdam	Germany
31125	13	23	13	23	National Energy and Climate Plans should be capitalized	Noted and changed. Thank you	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
80711	13	23	13	28	This will require 35–37% methane emission reductions by 2030 compared to 2005 levels. Under the EU Methane Strategy, the EU Commission plans to review all relevant environmental and climate legislation bearing on methane emissions, including the Effort Sharing Regulation which sets out binding anthropogenic methane reductions for Member States, and the National Emissions Reduction Commitments Directive. (European Commission, 2020) CITATION: European Commission (17 September 2020). Stepping up Europe's 2030 Climate Ambition, Investing in a Climate Neutral Future for the Benefit of our People, 1, 13, 7 ("Nevertheless, the 2030 climate target plan's impact assessment found methane will continue to be the EU's dominant non-CO2 greenhouse7. It concluded that stepping up the level of ambition for reductions in greenhouse gas emissions to at least 55% by 2030 compared to 1990 would also require an accelerated effort to tackle methane emissions, with projections indicating a step up needed to 35% to 37% methane emission reductions by 2030 compared to 2005; In line with the 2030 Climate Target Plan the Effort Sharing Regulation (ESR) (which covers methane emissions from agriculture), will now be reviewed to reflect the increased carbon reduction target providing for increased incentives to reduce methane emissions; The Commission will also review the National Emission Reduction Commitments (NEC) Directive by 2025 and, as part of this review, explore the possible inclusion of methane among the regulated pollutants.").	Noted. No clear suggestion for change.	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
80855	13	23	13	28	This will require 35–37% methane emission reductions by 2030 compared to 2005 levels. Under the EU Methane Strategy, the EU Commission plans to review all relevant environmental and climate legislation bearing on methane emissions, including the Effort Sharing Regulation which sets out binding anthropogenic methane reductions for Member States, and the National Emissions Reduction Commitments Directive. (European Commission, 2020) CITATION: European Commission (17 September 2020). Stepping up Europe's 2030 Climate Ambition, Investing in a Climate Neutral Future for the Benefit of our People, 1, 13, 7 ("Nevertheless, the 2030 climate target plan's impact assessment found methane will continue to be the EU's dominant non-CO2 greenhouse7. It concluded that stepping up the level of ambition for reductions in greenhouse gas emissions to at least 55% by 2030 compared to 1990 would also require an accelerated effort to tackle methane emissions, with projections indicating a step up needed to 35% to 37% methane emission reductions by 2030 compared to 2005; In line with the 2030 Climate Target Plan the Effort Sharing Regulation (ESR) (which covers methane emissions from agriculture), will now be reviewed to reflect the increased carbon reduction target providing for increased incentives to reduce methane emissions; The Commission will also review the National Emission Reduction Commitments (NEC) Directive by 2025 and, as part of this review, explore the possible inclusion of methane among the regulated pollutants.").	Noted. No clear suggestion for change.	Gabrielle Dreyfus	Institute for Governance & Sustainable Development	United States of America
31127	13	24	13	24	The text states that the European Council consists of "heads of states in the EU", however the Council actually brings together the heads of state *and government* of the member states, since several member states have monarchs as heads of state etc.	Noted and changed. Thank you	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
31129	13	25	13	25	The text states that the European Green Deal implies "the revision of *all* EU climate polices", but it would be more accurate to say "many EU climate policies", since there are many existing EU climate policies that the EGD proposals do not address.	Noted and changed. Thank you	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
80069	13	25	13	28	On the European Green Deal, see recent academic work (e.g. Dupont, Oberthür & von Homeyer, 2020, The Covid-19 crisis: a critical juncture for EU climate policy development? Journal of European Integration, 42:8 https://www.tandfonline.com/doi/full/10.1080/07036337.2020.1853117). In September 2021, a special issue of the journal Politics and Governance will be publishing a set of papers analysing the development/emergence of the European Green Deal in turbulent times - see: https://www.cogitatiopress.com/politicsandgovernance/pages/view/nextissues#ClimateGovernance.. Further as of March 2021, the European Climate Law is still in inter-institutional negotiations between the Council and the European Parliament, so you may want to check back again on the status of the Climate Law and when it will be adopted (not in 2020, then it was proposed, but likely in 2021).	Noted the Climate Law was adopted by the EU on 30 June 2021, this has been added to the text	Claire Dupont	Ghent University	Belgium
43333	13	25	13	25	All EU regulation will have to be reviewed under EU green deal - not just EU Climate Policy	Noted and changed. Thank you	Ermenegilda Boccabella	Caelex	Belgium
22339	13	25	13	28	The Green deal proposed the adoption of different strategies such as the European climate Pact (COM (2020) 788) The proposal for a regulation of the European Parliament and of the Council establishing the framework for achieving climate neutrality (amending Regulation 2018/1999) is not yet adopted (see COM (2020) 80, general approach at the Council 15/12/2020 The objective of climate neutrality in 2050 is proposed	Noted and text changed, now the Climate Law is adopted and the text mention the new Climate Pact Initiative	Government of France	Ministère de la Transition écologique et solidaire	France
31131	13	26	13	28	The proposed European Climate Law does not replace the 2018 Governance Regulation.E.g. the proposed law states "Consistency with Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action has been ensured by including consequential amendments to that Regulation"l https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020PC0080	Noted and text changed accordingly	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
31133	13	26	13	28	The European Climate Law was proposed in 2020 but it has not yet been adopted as of March 2021 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020PC0080	Now it is adopted, text changed accordingly	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
77803	13	27	13	28	EU GHG reduction target of 55% is not yet formally adopted, current position is of "at least 55%"	Noted and text changed to add "at least".	Alex Rau	Climate Wedge LLC	United States of America
8709	13	27	13	28	I suggest to replace the sentence with : Sub-national actors include individuals, communities, corporations, subnational public actors and sectors, jurisdictions, as well as partnerships and networks among these actors (e.g., a coalition of cities, or a multisectoral partnership to address deforestation). - The original sentence was confusing and incomplete in the actors it listed.	Comments is mis referenced. However, the relevant sentence is edited	Charlotte Streck	University of Potsdam	Germany
12509	13	27	13	27	The EU target is 'net' 55 % by 2030, not simply '55% by 2030' (add 'net' to the sentence).	Noted and changed. Thank you	Fay Farstad	CICERO Center for International Climate Research	Norway
8711	13	30	13	33	The intermediary sector – initiatives that include public and private actors – include not only national but also transnational partnerships, which are increasingly relevant in climate governance (see two sources below). I am also not sure whether science or non-for-profit energy enterprises are best examples for 'intermediaries' (Intermediaries of what? Between whom?). For many: M. Di Gregorio, L. Fatorelli, J. Paavola, B. Locatelli, E. Pramova, D.R. Nurrochmat et al., 'Multi-level governance and power in climate change policy networks' (2019) 54 Global Environmental Change, pp. 64–77. K.W. Abbott, 'Strengthening the Transnational Regime Complex for Climate Change' 3(1) (2014)Transnational Environmental Law, pp. 57-88.	comment is mis referenced: "There is also an intermediary sector, crossing the boundaries between private and public, for profit and non-profit,".. This section refers to subnational actors. Therfore we did not refer to international ones here.	Charlotte Streck	University of Potsdam	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
8713	13	33	13	34	For example, these policies (Which policies?) may be particularly effective if they are integrated with co-benefits related to adaptation and development priorities such as health, biodiversity, and poverty reduction (Romero-Lankao et al. 2018a). – This sentence does not really seem to fit. Overall I suggest revising this introduction.	Comments is mis referenced Added 'mitigation' before policies	Charlotte Streck	University of Potsdam	Germany
8715	13	39	13	39	They ALSO engage in …. (otherwise one may consider the engagement in the SDGs as explanation of non-state actor (NSA) engagement in the PA).	Comments is mis referenced. Sentence revised	Charlotte Streck	University of Potsdam	Germany
82875	13	43	13	43	CCC is not an agency - no executive powers	Noted. Changed to 'body'	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
85867	14	1	14	44	Suggest including a boxed text: Box 13.4 Australia's climate change institutions: Australia has responded to the challenge of climate change with the enduring, remodelling of national institutions. New and comprehensive national policy frameworks established to support the international architecture include the National Greenhouse and Energy Reporting Act 2007, which requires emission reporting by every major company in Australia; the Australian National Registry for Emission Units 2011, which supports emission unit markets; the Renewable Energy Target under the Renewable Energy Act 2000, in place since 2000 and extending unti at least 2030; and the Carbon Farming Initiative Act 2011, designed to support the incentivisation of carbon sequestration and emission avoidance. Non-legislative approaches include programs like Climate Active whereby companies commit to voluntary emission reduction targets. Established climate-specific agencies include those established under the Clean Energy Regulator Act 2011, the Clean Energy Finance Corporation 2012, the Australian Renewable Energy Agency Act 2011 and the Climate Change Authority Act 2011. Australia has developed strong and enduring climate institutions, including the Clean Energy Finance Corporation (CEFC) and the Australian Renewable Energy Agency (ARENA). The Clean Energy Finance Corporation (CEFC) invests in new and emerging technologies and opportunities on behalf of all Australians, operating with the support of the Australian Government. The CEFC supports energy efficiency, renewable and low carbon energy projects through loans and equity investments. Since it began investing in 2013 and as at 30 September 2020, the CEFC's	Noted. Thank you for the suggestion. Given space limitations, some of these examples are worked into the text. The existing boxes on UK and China are intended to show purpose-built economy wide climate institutions, which are relatively rare across countries.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
31135	14	4	14	5	The phrase "a continuous adaptation planning" is unclear, does this refer to climate adaptation or adaptive planning?	Accepted. Thank you. This sentence has been re-written to make it clear this is about adaptive planning.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
54395	14	10	14	13	Still, other countries are following the example, e.g. Germany.	Noted. No change suggested	Sabine Fuss	MCC Berlin	Germany
86557	14	13	14	13	Is Parliament accountable?	No specific change suggested	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
82877	14	13	14	13	Do you mean complaince? Not accepting a recomendatruion is not non-compliance.	Accepted. The text is modified to better reflect the fact that recommendations may not have been accepted, without calling it non-compliance.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28975	14	16	14	16	Should be “Gallagher” not “Sims Gallagher”. Surname is Gallagher (also correct in references)	Noted and changed. Thank you	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
9191	14	20	14	20	The English name of the Ministry of Ecology and Environment is incorrect. The original text is written as "Ministry of Environment and Ecology (MEE)", which should be written as "Ministry of Ecology and Environment (MEE)".	Accepted. Thank you	Yongxiang Zhang	National Climate Center	China
77805	14	22	14	25	It should be noted that responsibility for climate policy used to reside with NDRC in China but this was explicitly removed from NDRC and transferred to newly formed MEE.	Noted. The updated role of the NDRC has been included	Alex Rau	Climate Wedge LLC	United States of America
85865	14	32	14	35	Suggest deletion of this sentence since it is not well supported by Australian or international experience. 'In countries where there remains political contestation around climate change – such as Australia and the United States -- mitigation institutions do emerge but have been unstable, such as the short-lived Australian Clean Energy Act (Macneil, under review).' Australia has pioneered the creation of new climate institutions backed by national legislation and designed to operate at arms-length from government. These new climate institutions in government are enduring – and demonstrably not unstable. For example, the Clean Energy Regulator is an independent statutory authority that administers important climate legislation including the National Greenhouse and Energy Reporting Act 2007, under which all companies estimate and report their emissions, and the Renewable Energy (Electricity) Act 2000, which sets renewable energy targets for the electricity system and the Carbon Farming Initiative 2011, which provides the framework for the creation of credits for sequestration or emission avoidance projects. Established climate-specific agencies include The Clean Energy Finance Corporation, a government-owned green bank established under the Clean Energy Finance Corporation 2012. The Australian Renewable Energy Agency (ARENA) offers subsidies for the development phase of new renewable technologies under the Australian Renewable Energy Agency Act 2011, and the Climate Change Authority was established under the Climate Change Authority Act 2011. Australia’s Technology Investment Roadmap is an enduring framework for identifying	Noted. Australia does empirically represent a case where a law has been rolled back. But it is also the case that there are other, robust long-standing institutions, as the reviewer mentions. The paragraphs is re-written to reflect this more nuanced picture. The reviewer is indeed correct that the earlier version was too bald and not entirely accurate. Thank you for the detailed feedback.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
43335	14	34	14	35	Clean Energy Act 2011 (Cth) in Australia was repealed on 1 July 2014 https://www.legislation.gov.au/Details/C2011A00131	Noted. No specififc change suggested	Ermenegilda Boccabella	Caelex	Belgium
77807	15	9	15	13	Another dismantled institution is Ontario's entire climate policy framework and cap-and-trade/ETS program, which was linked to California and Quebec's ETS, until election of current leader Doug Ford who in 2018 withdrew Ontario from the linked ETS and cancelled the entire underlying climate legislation.	Noted. Thank you for the suggesiton. Given space limitations and the lack of a citation, this example is not included	Alex Rau	Climate Wedge LLC	United States of America
10091	15	9	15	10	rollback vs dismantling - what is the difference? And is it worth differentiating policy dismantling from institutional dismantling? On policy dismantling (vs policy stability and durability), see Jordan and Moore (2020) Durable by Design, CUP, Cambridge, Ch 1.	Thank you. We have been cautious not to conflate the too in our revision.	Andy 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
85869	15	9	15	11	Suggest deleting this sentence which is incorrect: 'New rules and organisations are not only created, they are also dismantled or allowed to wither away. Cases of institutional rollback include the Australian Greenhouse Office and the Clean Energy Act (Crowley 2017; Macneil, under review).' This is a highly subjective characterisation of Australian domestic climate policy, supported by an unreviewed and non-transparent reference. It also falls out-of-step with other chapters of the report referring to some of our more recent efforts in both the MRV, mitigation and adaptation areas. It is not correct to characterise the identified changes in institutions as 'withering away', or 'rolled back'. In particular, the functions of the Australian Greenhouse Office were absorbed into the newly created Department of Climate Change following a machinery of government change after a federal election in 2007. Climate change policy functions currently operate out of the Department of Industry, Science, Energy and Resources but other functions of the Australian Greenhouse Office have been subsequently elaborated and strengthened with the establishment of a number of specialist climate institution agencies including the Clean Energy Regulator, the Clean Energy Finance Corporation, the Climate Change Authority and the Australian Renewable Energy Agency.	Noted. Thank you for this elaboration. The text has been updated to reflect a more nuanced view. Please note the paper cited has been reviwed and an updated verison is now published.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
10093	15	22	15	22	What is a governance challenge?	Noted. Presumably the reviewer would like this elaborated. The text has been expanded and revised to make it clearer how the term governance challenge is used here, with reference to three specific challenges.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
12511	15	22	17	7	Section 13.2.3.2 is rather unfocused and also overlaps with the subject matter of 13.4 (there are several points in section 13.2.3.2 which relate to the role of various institutional features in shaping climate governance). Perhaps consider integrating the two sections, or at least moving relevant sections to 13.4. Alternatively, add a signposting paragraph at the start explaining the purpose of this section and its differences to 13.4.	Noted. The section has been re-written to be more focused. This section focuses on climate organisations and institutions and Sec 4 Sec 3 in the new draft) looks at structural factors that shape climate policymaking. This distinctin and link is made clear in an opening sentence.	Fay Farstad	CICERO Center for International Climate Research	Norway
75013	15	23	15	48	Consider giving Kenya as an example that has through its climate change act established a National Climate Change Council that is chaired by the president to elevate the profile of climate chnage coordination in the country.	Noted. This is a good example and we have found a reference from the grey literature which is all that is available.	Government of Kenya	Kenya Meteorological Service	Kenya
52665	15	23			The section limits examples of governance to mostly developed countries , with limited mention to developing countries. Report should be all inclusive with taking into account the Common but differentiated responsibilities with respective capabilities.	Noted. The literature is limited, but several developing countries, including India, China and South Africa are cited.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58187	15	23	15	23	Start Section 13.2.3.2 with "Climate change governance challenges include coordination, mediating interests, and strategy setting."	Accepted. Change has been made to the opening of the section	Government of United States of America	U.S. Department of State	United States of America
10095	15	30	15	34	There is a huge literature on environmental policy coordination in and across ministries in different countries that should be draw on and learnt from. See: Jordan, A. and A. Schout, (2006) The Coordination of the European Union: Exploring the Capacities for Networked Governance. Oxford University Press: Oxford; Jordan, A.J. and A. Lenschow (2010) Environmental Policy Integration: A State of the Art Review. Environmental Policy and Governance, 20, 3, 147-158.	Noted. To get greater clarity across sections, some discussion of integration is undertaken in a new Sec 7 and reduced here. However, it is worth noting that the literature on EPI is indeed large, and for this assessment we have focused more narrowly on Climate POlicy Integration.	Andy 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
52663	15	38	15	44	coordination is key between government entities , but each government has a different approach that fits it capabilities. The use of South Africa's as an example on a particular issue , does not support the argument as there may exist coordination the author speaks of but rather in other areas.	Noted. This chapter makes clear that national context and conditions are important in shaping institutional and policy outcomes. This point is made in the first sentence of Sec 13.2.3.1. However, we have to draw on diverse country examples to try and draw lessons, such as we have done with South Africa here. This suggestion to ensure the importance of context has been noted in the course of this revision.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
75015	15	45	15	48	Consider the Kenyan example of having established the Climate Change Directorate and the establishment of the climate change units at county level as a means of enhancing coordination at national and subnational level.	Noted. This is a good example, but requires peer reviewed lit to support.	Government of Kenya	Kenya Meteorological Service	Kenya
2499	15	45	15	48	The role of the EU in climate governance does more than influence the design and governance of national climate policy and institutions. In some cases there is de facto mandatory renewable energy policy design through, for instance, state aid law: https://www.cogitatiopress.com/politicsandgovernance/article/view/1581. This statement can be strengthened. Beyond legal coercion, there is a good deal of evidence highlighting the Europeanisation tendency which sees policy and overall governance systems harmonize over time by several well established mechanisms. An example could be in offshore wind governance, which strongly and with no specific mandate coalesced around a common European governance model: https://www.tandfonline.com/doi/full/10.1080/14693062.2015.1117958	Noted. The sentence has been strengthened with the additional example of wind energy. Because there is a substantial EU box, for reasons of space and balance this discussion is not expanded here.	Oscar Fitch-Roy	University of Exeter	United Kingdom (of Great Britain and Northern Ireland)
77809	16	1	16	15	It should also be noted that coordination between federal and subnational governments can become adverse on climate policy, such as the US federal government's lawsuits against California for the vehicle emissions standards under the previous administration, or China's provincial governments overruling the Centra government on pollution policies.	Noted. However, references are needed to make this point well.	Alex Rau	Climate Wedge LLC	United States of America
10097	16	1	16	15	There is a huge literature on the EU that can be draw on here - its easily the most closely studied climate policy/political system. See for example: Jordan, A.J. van Asselt, H., Berkhout, F. Huitema, D and T. Rayner (2012) Understanding the paradoxes of multi-level governing: Climate change policy in the European Union. Global Environmental Politics, 12, 2, 41-64.	Noted. However, given the somewhat unusual context of the EU, the fact that this chapter is focused on the national scale, and the inclusion of a box on the EU, we have limited further discussion here.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
85871	16	3	16	5	Suggest delete this phrase: 'Some countries rely on explicit mechanisms of coordination, such as in Australia, where a council of governments has intermittently coordinated climate policy,…' For the authors' information, the council of government no longer coordinates climate policies.	Accepted. Thank you for the clarification.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
10099	16	23	16	23	On positive and negative policy feedbacks (leading either to policy durability and/or fragility), see Jordan and Moore (2020) Durable by Design, CUP, Cambridge, Ch 1.	Noted. Discussion of policy feedbacks is detailed further in (new) sec 3	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
52667	16	38	16	41	Different circumstances of developing countries should be taken into consideration.	Noted. As discussed above this point is made repeatedly in the section and chapter	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
77811	16	41	16	46	Subnational governments such as California's also undertake such regular target setting, e.g. the 5-year "Scoping Plan" regulatory setting process under Califonia's AB32 global warming solutions act.	Noted. This is a good example. However, our point is to be illustrative, and focus on the national scale.	Alex Rau	Climate Wedge LLC	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82879	16	43	16	43	CCC does not set targets, it recommends them	Noted. The sentence has been changed to be more accurate	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
10101	16	47	16	48	Introduce these 'governance concerns' earlier in the chapter/section?	Accepted.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
58189	17	5	17	7	Suggest the following revision, to reflect that NDCs are national documents and may be subjective: "A STATED need for institutional capacity is REFLECTED IN the NDCs of 113 developing countries out of 169 countries studied THAT list capacity building as a condition of NDC implementation (Pauw et al., 2020)."	Noted. It is not clear what the reviewers mean when he/she states these are 'subjective'. The NDCs are the expression of national governments and presumably statements of capacity building as a condition for implementaiton reflect each country's national self assessment of its circumstance. To partially address the concern, the word "perceived' is added to the sentence.	Government of United States of America	U.S. Department of State	United States of America
10103	17	18	17	18	This section feels like a 'waste basket' for everything that is not national govt/policy. The term 'sub-national' is also confusing given that later on transnational actors are discussed. I think a better organising device would be 'non-state' action. Lots of scholars are also using the term 'polycentric' (as in E Ostrom) to make sense of the multiplicity of actors operating in this space. This term is referenced elsewhere in the chapter, but strangely not in this Section.	This section focuses on sub-national actors. Transnational initiatives are discussed only in the context of their role in capacity building, information dissemination and impact on the performance of sub-national actors. Transnational business and public-private partnerships and initiatives, as well as international co-operation at the sub-national and city levels are discussed in Chapter 14 (sections 14.5.4 and 14.5.5).	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
12491	17	18	24	9	Chapter 13.3 describes a lot of different types of formal institutions involved in climate policy. It is difficult to read, and an introduction is needed to classify the different types of institutions and some note on how they are important for achievement of GHG reductions in practice.	The introduction was revised. The section re-organisation may also provide clarity	The Royal Swedish Academy of Agriculture and Forestry (Group Review)	Kung. Skogs-och Lantbruksakademien	Sweden
12513	17	18	24	9	I was surprised to find the section on sub-national institutions (13.3) before the section on national institutions (section 13.4). This is not logical, and it would also be beneficial to read the overview of national level features which condition sub-national politics before section 13.3. Suggest reordering the two sections.	The section was reorganised: the discussion of sub-national institutions has now moved to 13.2.4 to immediately follow national institutions (13.2). The reviewer is not correct in asserting that Sectio 13.4 is national institutions. This section has also been moved to be 13.5 instead of 13.3, and now follows discussion of structural factors and actors. This should make the role of this section in the overall chapter clearer.	Fay Farstad	CICERO Center for International Climate Research	Norway
5163	17	18	24	9	13.3 Sub-national institutions, governance and partnerships Even though, capacity or Institutional building is well elaborated, but discussions or references on Alternative Livelihood, particularly in developing countries on how some countries are transiting their affected labour in the extractive industry particularly coal to a more eco-friendly jobs. For instance, literature elaboration on how is such labour transition is being handled in the Developed world as some countries shift from non-renewable fossil fuel industries to cleaner alternatives will be very helpful to serve as an example for intended potential countries	Some discussion of Just Transition is included in Sec 9. While these are important issues raised by the reviewer, the literature is limited	Joseph Essandoh-Yeddu	Energy Commission	Ghana
70637	17	18			The section well describes sub-national institutions and governance but does not give information on whether or how national and sub-national fit together, are complementary, or create potential synerties. Since, in many cases, sub-national is a real policy implementer on the ground, how it works toegher with national governments and institutions can be crucial to enhance policy effectiveness.	This topic is discussed in 13.2.3 in the context of federalism, and somewhat in 13.7 in the contet of policy integration	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
52647	17	20	17	24	Without proper funding, this is a developed world phenomenon. For justice and equity issues, this is important with proper funding from the developed world for poorer countries.	Subnationational actors are relevan in many countries. We revised this to say "In many countries, subnational actors and institutions are ..	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
22341	17	21	13	21	suggestion to add housing and community : "infrastructure, housing and community... etc".	Done	Government of France	Ministère de la Transition écologique et solidaire	France
86559	17	26	17	26	Actors also have goals or policy positions. Otherwise, they are irrelevant.	Done	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
22343	17	29	17	29	"For example, corporations are formal, private and for-profit, the state is formal, public, and non-profit, and communities are private, informal and non-profit." What about labour unions ? Their role is certainly limited but it would be important to include them.	done	Government of France	Ministère de la Transition écologique et solidaire	France
22345	17	31	17	31	"There is also an intermediary sector, which includes actors such as energy cooperatives, not-for-profit energy enterprises and the scientific community, crossing the boundaries between private and public, for profit and non-profit" Suggestion to complete as such "not-for profit energy enterprises, regional and local agencies and the scientific..."	Accepted. This was edited to respond to various reviewers	Government of France	Ministère de la Transition écologique et solidaire	France
75009	17	33	17	36	Policies may also be effective if the process of documenting the state of climate mitigation to understand the opportunities for climate mitigation, climate mitigation action plan used climate mitigation performance index based on a select of indicators that would inform an investment model for decision makers at sub-national level to allocate resources according to priority list.	Noted. We refer here to the relevance of analyzing how the multiscale interplay of subnational actors and institutions shapes mitigation policies	Government of Kenya	Kenya Meteorological Service	Kenya
8717	17	38	17	38	Reconsider the title. This section is about subnational jurisdictions and their regulatory and legislative action. It is not about any other NSA actors or networks.	Rejected. This section is not only about jurisdictions and regulations.	Charlotte Streck	University of Potsdam	Germany
11071	17	39	18	9	We cover transnational networks of sub-national actors in Chapter 14. I think we need to coordinate about where we describe them, and cross reference accordingly.	Noted	Anthony Patt	ETH Zürich	Switzerland
58191	17	39	17	39	This sentence should be revised for accuracy. The Paris Agreement does not refer to or formalize the influence of subnational actors, though their contributions are welcomed in various contents of the decision adopting the Paris Agreement. Suggest the following edit: "The contributions of subnational actors to mobilizing and scaling up ambitious climate action was welcomed in the decision adopting the Paris Agreement."	Done	Government of United States of America	U.S. Department of State	United States of America
58193	17	39	17	44	Section 13.3.2 should acknowledge that subnational policies could be viewed as complementing or at times "filling a gap in national policies" as in the case of the U.S from 2016-2020. See: Hultman, N.E., Clarke, L., Frisch, C., Kennedy, K., McJeon, H., Cyrs, T., Hansel, P., Bodnar, P., Manion, M., Edwards, M.R. and Cui, R., 2020. Fusing subnational with national climate action is central to decarbonization: the case of the United States. Nature communications, 11(1), pp.1-10.	Done. This is mentioned in 13.2	Government of United States of America	U.S. Department of State	United States of America
22347	17	42	17	42	for more clarity, suggestion to replace "governmental and private organisations" by "local authorities, scientific community and private organisations"	The sentence was edited	Government of France	Ministère de la Transition écologique et solidaire	France
70639	18	3	18	4	I wonder if 120 in line 3 and 120 in line 4 are coincidentally same or by mistake. Existence of CC policies in more than 120 countries would not be the same as a coalition of 120 subnational governments. Additionally, please specify when it was 120 because the number would grow over time.	corrected	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
72359	18	7	18	9	Here you could cite the following article: 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,https://doi.org/10.1016/j.cosust.2018.03.009	Noted. Thank you for the suggestion but we have made the point about prevalence with other articles	bertoldi paolo	european commission	Italy
44077	18	10	18	11	It's worth adding that the modalities, rationale and effectiveness of cities engagement in climate policies is currently under debate (i.e. Brooks, S., 2017. No, cities are not actually leading on climate. Enough with the mindless cheerleading. www.greentechmedia. com/articles/read/hard-truths-about-city-failures-with-clean-energy#gs.VKdFI78.), although peer-review literature is quite scarce. Despite the high willingness and the massive number of signatories, detailed assessment at the local scale (Messori et al., 2020) has shown serious shortcomings in the actual implementation of the initiative. The execution of the planned actions is shown to be hindered by the lack of the necessary financial and human resources assigned; the management and the population involvement resulted to be lacking as well. I suggest citing the short review and the quantitative analysis for a case study proposed by Messori et al., 2020 Messori G., Brocchieri F., Morello E., Ozgen S., Caserini S. (2020) A climate mitigation action index at the local scale: methodology and case study. Journal of Environmental Management, 260, 110024 https://doi.org/10.1016/j.jenvman.2019.110024	Accepted. This point is made in 13.5.3	Stefano Caserini	Politecnico di Milano	Italy
9193	18	11	18	12	"As can be seen in Figure 13.2, the bulk of subnational climate action is located in Europe and North America." Figure 13.2 seems mainly wants to show that there are a large number of cities participating in climate action and are all located in Europe and North America. In East Asia, the map shows that the number of cities participating in climate action is small, but participants are huge. Can further analysis be done on this?	Yes, it's because it's large cities in East Asia that include a lot of people. The sentence was changed to read "More jurisdictions in Europe and North America have pledged action, but in terms of population almost all regions are substantially engaged in subnational action."	Yongxiang Zhang	National Climate Center	China
72361	18	14	18	22	Only in the Global Covenant of Mayors there are over 10000 ciites with a commitment to adopt a Climate Action Plan. In Europe more than 6000 ciites have already adopted a Climate Plan. An assessment of the action underataken could be found in Valentina Palermo, Paolo Bertoldi, Malvina Apostolou, Albana Kona, Silvia Rivas, Data on mitigation policies at local level within the Covenant of Mayors' monitoring emission inventories,Data in Brief, Volume 32, 2020, 106217, https://doi.org/10.1016/j.dib.2020.106217, (https://www.sciencedirect.com/science/article/pii/S2352340920311112)	yes, addressed by adding this reference.	bertoldi paolo	european commission	Italy
52669	18	14	18	22	by regions is it meant to be countries ? Also very little mention on adaptation policies and how many have been taken into consideration.	The linkages between mitigation and adaptation policy are addressed in section 13.8.2.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
63279	18	22	18	24	Will the data from this chart be released? It would be interesting to see the amount of cities in NA that are participating in transnational climate measures. We suggest to make this data publically available	yes, the data is currently already published and publicly available. See Hsu, A., Yeo, Z. Y., Rauber, R., Sun, J., Kim, Y., Raghavan, S., ... & Weinfurter, A. (2020). ClimActor, harmonized transnational data on climate network participation by city and regional governments. Scientific Data, 7(1), 1-8.	Government of Canada	Environment and Climate Change Canada	Canada

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
70641	18	23			Please specify the year in the table.	The year was specified. Angel can you check?	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
11073	19	5	19	42	I wonder if it would be helpful to describe these policies in general, before going into their specific application at the sub-national level? It looks like the general description comes later, 13.6.	It is a challenge to sequence everything appropriately since there are so many cross linkages. We prefer to keep discussion of sub-national policy here, because the option would be to embed it in Sec 6 which would then becoem too large	Anthony Patt	ETH Zürich	Switzerland
72363	19	5	19	42	An assessment of the actions underataken in the frame of the Covenant of Mayors by type of policy instruments and type of governance can be found in Valentina Palermo, Paolo Bertoldi, Malvina Apostolou, Albana Kona, Silvia Rivas, Data on mitigation policies at local level within the Covenant of Mayors' monitoring emission inventories,Data in Brief, Volume 32, 2020, 106217, https://doi.org/10.1016/j.dib.2020.106217, (https://www.sciencedirect.com/science/article/pii/S2352340920311112).	Thanks for the reference. However we did not insert it because this is a taxonomy not an evaluation of policies	bertoldi paolo	european commission	Italy
77813	19	9	19	10	Correction: program names are: Regional Greenhouse Gas Initiative (RGGI) and Western Climate Initiative	Corrected. Thank you.	Alex Rau	Climate Wedge LLC	United States of America
22349	19	24	19	24	Suggestion to add "energy performance"such as "Land-use planning adresses building form, density, energy performance and transport"	Taken into account. Added "energy use" to the text. In line with the references cited.	Government of France	Ministère de la Transition écologique et solidaire	France
61281	19	24	19	30	The A6 WGIII report has great potential to influence the policies of the UN Convention to Combat Desertification the achievement of SDG Target 15.3 on land degradation neutrality (LDN), but only if there are sufficient entry points in the text. This chapter may offer an excellent opportunity, perhaps in this section, if a few sentences (or perhaps a new paragraph) could be added, as follows in red: "At the level of landscapes and entire regions, land degradation neutrality (LDN), which is integral to SDG 15.3, calls for integrated land use planning to ensure land uses are optimized across the landscape so competition for limited land resources can be mitigated as much as possible and multiple benefits can be achieved (Cowie et al. 2018, Verburg et al., 2019). However, achieving land degradation neutrality (LDN) will require a prioritisation process (Dallimer and Stringer, 2018) anchored in a socio-ecological systems approach (Okpara et al. 2018), with investment in all the dimensions of an enabling environment, including inclusive policies and regulations, sustainable institutions, access to finance, and an effective science policy interface (Verburg et al. 2019; Allen et al. 2020)." Allen, C., G. Metternicht, P. Verburg, M. Akhtar-Schuster, M. Inacio da Cunha, and M. Sanchez Santivañez. Delivering an enabling environment and multiple benefits for land degradation neutrality: Stakeholder perceptions and progress. Environmental Science & Policy 114:109-118. <https://doi.org/10.1016/j.envsci.2020.07.029>. Cowie, A.L., B.J. Orr, V.M. Castillo Sanchez, P. Chasek, N.D. Crossman, A. Erlewein, G. Louwagie, M. Maron, G.I. Metternicht, S. Minelli, A.E. Tengberg, S. Walter, and S. Welton. 2018. Land in balance: The scientific conceptual framework for Land Degradation Neutrality. Environmental Science & Policy 79:25-35. <https://doi.org/10.1016/j.envsci.2017.10.011>.	Noted. The suggested paragraph does not specifically addresses climate mitigation policies at sub national level. International initiatives to achieve land degradation neutrality are discussed in Chapter 15, section 14.5.2 International sectoral agreements and institutions	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
22351	19	26	19	27	Suggestion to add "competition between local authorities" such as "Its effectiveness is limited by absent or fragmented jurisdiction, financial resources and powers, competition between local authorities, and national policies..."	Edited to say "competition between local authorities"	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
22353	19	31	19	36	Regarding information, a sentence could be made to mention climate change assessment at the local level which has been conducted for example in the Nouvelle Aquitaine region in France to provide information to the local government about local vulnerabilities, needs for adaptation and possible mitigation actions. This kind of assessmen provides more accurate and relevant data to policy makers at the local level. See : AcclimaTerra, Le Treut, H. (dir). Anticiper les changements climatiques en Nouvelle-Aquitaine. Pour agir dans les territoires. Éditions Région Nouvelle-Aquitaine, 2018, 488 p. the synthesis in English: AcclimaTerra, Le Treut, H. (Ed). Anticipating climate change in Nouvelle-Aquitaine. To guide policy at local level – Executive report – Éditions AcclimaTerra 2020, 96 pages. and also : - Treut, Hervé Le; Cabaret, Yohana, Geosciences at the Territorial Level and Climate Change: the New Acquitaine Case Study. Geophysical Research Abstracts . 2019, Vol. 21, p1-1. 1p. - Treut, Hervé Le, Anticiper l'évolution des territoire, Comptes Rendus. Géoscience, Tome 352 (2020) no. 4-5, pp. 329-337. - Salles, D. & Le Treut, H. (2017). Comment la région Nouvelle Aquitaine anticipe le changement climatique ?. Sciences Eaux & Territoires, 1(1), 14-17. https://doi.org/10.3917/set.022.0014 - de Godoy Leski, C., Gaillard, M., Sierra, M., Simonet, G. & Bosboeuf, P. (2019). Regards interdisciplinaires pour une meilleure adaptation territoriale aux changements climatiques. Natures Sciences Sociétés, 2(2), 212-218. https://doi.org/10.1051/nss/2019037	A sentence highlighting the importance of local climate change assessments in informing adaptation and mitigation measures so that decision-making is attentive to the local context can be included in Section 13.8.2.	Government of France	Ministère de la Transition écologique et solidaire	France
70643	19	32			mandatory building performance would belong to regulatory instruments at b) in line 14 rather than other policies.	Performance standards for buildings are mentioned as an example of regulatory instruments in point b). The wording in point e) Other policies has been adjusted to "disclosure and benchmarking policies in buildings sector to increase awareness of energy issues and track mitigation progress"	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
80721	19	38	19	42	As a general matter, most of the actual work of climate mitigation is done at the national and sub-national level, as well as by corporations and other private actors. NNote the role of procurement guides developed by associations, such as the Sustainable Leadership Policy Council, which recently developed a guide for "Procurement Recommendations for Climate Friendly Refrigerants" that considers both the energy efficiency and GWP of refrigerant in cooling equipment. https://www.sustainablepurchasing.org/wp-content/uploads/2020/09/2020.09.29_Climate_Friendly_Refrigerants_Action_Team_FINAL.pdf.	Done, reference included in the prior paragraph.	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
80865	19	38	19	42	As a general matter, most of the actual work of climate mitigation is done at the national and sub-national level, as well as by corporations and other private actors. NNote the role of procurement guides developed by associations, such as the Sustainable Leadership Policy Council, which recently developed a guide for "Procurement Recommendations for Climate Friendly Refrigerants" that considers both the energy efficiency and GWP of refrigerant in cooling equipment. https://www.sustainablepurchasing.org/wp-content/uploads/2020/09/2020.09.29_Climate_Friendly_Refrigerants_Action_Team_FINAL.pdf.	Repeated	Gabrielle Dreyfus	Institute for Governance & Sustainable Development	United States of America
51325	19	43	19	43	I recommed to add the folowing contend to a new Line 43: From the perspective of subnational GHG mitigation policies, the broad adherence for to tackling climate change, was indeed verified in the cases of prioritization of decentralized energy generation.	Noted. No reference provided for this point, so it is hard to add it.	Government of Brazil	Ministry of Foreign Affairs of Brazil	Brazil

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
2737	19	45	19	49	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	Agreed and references aded. In page 21 (lines 7-9) we say that Subnational actors lack national support, funding, and capacity to mobilise financial and 8 human resources, build coalitions, facilitate coordination, develop relationships across old and new 9 organisations, and create new institutional competences. It is back by a number of references covering interation of national and subnational actors. I think additional sentence with similar meaning as in comments could be written based on these references	Leonardo Barreto	Head of center "EU&Internatio nal"	Austria
8719	20	13	20	14	I suggest adding a reference to the Governors's Climate and Forest Task Force. Monica Di Gregorio, Kate Massarella, Heike Schroeder, Maria Brockhaus, Thuy Thu Pham, Building authority and legitimacy in transnational climate change governance: Evidence from the Governors' Climate and Forests Task Force, Global Environmental Change, Volume 64, 2020, 102126, ISSN 0959-3780.	Reference added	Charlotte Streck	University of Potsdam	Germany
46271	20	13	20	13	Please add Global before Covenant of Mayors, in order to avoid confusion, since the CoM which merged in the new Global CoM was a European organization.	Done	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
58195	20	17	20	19	This sentence should specify "the Carbon Cycle Working Group of the United States Global Change Research Program".	Done	Government of United States of America	U.S. Department of State	United States of America
8721	20	22	20	22	At the same time, these multilevel networks… The term multilevel networks is not clear (across different governance levels?). The previous paragraphs refer to transnational and 'multi-jurisdictional and multi-sectoral sub-national networks'. Multilevel seems to refer to a third or forth category and not to the previous ones. It may also be clear that the whole section only looks at networks among public, subnational actors.	Done it says now transnational networks	Charlotte Streck	University of Potsdam	Germany
70645	20	22	20	27	The whole paragraph is hard to see linkages with climate. Either remove it or rephrase to make the linkage visible.	Noted. This paragraph describes the reasons why transational networks have a limited influence on climate policy making	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
9209	20	22	20	24	The cited reference Westman et al. 2019 only takes a single city in Rizhao as an example. By exploring its lack of cooperation in the global network in the field of climate, it extends to the limitations of multi-level government climate governance under the top-down control model. Considering the huge differences between regions in China, the literature based on case studies of individual cities cannot support this sentence's description of China as a whole. It is recommended to delete "e.g., in China" or change to "e.g., in the city Rizhao of China". In addition, it is recommended to modify "national governments exert top-down control" to "national governments exert top-down control on climate issues" to avoid ambiguity	Accepted. Change made	Yongxiang Zhang	National Climate Center	China
53747	20	22	20	24	The case study of Rizhao is not representative of China's situation.	Done	ZHENG XINZHU	China University of Petroleum (Beijing)	China
28979	20	23	20	28	and when revenue is collected and re-distributed to support social goals and provide social benefits. e.g. RGGI in New England	Noted. We did not have a reference to back this up so we did not include it	Kelly Gallagher	The Fletcher School, Tufts University	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
8723	20	28	20	28	level' is missing	Done	Charlotte Streck	University of Potsdam	Germany
8725	20	28	20	31	Check the sentence; The fact that institutions are accepted by the public if they are supported by citizens seems to be trivial.	Noted. We feel this is worth pointing out. As itfundamental when missing	Charlotte Streck	University of Potsdam	Germany
8727	20	28	30	38	Note also that the previous sections looked at partnerships and networks, while this paragraph talks about institutions in general. To me it seems evident that institutions are accepted by citizens if they are embedded in the legal order of the country, carry legal authority and come with enforcement power. The para goes on with the example of an Indian city network, and references to Brazil and China, which do not seem to refer to subnational policies at all, but to national policy making.	Noted. Discussion of the legal framework for institutions is included in 13.2	Charlotte Streck	University of Potsdam	Germany
70647	20	34	20	38	Those look like national level rather than sub-national level. Please think about moving those to the subsection of national level?	Agreed, these examples are more relevant to national context and are removed here.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
29813	20	39	20	41	Given the reference to Simon Rosenthal et al. 2015 concerning how "administrative structures (...) can make an enormous difference to subnational actors' capacity to develop mitigation policies such as targets and evaluation of progress": Is it possible to specify what is meant by "enormous difference", as we cannot immediately seem to find this expression in the cited article? Perhaps "enormous" could be deleted? Please also consider adding the findings concerning whether this increased capacity leads to strenghtening implementation and outcome, to make the reference more policy relevant: "Opp and Saunders (2013), Bae and Feiock (2012), Krause (2010), and Wang et al. (2012) note that increased professional capacity (e.g., a council-manager form of government, a separate energy department at the city level, specific climate personnel, etc.) leads to an increased level of sustainability policy implementation. Krause, however, finds that governmental form does not influence sustainability policy outcomes, which is a noted outlier in this regard." (Simon Rosenthal el al 2015). Concerning the relationship between state and local goverment/community: The article also concludes that "the one intergovernmental tool that does make a difference in city policy implementation is the availability of federal funding, which allows some cities to adopt more climate-related policy initiatives than others." This may also be very policy relevant and you should consider incorporating these findings when summarizing Rosenthal et al. 2015.	Suggestion addressed. Note that we could not find the other refereces.	Government of Norway	Norwegian Environment Agency	Norway
2739	20	39	20	41	Local Authorities can raise the effectiveness of climate protection projects through cooperation between administrative departments in the city administration	Done	Leonardo Barreto	Head of center "EU&Internatio nal"	Austria
2741	21	3	21	5	Among other actors, citizens should be engaged in the development of plans for cities	Noted. We avoid prescribing what should be done	Leonardo Barreto	Head of center "EU&Internatio nal"	Austria
8729	21	6	21	9	Suggest the following edits: However, institution building is often constrained by a series of governance challenges [that will be assessed in this section]. Subnational actors lack MAY national support, funding, and capacity to mobilise financial and human resources, build coalitions, facilitate coordination, develop relationships across old and new organisations, and create new institutional competences.	Noted. The sentence has been edited to convey the suggested meaning that this is not always true	Charlotte Streck	University of Potsdam	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
75011	21	6	21	18	Investment in climate mitigation actions especially in developing countries need high level lobbying that start from the village level institution or even CBO level all the way to instituions that allocate public resources. This patheway therefore calls for development of a village level climate mitigation status report and action with metrics and inforgraphs showing performance that can be used to make investment decision. For example in Kenya, the National Environmental Performance Index (NEPI), 2018, show how the 47 counties of the republic of Kenya are performing in terms of forest cover against the national average. This is prsented in a picture/graph and teh decision makers in those counties are able to appreciate their performance and make a decision to invest towards meeting the national average.	Noted. This is an interesting example, but no citation is provided	Government of Kenya	Kenya Meteorological Service	Kenya
8731	21	21	21	24	While nature-based solutions in urban environments are important, these considerations are even more important in agriculture and rural environments, where livelihoods depend on land and nature.	This text has now been edited and is no longer used	Charlotte Streck	University of Potsdam	Germany
84587	21	34	21	34	Please insert the following reference "(Edvardsson Björnberg et al. 2017)" and add the following to the reference list: "Edvardsson Björnberg, K., Karlsson, M., Gilek, M. and Hansson SO. (2017) Climate and Environmental Science Denial. A review of the scientific literature published in 1990–2015. Journal of Cleaner Production 167, 229-241. https://doi.org/10.1016/j.jclepro.2017.08.066."	This text is no longer being used and has been removed for length reasons	Mikael Karlsson	KTH Royal Institute of Technology	Sweden
18509	21	38	21	39	It might be useful to mention the point about power structures and indigenous knoweldge holders earlier on in the chapter, specifically in the section outlining the forms of climate (related) institutions. These are important to understand as a reason for the ineffectiveness of climate mitigation policies due to the clash/overlapping of formal and informal institutions that exist in one place/location.	This comment is partly addressed in 13.2 through attention to procedural justice, althugh it does not speak directly to indegenous knowledge	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58197	21	38	21	38	It seems that, in the context of subnational governments, the example of low-income countries doesn't apply.	Rejected. We have added references to back up the statement	Government of United States of America	U.S. Department of State	United States of America
58199	21	39	21	41	This seems like an odd possibility to highlight. It could it also be explained by the fact that more people in developed countries are concerned about climate change (see page 27, Section 13.4.3). But that may be related to lack of access to clear, timely, and understandable climate-related resources and images in newsrooms in the Global South (page 29). Without an in depth discussion, it is better not to pick out a single possibility.	Agreed. The point warned about the well-documented pitfalls of generic, one-size fits all solutions, but the phrase was confusing. It has been edited for clarity and references have been added	Government of United States of America	U.S. Department of State	United States of America
2743	21	45	21	47	To address the needs of the poor, policies and technologies such as electric mobility need to be adapted to their needs and purchasing power.Financial instruments that consider their variable, low incomes are required to support cleann technology adoption in this societal group	Done	Leonardo Barreto	Head of center "EU&Internatio nal"	Austria
50411	21	46	21	46	Please add "developing countries" before the phrase "Least Developed Countries" .	This text has been edited and is not longer used	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
70649	21	46			the needs of the poor --> the needs and capacities of the poor	Done	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
43505	21	46	21	46	Please add "developing countries" before the phrase "Least Developed Countries" .	This text has been edited and is not longer used	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
10105	22	31	22	31	The term experiment should be defined as it can cover a multiplicity of very different meanings. See for example: Kivimaa, P., M. Hildén, D. Huitema, A.J. Jordan and J. Newig (2017) Experiments in Climate Governance: A systematic review of research on energy and built environment transitions. Journal of Cleaner Production, 169 (December), 17-29; Huitema, D., A. J. Jordan, S. Munaretto and M. Hilden (eds) (2018) Policy Experimentation: core concepts, political dynamics and impacts, Policy Sciences, 51, 2, 143-247.	Agreed. Discussion of the types of experiment have been added	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
8733	22	36	22	37	Check the sentence: Partnerships take advantage of investments, such as local investors to match available grants or local investors to enable a local energy project to get going or enhance the scope or impact of mitigation. – It seems very specific, confusing and a bit grabbled.	Edited	Charlotte Streck	University of Potsdam	Germany
22355	22	42	22	45	This has been widely nuanced. See for example: Maresca, Bruno, et Anne Dujin. « La transition énergétique à l'épreuve du mode de vie », Flux, vol. 96, no. 2, 2014, pp. 10-23 Focus on emerging behaviors or marginal communities may show radical change but it only targets narrow communities. On the contrary, a better way to address this is to look at systemic aspects of the way of life of the greater part of the population and how to reorient it.	Noted. Systemic changes on the way of life of people are also an important part which is discussed elsewhere. This section however focuses on the role of a wide range of actors who have been generally excluded from climate action and would like to take part in it. There is a large body of literature in this area which engages with this argument, as referred in the paper.	Government of France	Ministère de la Transition écologique et solidaire	France
52671	23	1	23	3	further clarification on what is meant by transformation labs.	Agreed and clarified	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
2745	23	1	23	4	Living Labs allow fostering innovation through the application of both local knowledge and scientific expert knowledge to real-world problems (e.g. energy use, energy poverty, mobility, climate adaptation).	Agreed and edited accordingly, plus added reference	Leonardo Barreto	Head of center "EU&Internatio nal"	Austria
70651	23	5	23	11	If available, please provide the results or impacts of experiments. That will make the paragraph more robust and persuasive.	Agreed and edited accordingly, plus added reference	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
10109	23	12	23	13	Well before this point, it would be useful to have pinned down the meaning of 'transformation' (and certainly before the next section 13.3.5 - on transformative potential)	Noted. We include the gloassary definition and refer to the glossary.	Andy 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
10107	23	12	23	19	Crucially we know even less about the outcomes of experimenting (e.g. principally wrt emissions) as we do about the outcomes of policies (see above - and also 13.3.5)	Agreed and edited accordingly, plus added reference	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
28981	23	21	23	22	Performance of what? Policy performance or institutional arrangements. It's unclear.	The first sentence has been clarified to read "Performance of subnational actors' mitigation policies".	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
60293	23	21	24	9	Section 13.3.3.5: There is some content overlap with a section in Chapter 4 on subnational and non-state actors. It would be good to further communicate on what elements to be presented here and what in Chatper 4. In terms of GHG mitigation potential, I would like to draw the authors' attention to the following two studies, which provide estimates for 2030: Kuramochi, T., Roelfsema, M., Hsu, A., Lui, S., Weinfurter, A., Chan, S., et al. (2020). Beyond national climate action: the impact of region, city, and business commitments on global greenhouse gas emissions. Clim. Policy 20, 275–291. doi:10.1080/14693062.2020.1740150. Lui, S., Kuramochi, T., Smit, S., Roelfsema, M., Hsu, A., Weinfurter, A., et al. (2021). Correcting course: the emission reduction potential of international cooperative initiatives. Clim. Policy 21, 232–250. doi:10.1080/14693062.2020.1806021.	Noted, we have sought to coordinate	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany
47381	23	21	24	9	Section 13.3.3.5: There is some content overlap with a section in Chapter 4 on subnational and non-state actors. It would be good to further communicate on what elements to be presented here and what in Chatper 4. In terms of GHG mitigation potential, I would like to draw the authors' attention to the following two studies, which provide estimates for 2030: Kuramochi, T., Roelfsema, M., Hsu, A., Lui, S., Weinfurter, A., Chan, S., et al. (2020). Beyond national climate action: the impact of region, city, and business commitments on global greenhouse gas emissions. Clim. Policy 20, 275–291. doi:10.1080/14693062.2020.1740150. Lui, S., Kuramochi, T., Smit, S., Roelfsema, M., Hsu, A., Weinfurter, A., et al. (2021). Correcting course: the emission reduction potential of international cooperative initiatives. Clim. Policy 21, 232–250. doi:10.1080/14693062.2020.1806021.	Noted, we have sought to coordinate	Takeshi Kuramochi	NewClimate Institute	Germany
31137	23	22	23	22	The sentence begins "Performance has been measured" but it is unclear what this refers to: whose performance? In context it is clear it refers to subnational actors etc. but this is unclear if starting there.	the first sentence of this section has been clarified to read "Performance of subnational actors' mitigation policies".	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
19569	23	23	23	23	Insert after "… Hsu et al. 2019"): "Michaelowa and Michaelowa (2017) assess the performance of subnational 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 or more of the criteria." Reason: The assessment of effectiveness of the subnational initiatives is important.	Noted. Thank you for the suggestion but we have space limitations	Matthias Honegger	Utrecht University, Perspectives climate research, IASS-Potsdam	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
52673	23	34	23	36	we should also look at the mitigation co-benefits, as some the benefits have direct impact on GHG emissions and some can have direct financial translation.	Co-benefits are discussed in Section 13.8.1 and 13.8.2. of this chapter.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
70653	23	36			carbon emissions per capita --> carbon emissions reduction per capita	Noted and changed. Thank you	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
58201	23	42	23	43	What is the "mitigation gap? The difference between projected reductions under current policies and a given goal? If so, it seems that there is an assumption here that existing direct mitigation contributions already cover all global potential. That is not the case.	We deleted this	Government of United States of America	U.S. Department of State	United States of America
28983	23	42	23	42	define “mitigation gap”	We deleted this	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
8735	23	43	42	44	Aside from direct mitigation contributions, which cannot be expected to fill the “mitigation gap” (Michaelowa and Michaelowa 2017)… This sentence and reference are too general and unspecific in this context. Michaelow and Michaelowa refer to partnerships listed under NAZCA, a limited selection of activities – which, for example, does not include supply-chain initiatives and voluntary, corporate climate pledges. But even more relevant in this context, it looks at public and private initiatives, while this whole section only reviews public subnational initiatives.	The Michaelowa and Michaelowa reference was deleted and a small clause added, "and more broadly of climate action partnerships," to this sentence.	Charlotte Streck	University of Potsdam	Germany
86561	24	3	24	9	It is unclear how the effect of urban pledges is separate from/additional to national pledges. Are they nested? How is the additional effect (whichever direction) derived?	NOted. We added/modified some language to Section 13.5.3: "These subnational mitigation potential estimates vary since a range of approaches exists for accounting for overlaps between subnational governments and their nested jurisdictions (e.g., states, provinces, and national governments) (Hsu et al., 2019A; Roelfsema et al., 2018)."	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
2747	24	3	24	9	Transformation requires strenghtening citizen´s engagement	We deleted reference to a transformational potential	Leonardo Barreto	Head of center "EU&Internatio nal"	Austria
58203	24	5	24	5	Radical change in what sense? If not relating to climate (which it does not seem to), this statement appears to assume a priori that there is a need for radical societal change, in which case it steps beyond the IPCC's mandate.	We deleted this	Government of United States of America	U.S. Department of State	United States of America
16611	24	9	24	10	why 13. 3. 5 inequality and justice section (in the previous version) is missing? It is a critical component in national and local climate policy.	Inequality and justice are addressed in 13.2, 13.5, 13.6 and 13.9	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
15623	24	9	24	10	why 13. 3. 5 inequality and justice section (in the previous version) is missing? It is a critical component in national and local climate policy. (Ch. 4 & 17). Please see H. Yang, Lee, T. S, Juhola. In print. The old and the Climate Change Adaptation: Climate Justice, Risks, and Urban Adaptation Plan. Sustainable Cities and Society.	Inequality and justice are addressed in 13.2, 13.5, 13.6 and 13.9	Taedong Lee	Yonsei University	Republic of Korea
10111	24	11	24	11	I am a bit confused - is the discussion of structural factors going to be related to all forms of climate governance (i.e. the previous c 23 pages), or just to national government policy/action? The text, when read, implies the latter.	Noted. Hopefully now more understandable.	Andy 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
10113	24	11	24	11	The list of structural factors in this section - how were these selected? Are some more important than others? Cultural-institutional factors (13.4.2) is very (too?) broadly defined.	Noted. Rewritten.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
12515	24	11	29	7	It would be logical to move this section before section 13.3 as it pertains to the national-level factors which in turn condition sub-national politics (se above comment).	Noted. Structural factors have been moved to 13.3 - ie after introduction and 13.2 (institutions)	Fay Farstad	CICERO Center for International Climate Research	Norway
11075	24	12	24	14	Wouldn't it be useful here to also identify policy sequences?	Thank you for your useful suggestion. Policy sequencing is now in 13.7.	Anthony Patt	ETH Zürich	Switzerland
12517	24	12	24	14	There are two sentences here about (the rate/nature of) climate governance change. However, it would be beneficial to unpack this slightly, as the key question of interest is why/when climate governance is created or changes - e.g. plugging this into the policy change literature. Does 'rapid bursts' relate to precipitating events or social movements etc.? What drives the 'incremental' change? A few sentences here would be immensely useful.	Because of space this is dealt with elsewhere, primarily 13.7, or Chapter 16.	Fay Farstad	CICERO Center for International Climate Research	Norway
339	24	17	24	17	air quality better than air pollution in this case	Accepted	Sandro Fuzzi	ISAC CNR	Italy
28977	24	18	34	18	Should be “Gallagher” not “Sims Gallagher”. Surname is Gallagher (also correct in references)	This section has been re-written and shortened so we do not now have this reference.	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
31139	24	21	24	22	Given the citations (Pierson, 1993; Skocpol, 1992), the concept referred to should be "policy feedback effects" or "policy feedback" not "governance feedback effects"	Discussion now gone primarily to 13.7	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
31141	24	21	24	22	I would suggest the following wording for this sentence: "All of these features are partly shaped by prior policy decisions, and may either enable or constrain future climate governance choice; these impacts are known as policy feedback effects"	Thank you for the suggestion. This discussion has now moved to 13.7	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
48573	24	27	24	40	To enhance the discussion on coalitions, I would suggest looking into the following work on self-reinforcing and self-undermining feedbacks Millar, H., Bourgeois, E., Bernstein, S., & Hoffmann, M. (2020). Self-reinforcing and self-undermining feedbacks in subnational climate policy implementation. Environmental Politics, 1-20. This work also builds upon the work on the carbon-fractal trap that is already cited.	The policy feedback discussion is now primarily in 13.7	Raul Salas Reyes	University of Toronto	
12519	24	30	24	30	For a non-expert audience, it would be beneficial to explain what 'policy feedback effects' are.	Thanks for the suggestion. Noted for 13.7	Fay Farstad	CICERO Center for International Climate Research	Norway
12521	24	30	24	40	It seems slightly strange to 'jump' straight to policy feedbacks whitout first outlining the policy analysis literature on how/under what conditions climate policy is created in the first place. I'm not sure where in Ch.13 this literature can be found (is it covered?) but if so, perhaps allude to this at the outset of the section as a segway to feedbacks.	Yes, thanks - we recognise this. The sequence in 13.9 could have been set many ways and all have problems.	Fay Farstad	CICERO Center for International Climate Research	Norway
52675	24	30	24	32	use of Cleaner industries instead of Green as to keep all options open and not limited.	Section shortened, and this is removed.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
43337	24	34	24	40	International agreements like the Energy Charter Treaty allow countries to be held liable, by private companies for policy decisions which effect the operation of energy infrastructure. Almost all cases have been directly related to the phase down or phase out of coal. https://www.energychartertreaty.org/cases/list-of-cases/	Thank you for the suggestion. The section has been re-written and no longer contains this reference.	Ermenegilda Boccabella	Caelex	Belgium
52677	24	37	24	39	it should also be mentioned that these decisions were made for the country's development , and social- economic growth. That with these energy sources, it would mean that development would be close to impossible.	Thank you for the suggestion. The section has been re-written and no longer contains this reference.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
31143	24	39	24	39	In my opinion putting "and such effects are often termed lock-in" at the end of the sentence is hard to understand than placing lock-in somewhere at the beginning of the sentence.	Thank you for the suggestion. This has moved to 13.7	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
12523	25	5	25	7	It would be beneficial to unpack in a few sentences the specific ways in which material endowments enable and constrain the development of climate governance. These sentences are not so useful or informative if not.	Accepted. Thank you for the good suggestion. The text is re-written in line with the suggestion.	Fay Farstad	CICERO Center for International Climate Research	Norway
52649	25	5	25	27	Endowments of resources are differential, and thus can lead to conflict between well endowed and poorly-endowed countries, particularly when in the same geographic neighborhood.	Thankyou for the suggestion but this is outside of the scope of the section	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
12525	25	11	25	14	A more up-to-date comparison of Australia and Norway, or the role of material endowments in shaping climate governance, is Farstad, F.M. (2019) 'Does size matter? Comparing the party politics of climate change in Australia and Norway', Environmental Politics, 28 (6): 997-1016. Suggest adding this to the Eckersley 2013 reference.	Accepted. Thank you for the suggesion. The reference is added.	Fay Farstad	CICERO Center for International Climate Research	Norway
52679	25	11	25	14	Using norway as example is weak , as norway is an oil producing country , the power of the climate policies does not depend on the resource richness of country. This is now in text as one structural factor.	Noted. Thank you for the comment. Text altered but literature followed.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
85873	25	12	25	14	Please remove the reference to Australia in this sentence as it is incorrect: 'For instance, some countries with rich fossil fuel endowments, such as Australia, have weak domestic climate policies, while others, such as Norway, have adopted rather ambitious climate targets and measures. (Eckersley 2013)'. This is a very subjective comment that doesn't accurately reflect the cited literature or Australia's domestic climate policies. The publication referenced here identifies problems with Norway's management of climate and energy policies and finds that 'Australia and Norway are not quite so poles apart on their energy policies.' Further, the Eckersley paper is too old to provide an accurate picture of the Australian climate change policy landscape, which has evolved over the past seven years and will continue to evolve to ensure Australia continues to meet its international emissions reductions commitments. Australia submitted its First Nationally Determined Contribution under the Paris Agreement on 31 December 2020 (https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Australia%20First/Australia%20NDC%20recommunication%20FINAL.PDF and the Technology Investment Roadmap, published in May 2020 provides a more accurate reflection of its climate change policies (https://www.industry.gov.au/sites/default/files/September%202020/document/first-low-emissions-technology-statement-2020.pdf).	This section has been substantially shortened.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
27871	25	20	25	22	Delete "Successful climate policies can change material endowments in a way that underpin more forceful climate governance, for instance by decreasing the value of fossil fuels and increasing the value of renewable energy sources (Ürge-Vorsatz et al. 2018; Colgan et al. 2020).", as this is not a policy neutral statement.	This is part of a nuanced evidence based argument, and text has changed to reflect that	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
70655	25	20			You may want to say 'can change the exploitation of material endowments'	Taken into account. Than you for the suggestion. The sentence has been re-prhased in order to make its meaning clearer.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
22357	25	21	25	21	"Successful climate policies can change material endowments in a way that underpin more forceful climate governance, for instance by decreasing the value of fossil fuels" This sentence could be illustrated by "keep it in the ground" decision-making such as the French law of 2017 forecasting the end of oil and gas production by 2040. While mostly symbolic because of the low level of oil production in France, this decision clears the path for renewables and coherent climate policies. See: -Chailleux, Merlin and Gunzburger « Unconventional oil and gas in France: from popular distrust to politicization of the underground », Extractive industries and society, 2018/5 (4), p.682-690 doi.org/10.1016/j.exis.2018.05.007 -Chailleux « Making the subsurface political: How enhanced oil recovery techniques reshaped the energy transition », Environment and planning C, 2020/38 (4), pp.733-750 doi.org/10.1177/2399654419884077	Accepted. Thank you for your input. We have added a reference to Chailleux 2020.	Government of France	Ministère de la Transition écologique et solidaire	France
58205	25	23	25	30	Seems irrelevant to the section and its themes.	Section rewritten	Government of United States of America	U.S. Department of State	United States of America
341	25	26	25	26	air quality better than air pollution in this case	Accepted. Thank you for the suggestion, we have changed the wording accordingly.	Sandro Fuzzi	ISAC CNR	Italy

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
46273	25	28	25	30	The sentence suggests, that combining climate and development policies could lead to trade-offs and challenges, which could be avoided if climate and development policies would be treated separately. Please check if that is the intention.	Taken into account. Thank you for the input but section now shortened.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
52681	25	28	25	29	Climate measures depend on national circumstances, it should not be looked at developing countries as the weak link in climate action	Taken into account. Thank you for the input, the section has been re-written.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
60279	25	28	25	30	LTN: This sentence could also cite: Peñasco, C., Anadón, L.D. & Verdolini, E. Systematic review of the outcomes and trade-offs of ten types of decarbonization policy instruments. Nat. Clim. Chang. 11, 257–265 (2021). https://doi.org/10.1038/s41558-020-00971-x	Accepted. We have added this reference	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany
12527	25	32	26	26	There are a few additional factors/literatures that should be considered for inclusion here, e.g. the role of federalism and veto points (e.g. Harrison and Sundstrom 2010, Brown 2012, Lachapelle and Paterson 2013, Madden 2014), the role of interest aggregation (corporatist v. pluralist systems) (e.g. Hall and Soskice 2001, Dryzek et al. 2002, Griffiths et al. 2007, Grant 2011, Lachapelle and Paterson 2013) and state size (Carter et al. 2021). Without these factors the section has significant gaps, and also seems unbalanced with the section on cultural factors/understandings.	Taken into account.	Fay Farstad	CICERO Center for International Climate Research	Norway
52651	25	33	25	37	A better accounting for this observed phenomenon may be political capacity rather than regime type. Political capacity is not necessarily correlated with the degree of representative government, but when tied with political will to combat climate change, can be more effective than a democracy with low political capacity and a broad disagreement among constituents about the value of climate change approaches	Taken into account.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
12529	25	38	26	7	It is an important and valid point to underline the differentiated performance and benefits of democratic governance for climate outcomes. Please retain this section.	Noted.	Fay Farstad	CICERO Center for International Climate Research	Norway
52683	25	38	25	45	more clarification on this paragraph. Countries have took commitments under the Paris agreement with respect to other organizations such as the UNFCCC. Comparison should respect the capabilities of the countries that as result affect their measures.	Taken into account.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
50111	25	38	25	45	Singapore has always pursued sustainable development and has been involving citizens in environmental policymaking, and 3P (people, public, private) partnerships which includes citizen workgroups to discuss national issues (please refer to www.singaporetogether.gov.sg), and for the public to share ideas on how we can work together to build a sustainable Singapore for future generations. Most recently, we have launched a National Singapore Green Plan 2030 (please refer to www.greenplan.gov.sg) with opportunities to co-create and co-deliver solutions with members of the public.	Noted. We thank the reviewer for sharing this valuable insight.	Government of Singapore	Ministry of Sustainability and the Environment (MSE)	Singapore
14671	25	38	25	45	I am missing this key reference: Zeynep Clulow (2019) Democracy, electoral systems and emissions: explaining when and why democratization promotes mitigation, Climate Policy, 19:2, 244-257, DOI: 10.1080/14693062.2018.1497938	Accepted. We thank the reviewer for pointing out the reference. We have now added it.	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	United Kingdom (of Great Britain and Northern Ireland)
60281	25	38	25	40	LTN: the reference list could include: Lamb, W. F. and Minx, J. C. (2020) 'The political economy of national climate policy: Architectures of constraint and a typology of countries', Energy Research & Social Science, 64, p. 101429. doi: https://doi.org/10.1016/j.erss.2020.101429.	Accepted. Thank you for the input. We have added this reference several places in the text.	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany
70657	25	38	25	42	This statement does not consider the level of economic development. Normally developed countries have more democratic political systems, stronger commitment to itnernational commitments, and more inclusive approach in decision-making processes whereas developing countires have less democratic political systems, weaker commitment to international commitments, and less inclusive approach in deciciso-making processes. Hence, to compare democratic and non- or less-democratic political systems, other external variables such as economic development should be controlled.	Taken into account.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
46275	26	1	26	1	Please give an example, if possible.	Noted.Additional information is found in the cited literature.Section has been rewritten.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
52685	26	1	26	7	scope of research should be expanded.	Taken into account.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58207	26	1	26	2	Could the authors be more specific than "tend to do better on climate related outcomes"? Better in what way?	Taken into account.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
27873	26	9	26	15	Delete "However, having green parties of significant size is associated with lower greenhouse gas emissions (Neumayer 2003; Jensen and Spoon 2011; Mourao 2019), and left-wing parties tend to adopt more pro-climate policy positions (Carter 2013; Tobin 2017; Farstad 2018). However, many conservative parties also support climate measures (Båtstrand 2015) and there may also be consensus on climate action across the political spectrum (Thonig et al. 2020). There remains a limited literature on green parties in developing countries (Haynes 1999; Kernecker and Wagner 2019)."	Noted. Some of this has been retained.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
27919	26	16	26	26	This paragraph to be deleted or revised substantially, without referring to specific developing countries.	Taken into account.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
17641	26	16	28	26	corruption is a major issue but that is a symptom of values in some governments that are skewed to listening to exploitative interest	Noted.	Jennifer McKay	University	Australia
82881	26	16	26	26	Tread carefully in phrasing this paragraph	Taken into account. Thank you for the input. We have re-written the section carefully.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
14673	26	16	26	17	It seems extraordinary to have only a 20 year old reference here! (especially when "medium evidence" is cited). Climate policies are routinely "obstructed" by various actors. If you specifically mean as part of broader corruption, rather than industrial vested interests discussed later, then perhaps this should be stated clearly. Either way, a more recent additional reference is needed.	Taken into account.	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	United Kingdom (of Great Britain and Northern Ireland)
46277	26	24	26	24	Please check, if deforestation, preventing deforestation, or afforestation is meant.	Taken into account. We thank the reviewer for noticing this omission, we have now corrected it.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
8175	26	24	26	24	Please check: do you mean corruption undermines efforts to reduce deforestation?	Rewritten	Joachim Rock	Thuenen-Institute of Forest Ecosystems	Germany
14675	26	26	26	26	This paper could be interesting here - perceptions of corruption lead to distrust and therefore weaker climate policy Rafaty, R. (2018). Perceptions of corruption, political distrust, and the weakening of climate policy. Global Environmental Politics, 18(3), 106-129.	Accepted.	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	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
12533	26	28	26	28	It might be useful (especially for a non-expert audience) to explain what is meant by 'cultural institutional understandings'.	Taken into account. We have replaced the term to Ideas, values and belief systems.	Fay Farstad	CICERO Center for International Climate Research	Norway
12531	26	28	28	2	As the authors themselves point out, the role of structural features for climate governance is mediated by cultural factors. As such, it would be beneficial to integrate sections 13.4.2 and 13.4.3 and highlight which cultural features usually mediate structural features and how. Moreover, it is slightly problematic to state that 'differences in cultural institutional understandings can help explain differences in climate policy mixes across countries and why similar policy instruments have differing characteristics in different countries' as this can also be explained but structural factors (or a combination of the two).	Taken into account. We revised the sentence.	Fay Farstad	CICERO Center for International Climate Research	Norway
22359	26	28	26	28	In this section, some developments are missing about the role of social movements. Much work has been done in sociology and political science about the role of NGOs in climate issue awareness raising, about their role in setting public agenda towards climate issues, about the development of low-carbon solutions at collective and individual levels, about their role in local and national public policies	Noted. This is addressed in other section of the chapter. Please, see 13.4 regarding the role of civil society groups in shaping climate policy	Government of France	Ministère de la Transition écologique et solidaire	France
16613	26	28	26	43	Provide a definition of "cultural institutional understandings"	This terms is being replaced by Ideas, values and belief systems.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
70659	26	28			In the subsection 13.4.3, it would be interesting to see if ages (or generation gaps) would affect perception on climate and/or climate governance if references are available as climate is clearly an inter-generation issue over generations.	Added	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
15625	26	28	26	43	Provide a definition of "cultural institutional understandings"	This terms is being replaced by Ideas, values and belief systems.	Taedong Lee	Yonsei University	Republic of Korea
31145	26	29	26	29	Cultural institutional understandings is not defined explicitly, so it is unclear exactly what they concern	This terms is being replaced by Ideas, values and belief systems.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
17643	26	44	27	47	The process has been poor information decisions made that are not in accordance with community values then laws to suppress protest then arrests. The 4th estate is in a parlous position as well, not able to provide that check and get informaiton out.	Noted. A new section on media in 13.4	Jennifer McKay	University	Australia
70661	26	45			private' is repeated in 'public-private private collaborations'.	Accepted. The text has been revised.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
17645	27	1	27	70	this article sets up an alternative model for Australia based on German company law and has been well cited. It is especially welcomed by people in aust governmentshttps://iwaponline.com/wp/article/7/1/35/20251/Water-institutional-reforms-in-Australia	This is outside the boundary of chapter	Jennifer McKay	University	Australia
52687	27	6	27	6	what is meant by climate transformation ?	Taken into account. See glossary.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
28985	27	10	27	20	this doesn't feel quite right (speaking as an American). These broad generalizations about "developed" versus "developing" are not necessarily correct or helpful. For example, in the United States, there is considerable variation regionally within a country and even racially (see: Adam McBride Lazri, David M Konisky, Environmental attitudes across race and ethnicity, Social Science Quarterly, 2019).	Taken into account. The text has been revised and shortened and the comment is not longer relevant. The reference to "developed" versus "developing" countries has been removed.	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
8327	27	10	27	20	The discussion of how awareness about climate the dangers of climate change influence public support for climate policies is very helpful. YOu might also add the review of Bergh and Drews (2015, CP, https://doi.org/10.1080/14693062.2015.1058240) on the determinants of public support for climate policies. A missing link in this discussion is how this translates iin conrete poolicies. For instance, Levi et al. (2020, GEP, https://doi.org/10.1162/glep_a_00549) point out that public belief in climate change and good institutions are the most important factors contributing to the implementation and level of carbon privces.	Originally accepted but section then shortened so now removed.	Michael Jakob	MCC Berlin	Germany
18511	27	16	27	16	Grouping developing countries here might not be a useful generalization. Might be worth splitting up a little more, as awareness in developing countries more vulnerable to climate change effects (e.g. small island states) are likely to have different awareness levels from other developing countries	Taken into account. The text has been revised and shortened	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
86563	27	20	27	20	It appears that the Gallup study and a recent 2021 study are missing (sorry, no reference readily at hand).	The text has been revised and shortened.	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
12535	27	21	27	33	This section should ideally be unpacked, and can be done so by adding only a few sentences. It would be hugely beneficial to not just outline factors related to climate concern, but importantly HOW they influence concern (in a positive or negative way?). Though it might be too much to add given limitations on length, it would also be useful to briefly explain WHY such factors have a (negative or positive) influence on concern.	Yes, we agree but due to space considerations have not included.	Fay Farstad	CICERO Center for International Climate Research	Norway
2193	27	21	27	33	It is well known and documented that elite cues, transmitted through media, are the primary drivers of concern about climate change (references listed below). Yet this paragraph fails to address this literature at all and fails to integrate individual concerns with the analysis of media coverage in Section 13.4.4, . It needs to be substantially revised to address this extensive peer reviewed literature and integrate with the analysis of media. See the below references.	Taken into account. The role of media is discussed in a dedicated sub-section .	Robert Brulle	Brown University	United States of America
2195	27	21	27	33	Brulle, R. J., Carmichael, J., & Jenkins, J. C. (2012). Shifting public opinion on climate change: an empirical assessment of factors influencing concern over climate change in the US, 2002–2010. Climatic change, 114(2), 169-188.	Taken into account and cited in the media section.	Robert Brulle	Brown University	United States of America
2197	27	21	27	33	Carmichael, J. T., & Brulle, R. J. (2017). Elite cues, media coverage, and public concern: an integrated path analysis of public opinion on climate change, 2001–2013 Environmental Politics, 26(2), 232-252.	Taken into account and cited	Robert Brulle	Brown University	United States of America
2199	27	21	27	33	Carmichael, J. T., Brulle, R. J., & Huxster, J. K. (2017). The great divide: understanding the role of media and other drivers of the partisan divide in public concern over climate change in the USA, 2001–2014. Climatic Change, 141(4), 599-612. Carmichael, J. T., & Brulle, R. J. (2018). Media use and climate change concern. International Journal of Media & Cultural Politics, 14(2), 243-253.	Taken into account - we have 6 citations which include Brulle / Carmichael.	Robert Brulle	Brown University	United States of America
17285	27	26	27	27	See also: Ergas, C. and York, R., (2012). 'Women's status and carbon dioxide emissions: A quantitative cross-national analysis', Social Science Research, 41(4), pp. 965–976. doi: 10.1016/j.ssresearch.2012.03.008.	Noted, but published before AR5.	Joanna Flavell	University of Manchester	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
22361	27	27	27	29	"We know less about whether class, income, race, religiosity, age and education affect perceptions (Shwom et al. 2015; Pearson et al. 2017)" another example: Lachance, J., & Przygoda, M. (2021). Scientific Data in the Ecological Commitment of Young People in the Digital Age. Interdisciplinary Journal of Environmental and Science Education, 17(1), e2229. https://doi.org/10.29333/ijese/9156	Noted.	Government of France	Ministère de la Transition écologique et solidaire	France
48561	28	4	29	7	This subsection on media does not fully reflect the major role fossil fuel interests play in shaping the media conversation on climate expressly to weaken climate governance. For instance, fossil fuel interests use paid advertising both to shift public opinion and government policy on climate issues and to "greenwash" the fossil fuel industry's image. While this subsection discusses climate misinformation in general, the media influence of fossil fuel interests in particular should be named and discussed explicitly. Geels 2014 (https://doi.org/10.1177/0263276414531627), though cited elsewhere in the chapter, could be cited and used more substantively here.	Accepted. The suggested reference has been added and the text has been updated accordingly.	Amar Bhardwaj	Stanford University	United States of America
12537	28	4	29	8	Max Boykoff	Taken into account. The reference about the role of media systems has been added to the text.	Fay Farstad	CICERO Center for International Climate Research	Norway
17647	28	13	28	30	There has been work on natual disasters that shows that media perpetuate myths such as human errors are responsible fo floods. Often meida has been captured by interests and perpetuates errors. media https://doi.org/10.1111/j.1467-7717.1984.tb00860.xCitations: 10 the implementation depends as well on knowledge of civil society about the issue and this is often flawed due to false information . The paper above demonstrated that if you show people that a huge number of them will be affected by a flood or bushfire then they will not take any indivudual actions as they feel overwhlemed and as so many people in the West have the problem they will expect government intervention Community response to hazard information.	Noted. The suggested paper does not directly address the topics discussed in the section.	Jennifer McKay	University	Australia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
72521	28	16	28	18	Please consider adding to the indicated lines: 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, The Day After Tomorrow, 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). References Corner, A., Lewandowsky, S., Phillips, M. and Roberts, O. (2015) The Uncertainty Handbook. Bristol: University of Bristol Kádár A., Farsang, A., Ábrahám, E. (2015): The impact of science-fiction films on the geographical knowledge of students. Földrajzi Közlemények 139. 4. pp. 302–317. Lehoczky A., Pieczka I., Szabó A. I., Vigh P. (2020): Climate communication: the art of	Noted. The role of media in diffusion of misinformation is reflected in the text.	Annamária Lehoczky	Fauna and Flora International	United Kingdom (of Great Britain and Northern Ireland)
82883	28	18	28	21	I don’t think the general observation holds.Organisatiosn can be named that do not have this tendency.	Taken into account. The text has been slightly revised to reflect more accurately the findings of scientific research. Additional references were added.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
14669	28	24	28	24	This is a great, very recent reference, pointing to how "bots" are being used to spread misinformation about climate change Thomas Marlow, Sean Miller & J. Timmons Roberts (2021) Bots and online climate discourses: Twitter discourse on President Trump’s announcement of U.S. withdrawal from the Paris Agreement, Climate Policy, DOI: 10.1080/14693062.2020.1870098	Accepted. Thank you for the suggestion. The reference has been added and the text has been revised accordingly.	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	United Kingdom (of Great Britain and Northern Ireland)
85417	28	29	28	31	30 misinformation about the causes and consequences of climate change (Brulle 2014; Farrell 2016a,b; Supran 31 and Oreskes 2017). Disinformation causes the population to panic and mistrust their national and global authorities and specialized organizations, so it is necessary to encourage States to promote good communication practices on the different information platforms and avoid false information.	Noted. Text reflects this	victor arturo miranda alfaro	Gobierno	Peru
85875	28	31	28	33	Suggest reviewing the evidence base for this statement, with a view to providing a more balanced assessment of the impact of media on climate policy: ‘Together with the proliferation of suspicions of ‘fake news’ and ‘post-truth’, media representations have fuelled polarisation and partisan divides on climate change in contexts such as the United States (Feldman et al. 2017), Australia, Canada and Brazil (Hornsey et al. 2018).’	Taken into account. The wording of the sentence has been slightly revised.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
63281	28	32	28	32	Thus is the recommendation here to regulate digital media and social media to reduce the proliferation of such climate disinformation? Regulation would have multiple benefits including health and safety, as we saw with the proliferation of the anti-mask and conspiracy theory movement on COVID-19.	As per the IPCC, the section assesses relevant scientific literature and does not provide recommendations.	Government of Canada	Environment and Climate Change Canada	Canada
58209	28	45	28	45	This sentence seems repetitive of the rest of the paragraph.	Taken into account. The section has been re-written to merge with similar statement.	Government of United States of America	U.S. Department of State	United States of America
10115	29	9	29	9	13.5 should be moved up the text; references to polycentricity would also help to draw out the number and diversity of actor types, and the complex nature of the interactions between them.	Taken into account. Polycentric literature added. Some changes to the structure of the chapter have been made.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
22363	29	17	29	18	Scientists can also participate in climate governance. Perhaps add "scientific actors" to this list? "People may take part in climate governance as citizens, voters, employees, participants in social movements, political party members, scientifc actors or consumers, and..."	The text has been revised.	Government of France	Ministère de la Transition écologique et solidaire	France
77747	29	21	30	15	Also relevant here is the role of social movements, for example those targeting fossil fuels, including protests/resistance against new (and existing) fossil fuel infrastructure across the supply chain, from coalmines (e.g. Adani in Australia), fossil gas developments (e.g. fracking) and oil production through to mid-stream transportation facilities (e.g. Keystone XL pipeline, Dakota Accesss Pipeline, coal ports, LNG terminals) to refineries and to electricity generation facilities, as well as the financing of such activities (e.g. the divestment movement) and increasingly other professional services supporting such activities (e.g. Law Students for Climate Accountability boycotting law firms that act for fossil fuel companies). See especially: Temper et al. (2020) 'Movements Shaping Climate Futures' in ERL; Cheon and Urpelainen's book Targeting Big Polluters (2018); F. Green (2018) 'Anti-Fossil Fuel Norms' in Climatic Change; Piggot (2018) 'The influence of social movements on policies that constrain fossil fuel supply' in Climate Policy, among others.	Taken into account. Information on the role of social movements has been added and suggested references have been included in the assessment.	Fergus Green	Utrecht University	Netherlands
2497	29	21	33	14	This section that looks at the influence of various actors is very important. However, the framing of the activity of corporate and non-state actors in terms of their 'position' is a bit narrow. A little could be said, and there is some evidence accruing, about not just what they want, but how their 'position' on climate policy is determined as part of an overall influence strategy including, for instance, strategic compromise with other actors: https://www.tandfonline.com/doi/full/10.1080/14693062.2020.1868393 https://www.tandfonline.com/doi/full/10.1080/13501763.2019.1567573. The important point here is that what climate advocates do not (or cannot) say can be just an important for policy evolution.	The section has been re-written	Oscar Fitch-Roy	University of Exeter	United Kingdom (of Great Britain and Northern Ireland)
20165	29	22	29	23	See also Doukas, H., Nikas, A., Stamtsis, G., & Tsipouridis, I. (2020). The Green Versus Green Trap and a Way Forward. Energies, 13(20), 5473.	The suggested reference coes not directly discuss the interaction of civic, economic and political actors in climate governance process.	Nikas Alexandros	National Technical University of Athens	Greece
48723	29	25	29	32	In the past years, the public awareness on climate and international cooperation has increased and consumers' wiiling to buy will be related to the market directly (Anthony Leiserowitz,2020). The data and analysis of global public perception on climate should be one of the perspectives to be included in the review and the key findings, as voices from the general public,could be valuable inputs for the policymakers. A recommended piece of literature review in this field is: Wang B, Zhou Q. Climate change in the Chinese mind: An overview of public perceptions at macro and micro levels. WIREs Clim Change. 2020;11:e639. https://doi.org/10.1002/wcc.639	This section is addressing specific actions and the role of different actors in climate governance process.	Binbin Wang	Institute of Climate Change and Sustainable Development at Tsinghua University	China

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
20167	29	25	29	32	See also: - Nikas, A., Lieu, J., Sorman, A., Gambhir, A., Turhan, E., Baptista, B. V., & Doukas, H. (2020). The desirability of transitions in demand: Incorporating behavioural and societal transformations into energy modelling. Energy Research & Social Science, 70, 101780. - Galende-Sánchez, E., & Sorman, A. H. (2021). From consultation toward co-production in science and policy: A critical systematic review of participatory climate and energy initiatives. Energy Research & Social Science, 73, 101907. - Sorman, A. H., Turhan, E., & Rosas Casals, M. (2020). Democratizing energy, energizing democracy: Central dimensions surfacing in the debate. Frontiers in Energy Research, 1-6.	The references suggested do not address directly the role of different actors in climate governance process.	Nikas Alexandros	National Technical University of Athens	Greece
31147	29	31	29	31	What is a "climate change counter group"? Is it a group that counters advocacy for climate policy, or…?	Noted. Yes, the understanding is correct.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
27875	29	35	29	42	Delete "After 2010, an increasing number of organisations have started to promote a deliberate decline in fossil fuel investments, production and dependence (Rosenbloom and Rinscheid 2020). Another set of organisations aims to undermine established climate science and oppose proposed climate action (Brulle 2014, 2019). These may be think-thanks, philanthropic foundations, or looser activist networks (Brulle 2019). While some are established with the purpose of countering climate mitigation action, others merely have this as one of their missions (Almiron and Xifra 2019). Many organisations countering climate change action in the US are financed by business and thus some argue they should be regarded as economic and not civic actors (Brulle 2014)."	Rejected. No arguments supported by peer-reviewed literature have been provided in the comments. Because of space the section has been shortened.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
48335	29	37	29	41	What is their purpose in undermining science?	Noted. As discussed in the text, some organizations has the purpose of countering climate mitigation actions.	Susana Hancock	University of Oxford	United States of America
74261	29	38	29	38	Replace "think-thanks" with "think-tanks".	Accepted, text revised.	Jeffrey Merrifield	Pillsbury Law Firm	United States of America
2201	29	41	29	42	This sentence is a misinterpretation of my research (Brulle 2014). That paper identifies conservative ideologically driven private foundations as the primary funders of the CCCM. This sentence should be revised.	Accepted, the text has been revised.	Robert Brulle	Brown University	United States of America
48337	29	41	29	42	Is the undermining to discredit the science or to "save" the economy by those invested in fossil fuels?	Noted. As discussed in the text, some organizations have the purpose of countering climate mitigation actions.	Susana Hancock	University of Oxford	United States of America
11887	29	43	35	41	The content of Chapter 13.5 seems to be very similar to that of Chapter 13.3. The text would benefit from merging these chapters. I miss a discussion of governance design for crisis management. The latter point is outside our boundaries.	Noted. Section SOD 13.3 focuses on sub-national climate policies, while section SOD 13.5 discusses actors in climate governance at all levels.	The Royal Swedish Academy of Agriculture and Forestry (Group Review)	Kung. Skogs-och Lantbruksakademien	Sweden
17649	29		29		and if some do become aware and protext about corruption in the permit giving process for fossil fuels, then they are targeted under anti protest laws.	Noted. No specific changes to the text have been suggested.	Jennifer McKay	University	Australia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
17651	29		29	60	here a case study of extinction rebellion would be good Roger Hallum and some cases such as Kingsnorth case in Maidstow Kent.Some protesters have sought to invoke the two limbs of the emergency defence. The justificatory limb that the protests is the lesser evil or the excusatory limb that the climate emergency invoked the protest assembly. Results have been patchy. In one successful case, Kingsnorth ,the justificatory defence was applied partly on the grounds that IPCC reports justified the protest. This is a new direction and in this new epoch, the anthropocene maybe we can expect more uses of the defence to justify protests about climate change inaction by government or carbon emissions by the private sector. This paper will look at climate change inaction protest cases and consider how judges have applied the emergency defence, the justification and excusatory limbs, and how sentences have been applied bearing in mind the political motivation. Generally, the laws about sentencing provide that penalties are more lenient when the crime is committed out of need rather than greed and this concept has been extended to the emergency defence in few cases . . With regard to sentencing, in politically motivated crimes, some commentators consider the area to defy categorization , be ad hoc decision and hence are largely untheorized . However, the cases can be said yield this test and it is (1) a significant purpose of the act was to alter the practices or policies of those who exercise power or political influence; and (2) there was a sufficiently close and direct link between the crime and the political purpose In response to protests, many jurisdictions have passed laws imposing managerial control over protests. This conflicts with the normative obligations as in Article 21 of the International Covenant on Civil and Political Rights (ICCPR) and General Comment 37.(GC 37). The common law necessity defense has two limbs and this paper argues that the human rights based approach could breathe new life in to the justificatory limb or lesser of two evils approach. Human rights instruments would	There is now a significant section on civil engagemnt in the FD 13.4	Jennifer McKay	University	Australia
12539	30	1	30	10	Some missing key references here on the role of businesses (e.g. Griffiths et al. 2007, Bernhagen 2008)	Taken into account.	Fay Farstad	CICERO Center for International Climate Research	Norway
20009	30	11		15	You neglect the role of international donors that in many smaller countries do not only supplement but nearly substutute national environmental institutions and impose donor-driven implemantaion of "best pratices" that often do not capture regional peculiarities and fail to deliver. Empirical research realted to that exists e.g. on Georgia/Caucasus, see Troschke, Manuela: "The Making of Environmental Policy in Georgia". Südosteuropa 63 (2015). no. 3. pp. 412-439	Noted. This is a ch 14 area.	Manuela Dr. Troschke	Scientists for Future Germany	Germany
27921	30	12	30	14	National priorities and "ownership" of climate action are critical elements for sustainable development. This sentence to be revised substantially, as it refers to top down approaches.	Rejected. No peer-reviewed literature provided.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
10117	30	17	30	17	I do not find this subtitle terribly illuminating - its quite generic.	Taken into account. The structure of the section has been changed and the subtitles have been updated in the revised text.	Andy 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
19575	30	20	30	20	Add after "… Tosun 2012": "Michaelowa et al. (2018) stress the key role of Interest groups in the design of mitigation policy instruments." Reason: The role of interest groups in the design of mitigation policy instruments is not yet reflected in the chapter. New reference: 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	Thank you for the suggestion, but the section has been re-written so this input is no longer relevant.	Matthias Honegger	Utrecht University, Perspectives climate research, IASS-Potsdam	Germany
31149	30	21	30	22	I would suggest "whether people beliee that global warming generally can be mitigated" and delete " is associated with increased public engagement on climate change" otherwise it is not consistent with the wording of the second point	Thank you for the suggestion, but the section has been re-written so this input is no longer relevant.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
20001	30	25		42	The division between "tactics that work within the economic and political systems" Line 28 and "other citizen engamentet involving more confrontational practices such as…..striking-protesting…" Line 34 and 35 is not correct since striking in most countries is part of the political system	Thank you for the suggestion, and the section has been re-written .	Manuela Dr. Troschke	Scientists for Future Germany	Germany
22465	30	39	30	39	Could be amended. A broad set of work has been done on the capacity of political consumerism in changing main actors' practices, about the mediated effects (and not direct effects) of political consumerism in structural changes that could foster transition	Noted. Text altered	Government of France	Ministère de la Transition écologique et solidaire	France
48263	31	9	31	9	Inconsistent numbering, 6million here, 10million elsewhere in WGIII. See, for example, Ch14 p72 ln 36 and Ch5 pg 69 ln 34-36	Noted. The text states "at least an estimated 6 million people" and supported by the reference. Other estimates could exist and could be referenced in the report.	Susana Hancock	University of Oxford	United States of America
48339	31	13	31	33	Is it fair to say that the "pandemic arguably marks the end" if these protests have continued in a socially-distanced fashion and there is a branch-off online climate strike movement?	Taken into account. The text has been re-phrased. New information and reference added.	Susana Hancock	University of Oxford	United States of America
22467	31	17	31	19	Could be amended. In France environmental NGOs have access to the political system through institutionalised consultation groups (lots of research on this issue)	Noted. Participation in the consultation processes has been added as a form of citizens engagement to the climate governance process.	Government of France	Ministère de la Transition écologique et solidaire	France
27877	31	22	31	26	Delete "After 2010, an increasing number of groups have emerged that call for phase out, divestments and destabilization of fossil fuel investments and structures (Rosenbloom and Rinscheid 2020). In addition to aiming to influence public policy, environmental groups also influence or initiate private climate governance initiatives, such as public-private partnerships or the investments of universities' funds (Dentoni et al. 2018; Rosenbloom and Rinscheid 2020)."	Rejected. No peer-reviewed literature have been provided in the comment.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
18513	31	22	31	22	What is the significance of 2010? Could be useful to explain the significance of this year (i.e. why there was an increase after 2010).	Thank you for the suggestion, but the section has been re-written so this input is no longer relevant.	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
58211	31	42	31	43	This is a key example and needs more explanation. What motivated the movement? Have similar events taken place elsewhere? The drivers could be very relevant for the centerpiece of climate policy described in Section 13.6: a price on carbon. Did it have a chilling effect on other climate policies that would pass cost on to the consumer? How can it be avoided?	Taken into account. Limited evidence, but insights on just transition and trade-offs are now added	Government of United States of America	U.S. Department of State	United States of America
48261	31	42	31	42	Yellow Vest movement refered to as Gilet Jaunes elsewhere (eg Ch 5 ln 69), possibly best known as Gilet Jaunes	Noted. The text has been revised.	Susana Hancock	University of Oxford	United States of America
12541	32	17	32	42	The first paragraph, and partly also the second, should be related to 13.5.1 on corporate actors, as these sections also deal with corporate actors.	Noted. The structure of the section has been changed and the text has been re-written.	Fay Farstad	CICERO Center for International Climate Research	Norway

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
16615	32	17	32	33	Introduce RE 100 from corporate actors (e.g. Allen and Craig 2016. Rethinking Corporate Social Responsibility in the age of climate change. International Journal of Corporate Social Responsibility	Rejected. The reference suggested is devoted to corporate social responsibility and does not specifically adress the climate governance of corporate actors.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
15627	32	17	32	33	Introduce RE 100, ESG (environment, social, and governance) from corporate actors (e.g. Allen and Craig 2016. Rethinking Corporate Social Responsibility in the age of climate change. International Journal of Corporate Social Responsibility	Rejected. The reference suggested is devoted to corporate social responsibility and does not specifically adress the climate governance of corporate actors.	Taedong Lee	Yonsei University	Republic of Korea
27879	32	22	32	31	Delete "The fossil fuel industries have been important agenda-setters, for instance in the USA (Dunlap and McRight 2015; Supran and Oreskes 2017; Downie 2018) in the EU (Skjærseth and Skodvin 2010; Boasson and Wettestad 2013), in Australia (Ayling 2017), China and India (Blondeel and Van de Graaf 2018), and in Mexico (Pulver 2007), but they have had differing positions across countries (Kim et al. 2016; Nasiritousi 2017). In the US, the oil industry has underpinned emergence of climate scepticism (Dunlap and McRight 2015; Farrell 2016a; Supran and Oreskes 2017), and its spread abroad (Dunlap and Jacques 2013; Engels et al. 2013; Painter and Gavin 2016). Smaller corporate actors providing climate solutions, such as renewable energy industries, have sometimes succeeded in influencing public policy more than large fossil fuel actors, for instance in the EU (Boasson, 2019), Germany (Leiren and Reimer 2018), the US (Stokes and Breetz 2018), the Nordic countries (Kooij et al. 2018) and Japan (Li et al. 2019)."	Rejected. No peer-reviewed literature have been provided in the comment. Text has been shortened.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
48563	32	28	32	31	While smaller climate solutions companies have had some success in promoting climate policy, it is not representative to mention these instances (particularly with the phrasing of being more successful than fossil fuel interests) without going into more detail about the ways fossil fuel interests have succeeded in obstructing climate-friendly policies. The authors should rephrase the sentence to better reflect the imbalance between the policy influencing successes of climate solutions companies vs. fossil fuel companies. The authors should also discuss in further detail the ways fossil fuel companies have prevented climate-friendly legislation from being passed or shifted policy discussions.	Taken into account. The sentence has been rephrased.	Amar Bhardwaj	Stanford University	United States of America
58213	32	41	32	41	It would be more helpful if the authors considered what drives this phenomenon rather than just stating it.	Taken into account. The text has been revised to provide additional details in response to the comment.	Government of United States of America	U.S. Department of State	United States of America
12543	32	43	33	14	This section discusses political leaders as separate from their political parties. Similarly, salience is underlined as a key factor in making politicians pay attention to climate change. Missing from this discussion is the role of political parties and party competition (e.g. Carter and Jacobs 2014, Carter and Little 2021)	Taken into account. The paragraph has been reduced and shortened due to space contraints. The revised text addresses political organizations, including political parties and political leaders.	Fay Farstad	CICERO Center for International Climate Research	Norway
20003	32	44		45	Citizens assemblies play a major role also in France and are promoted by the EU as a means of climate governance	Thank you for the suggestion, but the section has been re-written so this input is no longer relevant.	Manuela Dr. Troschke	Scientists for Future Germany	Germany
20043	32	46			On France's Citizens' Assembly for Climate, see: Giraudet, L.-G., Apouey, B., Arab, H., Baeckelandt, S., Begout, P., Berghmans, N., Blanc, N., Boulin, J.-Y., Buge, E., Courant, D., Dahan, A., Fabre, A., Fourniau, J.-M., Gaborit, M., Granchamp, L., Guillemot, H., Jeanpierre, L., Landemore, H., Laslier, J.-F., Macé, A., Mellier- Wilson, C., Mounier, S., Pénigaud, T., Povoas, A., Rafidinarivo, C., Reber, B., Rozencwajg, R., Stamenkovic, P., Tilikete, S., Tournus, S., 2021. Deliberating on Climate Action: Insights from the French Citizens' Convention for Climate. https://hal.archives-ouvertes.fr/hal-03119539	Thank you for the suggestion.	Louis-Gaëtan Giraudet	CIRED, Ecole des Ponts ParisTech	France
48341	33	4	33	6	These leaders need dates	Thank you for the suggestion, but the section has been re-written so this input is no longer relevant.	Susana Hancock	University of Oxford	United States of America
70059	33	5	33	5	The Minister for the Environment during the first mandate of President Lula is better known as Marina da Silva, not only da Silva as mentioned in the report.	Thank you for the suggestion, but the section has been re-written so this input is no longer relevant.	PEDRO CORTES	University of Sao Paulo - USP	Brazil

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
52603	33	12	33	13	An example is needed	Noted. References with the examples of research confirming the statement are provided.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
10119	33	16	33	16	This sub section is not very well integrated with the rest of the text. It feels like an afterthought.	Noted. Thank you for the comment. The section has been re-written and re-structured to address review comments received.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
19579	33	22	33	22	Add after "…medium agreement)": "Michaelowa et al. (2018) discuss the role of well-organized interest groups on climate governance and conclude that only those mitigation policy instruments will be implemented that benefit these groups while spreading costs as widely as possible. " Reason: The assessment of which policy instruments can 'survive' the engagement of interest groups is important. New reference: 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	Thank you for the suggestion, but the section has been re-written so this input is no longer relevant.	Matthias Honegger	Utrecht University, Perspectives climate research, IASS-Potsdam	Germany
10121	34	4	34	4	See previous point. It now feels like the text is trying to run through (some but not all of) the stages of the policy process.	Noted. Thank you for the comment. The section has been re-written and re-structured to address review comments received.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
52653	34	5	34	6	Corporations and for-profit enterprise respond to market signals and government incentives (positive and negative). A clearer link should be made to the role of government in shaping corporate behavior through market adjustment and incentives for desired behavior, rather than on corporate decisions as a standalone concept.	Thank you for the suggestion, but the section has been re-written	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
27881	34	19	34	22	Delete "Environmental organisations are less visible in the implementation stage, but they may engage in 'naming and shaming' activities aimed at increasing countries' compliance with climate obligations. The carbon tracker initiative is one example of is (Carbon Tracker 2019), but we have little systematic research on the effect of such initiatives."	Thank you for the suggestion, but the section has been re-written so this input is no longer relevant.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
58215	34	19	34	22	Seems irrelevant and also unsupported by evidence.	Noted. Thank you for the comment, but the section has been re-written so this input is no longer relevant.	Government of United States of America	U.S. Department of State	United States of America
10123	34	34	34	34	Again, there are some important points in this section, but it does not feel very well connected to previous sections.	Noted. Thank you for the comment. The section has been re-written and re-structured to address review comments received.	Andy 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
19695	34	34	35	41	It is important that this chapter highlights the growing body of litigation that is aimed at addressing the inadequacy of governments' mitigation efforts, and the role of such cases in shaping climate governance. It is also important that the chapter highlights the crucial judgment in the Dutch Urgenda case and its reliance on human rights and the recommendations of the IPCC. This is particularly so because an increasing number of cases around the world are following its example, with courts in Columbia, France, Ireland, Nepal and Pakistan confirming the precedent in the Urgenda case that governments have legal obligations to undertake sufficient and adequate mitigation measures. The report should note this trend of multiple courts across continents engaging with the sufficiency of mitigation efforts, by referring to all, or at least several of these cases. In this context, reference should be made to the UNEP Global Climate Litigation Report (https://www.unep.org/resources/report/global-climate-litigation-report-2020-status-review).	Taken into account. The Urgenda case is already reviewed in this section. UPEP report cited	Dennis van Berkel	Urgenda Foundation	Netherlands
22365	34	34	34	34	Section 13.5.5 : This section should be completed with some other examples. It seems particularly relevent as other sections in the report refer to this chapter on the subject of climate litigation (for exp the chapter 14 p. 73). There is a lot of cases on that issue, but here are some specific informations on some cases that appear especially relevant to be mentionned (but other case shall be mentionned too) : - First : recently two important cases has been ruled in France. They are related to demand for State's reductions of emissions : In the first case (Conseil d'État, 19 novembre 2020, n°427301), the court recognized standing to a mayor of a city (because of the city's exposition to climate change effects). The mayor contested the compatibility (and thus legality) of the path of action took by the government (GHG emissions for the 2015-2018 period and the decree defining quota for the period 2019-2023) with national and european legislation, as it delays actions to be taken at the end of the commitment period (2030). The court decided to give 3 month to the State for him to give more informations and to demonstrate such compatibility before deciding on this respect. In the second case (Tribunal administratif de Paris, 3 février 2021, n°1904967, 1904968, 1904972, 1904976/4-1) four NGO sued the government for insufficient action on climate change (Similarly with Urgenda case). The court recognized standing to the NGO and States' responsibility. It allocated a reparation for the moral prejudice : 1 euro for each NGO (what they asked). The court also recognized State's responsibility for ecological prejudice. On this aspect, Court affirmed that reparation of such prejudice shall be in nature. The court left a period of two month for futher investigation before deciding on relevant measures to be prescribe to the State. - Secondly : On 13th November 2020, six portuguese citizens (children and young persons) sued 33 european states before the European court on human right for the violation of their positive obligations on the right to life (article 2), right to private life	Noted. Unfortunately we can not include all the recent cases. We have tried to give a thorough overview.	Government of France	Ministère de la Transition écologique et solidaire	France
58217	34	34	35	41	Section 13.5.5 could be more balanced and comprehensive. While the end of the section alludes generally to some climate litigation reducing stringency/ambition, almost all of the examples that authors cite appear to be cases in which pro-climate action litigants are bringing claims, even though many don't succeed. It would be better to give a fuller picture, instead of being overly focused on some of the litigation from green groups which can distract from policymaking through legislative or other action.	Noted. We also assessed literature on the litigation cases between local government and corporations.	Government of United States of America	U.S. Department of State	United States of America
70663	34	34			Not sure if this fits for this chapter or subsection 13.5.5, but there are international cases of litigation regarding climate impacts and responsibilities. If possible, inclusion of those cases would strengthen the chapter or subsection.	Noted. We have focused on national specifc cases or National systemic cases because of chapter boundary.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
18515	34	36	34	36	Could be useful to note the significance of 'mid-2000'? Is there research that suggests what caused this shift towards increase in climate litigation?	Taken into account. The text has been updated and the reference to "mid-2000" has been deleted	Government of United Kingdom (of Great Britain and Northern Ireland)	Department for Business, Energy & Industrial Strategy	United Kingdom (of Great Britain and Northern Ireland)
85877	34	43	34	45	Suggest authors review the evidence base for this statement: 'The vast majority of climate cases have emerged in United States, but it has also had importance in Australia and the United Kingdom, and more recently in developing countries (Humby 2018; Kotze and du Plessis 2019; Peel and Lin 2019; Setzer and Benjamin 2019; Zhao et al. 2019).' Consider demonstrating that there are more cases in Australia than in Europe, for example.	Taken into account. The text has been revised	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
48343	35	3	35	3	Is this true for China? What about Howey Ou in China? The authorities have not met her with empathy but with threats for challenging the government.	We found no academic literaute on this case and not aware of its relevance with any climate litigation cases within China.	Susana Hancock	University of Oxford	United States of America
58219	35	5	35	5	"extend" should be "extent"	Editorial.noted	Government of United States of America	U.S. Department of State	United States of America
58221	35	8	35	8	Suggest replacing "has set a particularly important precedent" with "is an often cited example" to frame this slightly more neutrally, and also because "precedent" in the legal sense often implies that it creates a legal precedent that establishes law relied on in future cases, and when talking across different countries a case from one country or system is not necessarily a legal precedent in that sense.	Taken into account. The text has been revised to avoid misinterpretation.	Government of United States of America	U.S. Department of State	United States of America
82885	35	9	35	11	This case did not establish a general precedent for 25%. The precedent (if there was one) was for aligning domestic policy with international obligations.	Taken into account. The text has been revised accordingly.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
84407	35	11	35	12	On climate cases both in developed & developing countries: Sindico, Francesco, Mbengue, Makane Moise (Eds.) (2021), Comparative Climate Change Litigation: Beyond the Usual Suspects, Springer.	Accepted. The reference has been included in the assessment.	Paola Villavicencio-Calzadilla	Universitat Rovira i Virgili	Netherlands
15379	35	15	35	17	The UK Court of Appeal decision was overturned by the Supreme Court in December 2020.	Noted. Thank you for the comment, but the section has been re-written so this input is no longer relevant.	Christie McLeod	Miller Thomson LLP	Canada
58223	35	15	35	15	This Heathrow decision was overturned by a higher UK court (https://www.jdsupra.com/legalnews/uk-supreme-court-rules-in-favor-of-3167653/), so this should probably be updated.	Noted. Thank you for the comment, but the section has been re-written so this input is no longer relevant.	Government of United States of America	U.S. Department of State	United States of America
70665	35	29	35	31	Along with failure cases to incorporate climate risk into decision-making, it would be good to see if there are literatures supporting the influence of climate acotrs on investment decisions of large pension funds and investment funds toward a more climate-friendly way.	Taken into account although this is primarily an issue for ch 15.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
5565	35	33	35	33	Add one sentence: It happens that very ambitious objectives are announced for internal political reason,, deciders knowing that these target wil not be reached.	We find no academic evidence indicating that governments announcing climate targets knowing they cannot be achieved.	Michel SIMON	Retraité/ Pdt d'association	France
19697	35	35	35	36	Reference should be made here to section 14.3.2.3 which also refers to cases similar to the Urgenda case (referenced as Supreme Court of the Netherlands, Civil Division 2019) and their role in addressing the adequacy and fairness of countries' mitigation efforts in the context of achieving the Paris Agreement temperature goal.	Noted.	Dennis van Berkel	Urgenda Foundation	Netherlands
48345	35	37	35	41	Why is the US different?	The paragraph has been re-written. The text provides examples on how outcomes of climate litigation can affect climate governance.	Susana Hancock	University of Oxford	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10125	35	43	35	43	Theres is a sharp break in the storyline at this point. What follows is important, but i does not flow neatly or naturally from the sections that precede it.	A new introductory paragraph now makes the links backwards and forwards in the chapter	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
11069	35	43	53	45	Both Chapters 1 and 14 devote some space to discussing competing analytic frameworks for policy-making, in particular contrasting an efficiency-based approache with transition dynamic and equity approaches. Chapter 5 also devotes some space to this in the context of behavioural and technological change. I think these work well, particularly how they have done it in Chapter 1. It would be really helpful if Chapter 13 were to align with this approach by describing these different analytic approaches to policy and the national and subnational levels, where they play out most often.	This section is focused on the policy toolkit - the instruments, and less on broader analytical approaches. There is a substantial empirical literature on this and it is important AR6 cover it. Some of the linkage with conceptual approaches is addressed in Sec 7 and the Figure in Sec 7	Anthony Patt	ETH Zürich	Switzerland
11077	35	43	53	45	It seems curious to me that this section comes so late in the chapter. To a large extent this section adds meaning to climate governance, i.e. the things that actors do to govern behavior and action leading to more or less emissions. It would make the previous three sections an awful lot more concrete to describe these things first, before describing their occurence at sub-national levels (13.3), the factors than constrain or conditon them (13.4), or the actors involved either as subject or object (13.5).	This chapter could have been written in several ways, and arguments about the logical flow are not absolute - we have found reasonable arguments for different formulations. The logic here is that institutions and governance processes, shape how mitigation is framed and then how decisions are made. These are logically prior, we feel, to the content of policies and the empirical outcomes of specific policies	Anthony Patt	ETH Zürich	Switzerland
11117	35	43	53	45	In recent years has been so much exciting scholarship on mitigation instruments, in which two things are really new since AR5: (1) a great deal of new theory, supported by case study and empirical research, on the processes and dynamics of technological innovation, change, and transitions, applied to the issue of decarbonization, and (2) the potential to study climate policy effectiveness empirically, as many national climate policies have now been in place long enough to measure their outcomes. Chapter 1 aludes to these, yet I didn't really pick up on any of this in this section.	The focus of 13.6 is ex post literature on mitigation policies including how well specific policies have performed. Technological innovation is briefly addressed but left mainly to Chapter 16. Since Sec 7 and 9 complement Sec 6, some of the literature on transition dynamics is captured in those sections	Anthony Patt	ETH Zürich	Switzerland
22367	35	43	35	43	This section 13.6 does not mention (sufficiently) instruments or tools such as awareness and conselling campaigns, strategic planning or nudges	True. These are variations of information programs and the section notes there has been a shift away from such programs to more mandatory policies. We think it is sufficient as is. Given word limits we opted to focus on advances in policies that have been widely studied and on which there is considerable literature and, according to many economists have greatest effect. THere are lots of developments since AR5	Government of France	Ministère de la Transition écologique et solidaire	France
60291	35	43	53	45	Section 13.6 "Policy instruments and evaluation": We would like to draw Ch13 authors' attention on a recently published article (Fekete et al., 2021), which conducted a comprehensive review of sector-level policies in key major emitting economies, identified successful policies and quantified their impact over a period up to 10 years. The article went beyond policy prevalence (as done by Nascimento et al. Figure 13.3) and compared the effectiveness of sector-level policies; while it did not address stringency in a narrow sense, the article also covers a good amount of regulatory policies and their delivered impact. Fekete, H., Kuramochi, T., Roelfsema, M., den Elzen, M., Forsell, N., Hoehne, N., et al. (2021). A review of successful climate change mitigation policies in major emitting economies and the potential of global replication. Renew. Sustain. Energy Rev. 137, 110602. doi:10.1016/j.rser.2020.110602.	Thanks for the reference. Incorporated in 13.6.1.2	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
60289	35	43	53	46	LTN: this section could more explicitly include the concept of policy mixes. The discussion of policies mixes only appear in the context of mainstreaming climate policy - and integration with other objectives. However, the discussion of the interection among climate-relevant policy instruments is paramount, considering the increase in the number of policies and the prevalence of multiple and diverse policy instruments. The inclusion of such concept would allow for the discussion of coherence and stability of climate policies over time. Some example literature that illustrate such dynamics: Pahle, M. et al. (2018) 'Sequencing to ratchet up climate policy stringency', Nature Climate Change. Springer US, 8(10), pp. 861–867. doi: 10.1038/s41558-018-0287-6.	Changes made throughout consistent with this suggestion. And reference added in 13.6.1.2. A new section focused explicitly on policy mixes added as 13.7	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany
60349	35	43	53	56	The chapter 13.6 "Policy instruments and evaluation" could include more (country-specific) comparisons of stringency of policies and more insights on which policy strategies have led to the most results.	We seek to cite literature with such comparisons. Welcome suggestions of further citations	Niklas Höhne	NewClimate Institute	Germany
60351	35	43	53	56	The chapter 13.6 "Policy instruments and evaluation" could include more on which policy instruments are most suitable to reach zero greenhouse gas emissions. With the Paris Agreement the goal of reaching zero emissions can be interpreted as the new paradigm. The primary objective is now how to reach zero emissions. It is less a priority how to balance the reductions across sectors. "Thinking zero" requires completely different strategies. Which policy instruments can be most suitable for this challenge?	The focus here is ex post literature on policy performance. There is discussion of net zero in Sec 9. However, there is a very limited literature on whether there are specific policies required for net zero (other than policies for CDR which is covered in another chapter).	Niklas Höhne	NewClimate Institute	Germany
47379	35	43	53	45	Section 13.6 "Policy instruments and evaluation": We would like to draw Ch13 authors' attention on a recently published article (Fekete et al., 2021), which conducted a comprehensive review of sector-level policies in key major emitting economies, identified successful policies and quantified their impact over a period up to 10 years. The article went beyond policy prevalence (as done by Nascimento et al. Figure 13.3) and compared the effectiveness of sector-level policies; while it did not address stringency in a narrow sense, the article also covers a good amount of regulatory policies and their delivered impact. Fekete, H., Kuramochi, T., Roelfsema, M., den Elzen, M., Forsell, N., Hoehne, N., et al. (2021). A review of successful climate change mitigation policies in major emitting economies and the potential of global replication. Renew. Sustain. Energy Rev. 137, 110602. doi:10.1016/j.rser.2020.110602.	Thanks. The paper has been cited.	Takeshi Kuramochi	NewClimate Institute	Germany
67553	35	44	35	47	Already in the introduction to ch 13.6, the interactions across instruments and packages deserve larger attention.	A sentence that directs the reader to section 13.7 on this topic has been added.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
67555	36	2	36	16	A key public mitigation policy is infrastructure investments. It should be specified how it fits into your classification/taxonomy Table 13.1 and you should present and evaluate it in later sections, as for the other main instruments.	Included.	Taran Fæhn	Statistics Norway, Research Dep.	Norway

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
8427	36	2	38	22	Under 13.6.1 Taxonomy and overview of mitigation policies, there are two subheadings, which have no problem at all. Meanwhile, I suggest the third taxonomy of mitigation policies that focus on policy goals (targets). In order to reduce GHGs, policies aim at different "policy goals" such as "decarbonization of energy", "improvement of energy efficiency" "decreasing demand for energy services" and "reducing methane emissions". You can cite following articles: Kameyama, Yasuko and Akinori Kawamoto (2016) Four intermediate goals: a methodology for evaluation of climate mitigation policy packages, Climate Policy, 18(2), 210-220,doi: 10.1080/14693062.2016.1258632 Höhne, Niklas, Felete Hanna, den Elzen, Michel G.J., Hof, Andreis F., Kuramochi T. (2018) Assessing the ambition of post-2020 climate targets: a comprehensive framework, Climate Policy 18(4)425-441, doi: 10.1080/14693062.2017.1294046 Höhne, Niklas, Nadine Braun, Hanna Fekete, Ruut Brandsma, Julia Larkin, Michel den Elzen, Mark Roelfsema, Andries Hof, Hannes Böttcher (2012) Greenhouse gas emission reduction proposals and national cimate policies of major economies, ECOFYS policy brief, November. http://www. ecofys. com/files/files/ecofys_pbl_iiasa_2012_analysis_of_domestic_climate_change_policies_new. Pdf	These references are now included in subsequent sections	Yasuko Kameyama	National Institute for Environmental Studies	Japan
11079	36	5	36	6	I think there has been a definition within the IPCC since AR4 or AR5. It might be useful to reference that, especially since it matches what you use here, namely the broadest definition.	There is no singular definition of mitigation policy in the Glossary. Policy is referred to several times as part of other definitions	Anthony Patt	ETH Zürich	Switzerland
28987	36	5	36	20	this table can be broken down into much more useful categories. For example, “economic” is better split into three categories: market-based instruments (e.g. carbon pricing), fiscal instruments (e.g. taxes and tax credits), and financial (e.g. loan guarantees). See Bhandary et al 2021 Climate finance policy in practice: a review of the evidence, Climate Policy. I am missing innovation policy, subsidies, education policy, workforce/labor policy, industrial policy, disclosure policy, data-collection and transparency policies. . . many of which are covered in the text below, but why not the table? Most casual readers will only look at the table.	More examples included while also explaining that the table content is "examples" not a comprehensive list	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
60273	36	5	36	5	LTN: On the footnote, the Climate Policy Database is not by the NDC parnership but by NewClimate Institute and others.	Footnote has been deleted.	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany
11081	36	8	36	13	There is a confusion coming out of this classification scheme, namely between what you describe as "economic instruments" and what people typically describe as "market-based instruments," the latter being those that create a cost penalty on emissions but not including policies that create a direct support for particular technologies. The confusion already becomes evident in Figure 13.3, which uses "market-based instruments" and then "fiscal or financial incentives" to denote the direct support. Note also that in Chapter 1, they use the term "economic instruments" to mean casrbon pricing instruments but not technology support instruments such as subsidies. Also in Chapter 1, they describe a set of policies associated with a transitions dynamics approach to policy, which I think is quite helpful. I actually find that helpful, and embeds subsidies in a different policy discourse from carbon prices. You might want to go the same route.	Market-based instruments is no longer used, only economic instruments. We stay with our three simple categories, as this is the organization we chose for the entire section after months of considering alternatives, and cross chapter consultation.	Anthony Patt	ETH Zürich	Switzerland
31151	36	8	36	11	The text states that instrument categories are often grouped into the three categories given "although the specific terms differ across disciplines". But all of the citations are to economists; I would suggest citing more public policy focused discussions, e.g., typologies are discussed at length in Wurzel, R. K. W., Zito, A. R., & Jordan, A. J. (2013). Environmental Governance in Europe: A Comparative Analysis of New Environmental Policy Instruments. Edward Elgar.	Reject. Much of this chapter (including this section) use public policy literature. Reference cited. Thanks.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
77815	36	15	36	16	Add under economic instruments: green banks, loan-guarantee programs, climate mitigation grants	Included	Alex Rau	Climate Wedge LLC	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
72365	36	15	36	15	In Table 13.1 Classification of Mitigation Policies under Regulatory instruments you have twice energy efficiency standards, it is suggested tochange "energy efficiency standards", with "energy efficiency obligations"	Corrected	bertoldi paolo	european commission	Italy
7545	36	15	36	16	"Energy efficiency standards" is repeated twice in Table 13.1	Corrected	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
84819	36	15	36	17	Suggest table 13.1 and surrounding context identify regulatory instruments which create offences also (such as laws that restrict clearing of native vegetation / biodiversity). And also emphasise the pathway that environmental impact assessment laws and processes play in assisting to provide a mechanism for 'up front' consideration of climate chnage impacts and scenario modelling	Have now included "land-use controls"	Emily Gerrard	Comhar Group Pty Limited (law firm)	Australia
11889	36	15	36	16	In Table 13.1, rhe classification into three types of instruments is acceptable, but the examples provided are not clear. Voluntary agreements can be economic instruments such as the voluntary markets for carbon sequestration offsets. Public procurement is often incentive based where a winning bid is offered a profitable project. I miss a clear definition of the different categories, which would be helpful for readers without sufficient backgrounds in economics.	Have added more to table	The Royal Swedish Academy of Agriculture and Forestry (Group Review)	Kung. Skogs-och Lantbruksakademien	Sweden
50409	36	15	36	15	In Table 13.1 Classification of Mitigation Policies, please note that the phrase " energy efficiency standards" has written 2 times at the third row of the table. One of them should be ommitted and replace by " energy sufficiency standards" .	Corrected	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
29815	36	15	36	16	In table 13.1. Classification of Mitigation Policies, category Regulatory instruments, the measure "Energy efficicency standards" is listed twice.	Corrected	Government of Norway	Norwegian Environment Agency	Norway
52605	36	15	36	16	Provide explanation of both 'carbon tax' and 'fossil fuel taxes' in the text.	Policies are not defined in this short introduction. Carbon taxes are defined in section 13.6.3	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58225	36	15	36	16	Where would tax instruments and subsidies fall in this table?	More detail now provided in the table	Government of United States of America	U.S. Department of State	United States of America
43503	36	15	36	15	In Table 13.1 Classification of Mitigation Policies, please note that the phrase " energy efficiency standards" has written 2 times at the third row of the table. One of them should be ommitted and replace by " energy sufficiency standards" .	Table corrected	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
58227	36	18	37	10	An increasing share of G20 emissions by what measure? Emissions covered? Sectors covered? Countries? Absolute number of policies? It would also be helpful to note here what portion of global emissions the G20 covers.	A new, more clear figure, with accompanying text has been added. This makes it clear that prevalence has grown in terms of the share of countries that have adopted different policies.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
10127	36	19	36	20	An important point - also covered in Fig 13.3. I would unpack this more.	Done. We have sought to unpack this but also face limitations on data	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
11083	36	19	37	7	I wonder if the attempt to define a metric for policy stringency might add more confusion than it resolves. For many climate policies it's hard to really speak of stringency: is an infrastrcutre program stringent? Second, I wonder hopw one compares the stringency of policies that put a price on emissions with those that simply forbid emissions or technologies in a particular use application: would these correspond to an infinite carbon price? I haven't seen literarture that resolves this challenge. Finally, toconflicts with the set of criteria that you d me it seems that the stringency issues conflicts with the criteria you develop in table 13.2. One could have a policy that is quite effective environmentally despite not being stringent, such as the US policy to allow natural gas fracking (and hence is not stringent at all) led to the result of gas displacing a lot of coal.	As Box 13.7 makes clear, stringency is a complex concept. However, it is useful to compare the effectiveness of certain policies, particularly economic policies, and hence it is retained, while the compelxities are acknowledged.	Anthony Patt	ETH Zürich	Switzerland
60283	36	21	36	24	LTN: emissions coverage is important. However, the analysis of policy coverage leads to insights beyond emissions covered. First, lack of action in specific sectoral mitigation areas can hinder the transformation necessary to accelerate mitigation efforts. Policies that support grid expansion do not increase emissions coverage, but are essencial. Support for renewable uptake in buildings is lacking, industry process emissions also absent, among others. Policy coverage must be expanded to include all relevant mitigation areas. Second, the analysis of coverage shows that several inconsistencies remain. Some of the implemented policy instruments can lead to carbon lock in. Subsidies for fossil fuels are still widespread. The removal of inconsistencies is fundamental to improve effectiveness of policies in place. Third, the time evolution clearly shows an increase in the number of policies as well as the coverage of distinct policy instruments. It however does not show the complementarity of these instruments and whether they are additional to each other. The discussion on policy mixes comes far too late in the chapter, so the inclusion of some elements upfront may put the analysis of coverage in context. Several of these elements are covered throughout the report but not explicitly linked with the discussion on coverage. Their inclusion would enhance the analysis presented in this section.	Sec 6 has to be read in conjunction with Sec 7, 8, and 9, where many of these overlap and interaction issues are discussed	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany
79737	36	22	36	24	It is important to take into account the specificities of developing countries from the outset. I suggest: Ch. de Gouvello, D. Finon, P. Guigon, Reconciling Carbon Pricing and Energy Policies in Developing Countries - Integrating Policies for a Clean Energy Transition. World Bank, Washington, DC., 2019, 199 pages. This book presents an analysis of the conflicts between climate policy based on carbon pricing instruments and the objectives and instruments of climate policy in different types of developing countries. In these economies, pricing instruments (taxes, permit system) are often criticized because they conflict with the objectives of industrial development, poverty reduction, access to energy or energy security. This book shows that carbon pricing and climate policy measures must seek synergies and minimize tensions between the climate objective and energy policy objectives. For this it sets out some principles to limit these conflicts and focuses on how the goal of reducing emissions can be pursued in a manner consistent with the energy policy priorities of countries at different levels of development.	Good point. . Report cited.	Angel DE LA VEGA NAVARRO	UNAM - National Autonomous University of Mexico	Mexico

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
7547	36	22	36	23	"Mandatory" is a non-standard term in the Environmental Economics literature. It is also not in Table 13.1. Better to stick to your own terminology as "Economic + Regulatory instruments"	The phrase is no longer used	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
22369	36		36		Table 13.1 : 2nd row, 2nd column, "Energy efficiency standards" is repeated twice in the same cell of the table.	Corrected	Government of France	Ministère de la Transition écologique et solidaire	France
46995	37	1	37	5	In Figure 13.3, it would be useful to define the instruments in the different categories of policies, as they appear to differ from those in Table 13.1.	Due to limitations of data, and the emphasison published literature, we have no choice but to use analysis that draws on somewhat different categories	Florence Jaumotte	International Monetary Fund	United States of America
67523	37	1	37	1	Figure 13.3 appears more confusing than informative for several reasons: (a) the categories of instruments deviate from you chosen (and more logical) classificationtaxonomy in Table 13.1; (b) The "prevalence" has very little to do with stringency, so more coverage will not indicate anything about the direction of development. Increased area with coloura, or more colours over the years, cannot indicate anyything about stringency, either. Fewer colours can be better than many, as the latter can indicate overlapping, ineffective, costly policies. Please consider deleting Figure 13.3. The text stand well on its own, and box 13.7 acknowledges well my concerns about the Figure.	Due to limitations of data, and the emphasison published literature, we have no choice but to use analysis that draws on somewhat different categories. The figure indeed says nothing on stringency, but it is part of the answer to understand coverage across countries. More systematic work in this area is clearly required.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
58229	37	8	37	9	Syntax is confusing: "The extent of climate legislation has increased steadily since 2012, but at a decreasing rate."	Sentence has been deleted.	Government of United States of America	U.S. Department of State	United States of America
60285	37	13	37	14	LTN: The statement on the level of fossil fuel subsidies is very mild. Fossil fuels are still subsidized in many major emitting economies: https://www.iea.org/topics/energy-subsidies "even in the group of 44 OECD and G20 countries, where fossil fuel support is still declining, the reduction has slowed down. Support in these countries was down 9% in 2017, a slower decline than the 12% recorded in 2016 and 19% in 2015." https://www.oecd.org/newsroom/fossil-fuel-support-is-rising-again-in-a-threat-to-climate-change-efforts.htm	13.6.3.6 discussed fossil fuel subsidies in more detail	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
80713	37	14	37	15	There have been policy developments following the EU's Adoption of the Green New Deal. The Common Agriculture Program (CAP) is undergoing reform that shows potential and may serve as an example for agricultural policies targeting CH4 and N2O emissions. The CAP provides direct payments to farmers that comply with the statutory management requirements (e,g, Nitrates Directive) and land maintenance requirements. Reforms will include a new feature called Eco-Schemes that will require countries to allot a certain portion of their CAP budgets towards farmers that implement environmental and climate measures. If measures to be adopted are ambitiously designed and aligned with the modern EU policies, the CAP Program can contribute reduction up to 101 million tonnes of CO2e—about 23.8% of the EU's agriculture and agricultural land use emissions. The Eco-Schemes program, alone, can moblize 72 million tonnes of CO2e (Scheffler & Wiegman, 2020). Policies like these are crucial in supporting the adoption of fast-acting, cost-effective measures as countries transition towards sustainable agricultural methods, especially as concerns over loss in productivity and competitiveness (Blandforth & Hassapoyannes, 2018). For instance, two manure additives by SOP—SOP LAGOON and Star COW—have shown potential to reduce CH4 and N2O emissions (Peterson et. al., 2019; Ross, 2020). Nitrogen inhibitors have the potential to reduce agricultural N2O emissions by 12 MtCO2e (GWP100) (U.S. E.P.A. (2019)). CITATIONS: Scheffler, M and Wiegmann, K. (2020). Summary of Short Study: Improving the contribution to the Common Agricultural Policy to climate change mitigation, Germanwatch, 6 ("If all measures are ambitiously designed and aligned with the objectives of the Farm to Fork strategy, reduction effects in the range of up to 101 million tonnes CO2eq. can be mobilised, which corresponds to a saving of about 23.8% of total emissions from agriculture and agricultural land use (see table 3). A substantial part of this could be mobilised through the Eco-Schemes (72 million tonnes CO2eq.)."). Blandforth, D. and Hassapoyannes, K. The role of agriculture in global GHG mitigation, OECD Food, Agriculture, and Fisheries Papers No. 112 at 36	Rejected. For space reasons we cannot go into this level of detail for this section.	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
80857	37	14	37	15	There have been policy developments following the EU's Adoption of the Green New Deal. The Common Agriculture Program (CAP) is undergoing reform that shows potential and may serve as an example for agricultural policies targeting CH4 and N2O emissions. The CAP provides direct payments to farmers that comply with the statutory management requirements (e,g, Nitrates Directive) and land maintenance requirements. Reforms will include a new feature called Eco-Schemes that will require countries to allot a certain portion of their CAP budgets towards farmers that implement environmental and climate measures. If measures to be adopted are ambitiously designed and aligned with the modern EU policies, the CAP Program can contribute reduction up to 101 million tonnes of CO2e—about 23.8% of the EU's agriculture and agricultural land use emissions. The Eco-Schemes program, alone, can moblize 72 million tonnes of CO2e (Scheffler & Wiegman, 2020). Policies like these are crucial in supporting the adoption of fast-acting, cost-effective measures as countries transition towards sustainable agricultural methods, especially as concerns over loss in productivity and competitiveness (Blandforth & Hassapoyannes, 2018). For instance, two manure additives by SOP—SOP LAGOON and Star COW—have shown potential to reduce CH4 and N2O emissions (Peterson et. al., 2019; Ross, 2020). Nitrogen inhibitors have the potential to reduce agricultural N2O emissions by 12 MtCO2e (GWP100) (U.S. E.P.A. (2019)). CITATIONS: Scheffler, M and Wiegmann, K. (2020). Summary of Short Study: Improving the contribution to the Common Agricultural Policy to climate change mitigation, Germanwatch, 6 ("If all measures are ambitiously designed and aligned with the objectives of the Farm to Fork strategy, reduction effects in the range of up to 101 million tonnes CO2eq. can be mobilised, which corresponds to a saving of about 23.8% of total emissions from agriculture and agricultural land use (see table 3). A substantial part of this could be mobilised through the Eco-Schemes (72 million tonnes CO2eq.)."). Blandforth, D. and Hassapoyannes, K. The role of agriculture in global GHG mitigation, OECD Food, Agriculture, and Fisheries Papers No. 112 at 36	Rejected. For space reasons we cannot go into this level of detail for this section.	Gabrielle Dreyfus	Institute for Governance & Sustainable Development	United States of America
12061	37	17	137	18	This comment should reference 'other removal and use options', rather than 'other capture and use option'. This is an important issue - one refers to capturing at source. The other, CDR from the atmosphere. The Vonhedemann reference given here, for example, is a study not of CCS, but CDR. There is a considerable sequestration policy gap regarding removals as well as capture and the current phrasing misses this issue. Here is the Vomhedemann reference to help colleagues - Vonhedemann, N., Z. Wurtzebach, T. J. Timberlake, E. Sinkular, and C. A. Schultz, 2020: Forest policy and management approaches for carbon dioxide removal: Forest Policy and Management for CDR. Interface Focus, 10, https://doi.org/10.1098/rsfs.2020.0001. .	Agreed. Text changed to removals.	Paul Rouse	Carnegie Climate Governance Initiative (C2G) - The Carnegie Council for Ethics and International Affairs	United Kingdom (of Great Britain and Northern Ireland)
10129	37	19	37	19	Another really fundamental point post Paris. Unpack more? Box 13.7 should also examine the stringency of regualtory policies. See the work of Knill, Tosun et al.	Agreed. Reference to Tosun and Schempf added.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
58231	37	19			Box 13.7 does not support this sentence. Consider adding "… but it is very challenging to make direct comparison of the stringency across different policies."	Agreed. Reference to Tosun and Schempf added.	Government of United States of America	U.S. Department of State	United States of America
11891	37	21	37	30	Box 13.7. Usually, policy instruments are compared with respect to several criteria (e.g. cost effectiveness, fairness, etc.) but I have never seen 'stringency' as a criterion. Instead, 'stringency' is often referred to environmental targets, such as % reductions in GHG emissions.	The section does indeed include several criteria and seeks to apply them. The concept of stringency is useful as a way of understanding economic instruments in particular, and is retained for this reason	The Royal Swedish Academy of Agriculture and Forestry (Group Review)	Kung. Skogs-och Lantbruksakademien	Sweden

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
46997	37	21	37	30	In Box 3.17, it would be helpful for provide references on the methodology to compare the stringency of mitigation policies for interested readers.	Noted. Space limits make it hard to act on this suggestion	Florence Jaumotte	International Monetary Fund	United States of America
60353	37	21	37	30	There are many other ways to compare stringency other than through an (implicit) carbon price. - Comparison of the implied efficiencies per sector, see 'impact indicators' in https://climatepolicydatabase.org/ or Fekete, H. et al. (2021) 'A review of successful climate change mitigation policies in major emitting economies and the potential of global replication', Renewable and Sustainable Energy Reviews, 137, p. 110602. doi: 10.1016/j.rser.2020.110602. - Multicriteria analysis on the stringency of a policy package as applied in https://www.allianz.com/en/sustainability/articles/allianz-climate-energy-monitor.html or in https://newclimate.org/2018/11/30/policy-tool-ev/ or https://newclimate.org/2018/11/30/policy-tool-re/ - Expert surveys on policy stringency as in the Climate Change Performance Index, https://ccpi.org	Reference to Fetke et al included.	Niklas Höhne	NewClimate Institute	Germany
7549	37	27	36	30	This issue of the "implicit prices" of overlapping policies is conceptually flawed. Some of those "overlapping" policies have not been implemented (or not only, or not fundamentally) to reduce GHG emissions, but for other purposes although, of course they have an effect on CO2 emissions (which doesn't?). Any policy (labour, education, industrial...) would have a "CO2" impact and the combined "implicit" price of all policies would be very difficult to calculate. It would also be useless.	Agreed. Have added Those effects may be complex and difficult to identify.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
60287	37	29	37	30	LTN: If estimates are subject to numerous limitations, why is it the only method used in this section? Other methods to compare policy stringency across countries exist. Some examples: Expert surveys: Burck, J. et al. (2019) Climate Change Performance Index. Results 2020. Available at: https://newclimate.org/wp-content/uploads/2019/12/CCPI-2020-Results_Web_Version.pdf. Comparison of key policy instruments: Compston, H. and Bailey, I. (2016) Climate policy strength compared: China, the US, the EU, India, Russia, and Japan, Climate Policy. Taylor & Francis. doi: 10.1080/14693062.2014.991908. Ex-ante policy scenarios: den Elzen, M. et al. (2019) 'Are the G20 economies making enough progress to meet their NDC targets?', Energy Policy. Elsevier Ltd, 126(October 2018), pp. 238–250. doi: 10.1016/j.enpol.2018.11.027. Kuramochi, T. et al. (2020) 'Global emissions trends and G20 status and outlook - Emissions Gap Report Chapter 2', in Emissions Gap Report. UNEP, pp. 3–22. Available at: https://wedocs.unep.org/20.500.11822/34428.	Citations for Burck et al and Compston and Bailey added.	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany
77817	38	1	38	7	Harmonizing policy stringency is also critical to "linking" GHG markets and regulations, such as ensuring Switzerland's ETS was compatible with the EU's ETS before linking and making emissions permits fungible between the markets.	The point is correct but is too detailed for this section.	Alex Rau	Climate Wedge LLC	United States of America
22371	38	5	38	7	This is accurate. Also mention that carbon prices sometimes come with exemptions, free allowances schemes or refunds. However, effective carbon pricing sums explicit carbon pricing and other pricing/taxation of fossil fuel. There is some advantage to pay attention to explicit carbon pricing (ETS, carbon tax), which provides a clear policy signal (unlike total effective prices). State and trends of carbon pricing, World Bank, 2020 + ICAP	Agreed. Text has been revised.	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58233	38	8	38	22	Note that a full paragraph and an entire figure are based upon a paper that is currently in review. Please revisit to confirm that the findings still hold if/when the paper is published.	Figure deleted, but citation retained.	Government of United States of America	U.S. Department of State	United States of America
27883	38		38		Delete Figure 13.4, or explain how the presented fossil fuel subsidies were calculated along with the weaknesses of the methodology used, and the need to only consider inefficient fossil fule subsidies that supoort wasteful consumption. Moreover, "Renewable support" is in principle a subsidy and therefore should be presented as such.	Figure deleted, but citation retained.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
52689	38		38		table mentions reason for countries having negative carbon cost is because of fossil fuel subsidies, and the reason behind countries holding a positive carbon cost is because of fossil fuel taxes. Yet, the table does not give enough information or reasoning behind the findings.	Figure deleted, but citation retained.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
9719	38				Figure 13.4 is confusing and may be to some extent misleading as it only reflects financial payment to fuels and not as labeled "cost of carbon". Cost of non-price carbon measures such as emissions standards is not reflected. Summing over countries should use "weighted" not simple average.	Figure deleted, but citation retained.	Mustafa Babiker	Saudi Aramco	Saudi Arabia
87073	38	5	38	7	This is accurate. Also mention that carbon prices sometimes come with exemptions, free allowances schemes or refunds. However, effective carbon pricing sums explicit carbon pricing and other pricing/taxation of fossil fuel. There is some advantage to pay attention to explicit carbon pricing (ETS, carbon tax), which provides a clear policy signal (unlike total effective prices). State and trends of carbon pricing, World Bank, 2020 + ICAP	Same as comment 22371. Text has been revised.	Philippe Wen	Ministère de l'Éc	France
10131	39	1	39	1	Is there any way of tying this better to the previous section on 'performance'?	Noted. The preceding section is about taxonomy (not performance). We feel that the link between the sections is adequate.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
10133	39	1	39	1	Another important section. I think it deserves more unpacking and more detailed referencing e.g. Schoenefeld, J., M. Hildén and A.J. Jordan (2018) The Challenges of monitoring national climate policy: learning lessons from the EU. Climate Policy, 18, 1, 118-128. DOI: 10.1080/14693062.2016.1248887; Schoenefeld, J., K. Schulze, M. Hildén and A. Jordan (2019) Policy Monitoring in the EU: the Impact of Institutions, Implementation, and Quality. Politische Vierteljahresschrift (PVS - German Political Science Quarterly), 60, 4 (December), 719-741. DOI: 10.1007/s11615-019-00209-2; Hilden, M., A.J. Jordan and T. Rayner (2014) Climate Policy Innovation: Developing An Evaluation Perspective. Environmental Politics 23, 5, 884-905.* DOI: 10.1080/09644016.2014.924205	Noted. The citations in this section relate only to literature on generic issues on policy evaluation criteria, rather than specific examples.	Andy 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
84877	39	7	39	7	While there is limited literature on subnational emissions target, there is some both grey and peer-reviewed that could be mentioned here. I think Kevin Andersen ahs published some studies of cities fair shares in sweden and perhaps the UK. There is also grey literature from: Deadline 2020 for C40 (https://www.c40.org/other/deadline_2020), Tyndall - Manchester Carbon Budget. Additionally, Meinshausen et al. (including me)), published in a grey literature report a subnational framework directly derived from one of our publication referred to in this SOD (www.nature.com/nclimate/journal/v7/n1/full/nclimate3186.html) to assess Australia's subnational equity targets: https://www.climatechange.vic.gov.au/__data/assets/pdf_file/0016/421702/Greenhouse-Gas-Emissions-Budgets-for-Victoria.pdf . I understand that this literature may fall outside the IPCC scope. In any case the AR6 can mention that equity metrics can apply to subnational constituants, as opposed to companies, but that literature is limited at the moment. Of cousrse equity should then not only understood as linking ambition across sovereign entitities but also in relation to their national governments that may share responsibility and capability to act over some emissions jointly.	Noted. We do not see the relevance of literature on sub-national emissions targets in the section on evaluation criteria. Some of these themes are covered in Sec 13.5 on sub-national action	Yann Robiou du Pont	Climate Analytics	France
7551	39	12	39	17	Maybe it should be added somewhere that it has been empirically shown that a given instrument is unlikely to have a high score in all the assessment criteria simultaneously and that conflicts and trade-offs between assessment criteria are likely (see, e.g. Del Río, P., Ragwitz, M., Steinhilber, S., Resch, G., Busch, S., Klessmann, C., De Lovinfosse, I., Van Nysten, J., Fouquet, D., Johnston, A., 2012b.Assessment criteria for identifying the main alternatives.D2.2 report under the beyond 2020 project, funded by the Intelligent Energy—Europe program http://www.res-policy-beyond2020.eu/.)	Accepted/noted. The notion that a given policy instrument may not score high in all assessment criteria is now included in the text just before Table 13.2. The suggested reference is not suitable (grey literature) and we do not consider a reference necessary for this point.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
11893	39	18	40	1	The table 13.2 lists some criteria for comparing and evaluating different policy instruments. I miss one of the most discussed criterion, incentives for innovation and technological development, which is essential for rapid transition. There is no consideration of performance under uncertainty in the environmental effects, which differ between the policy instruments. This criterion is important when society is concerned about reaching emission reductions with some safety margin.	Noted. "Incentives for innovation…" is not a criterion but a specific type of mechanism, discussed later in the section. The degree of certainty of achieving environmental outcomes is part of the overall assessment of environmental effectiveness.	The Royal Swedish Academy of Agriculture and Forestry (Group Review)	Kung. Skogs-och Lantbruksakademien	Sweden
63283	39	18	39	18	Would recommend adding to "co-benefits section" - "adverse social outcomes, such as harming vulnerable populations, BIPOC members or negative workforce impacts".	Noted. The text is very concise in this Table and does not include enumeration of other specific examples of adverse outcomes, so we will not highlight social ones by themselves.	Government of Canada	Environment and Climate Change Canada	Canada
84589	39	18	39	18	Please insert the following reference in the table under "Co-benefits": "Karlsson, M., Alfredsson E. & Westling N. (2020) Climate policy co-benefits: a review, Climate Policy 20, 292-316. DOI: 10.1080/14693062.2020.1724070".	Accepted. Text extended "and between countries".	Mikael Karlsson	KTH Royal Institute of Technology	Sweden
67525	39	18	40	1	Table 13.2 gives a nice classification. Could be alligned even better with classification of criteria in Ch 14.3.3. by using common concepts and order.	Noted. The criteria from 13.6.2 are taken up in 14.3.3. Remaining differences in nomenclature and order do not detract.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
27885	39		39		Table 13.2 on "Distributional effects" these can be within and between countries as well.	Accepted. Text extended to cover distributional effects between countries.	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
22373	39		39		Table 13.2 The comprehensiveness of the included criteria: Should the adaptability of policy instruments be included in the table as a separate criterion ? It is important for a dynamic problem such as greenhouse gas emissions. It may not be enough to include "revision and updating of policy" under Institutional requirements?	Accepted. It would be impractical to separately identify a new separate criterion at this stage due to flow-on effects throughout the report, as these criteria were arrived at through a cross-chapter process. However we have included the notion of revision and updating of policies in the description of institutional requirements.	Government of France	Ministère de la Transition écologique et solidaire	France
22375	39		39		Table 13-2, In the row "distributional effects" 2nd column Suggestion to add well-known references on distributional effects in addition to Zachmann et al. 2018: "(Williams et al. 2015, Zachmann, 2018, Cronin et al. 2019)" and add the following articles to the reference list: Williams, R. et al., 2015, The initial incidence of a carbon tax across income groups, National Tax Journal, 68(1),195-214. Cronin, J. et al. 2019, Vertical and horizontal redistributions from a carbon tax and rebate. Journal of the Association of Environmental and Resource Economists, 6,169-208.	Noted. The literature cited in 13.6.2 is about general points and methods rather than examples of specific instances so these specific suggested references are not included.	Government of France	Ministère de la Transition écologique et solidaire	France
22377	39		39		Table 13.2, for the row "institutional requirements", 2nd column Add information requirements here: "These include informational requirements, effective monitoring of activities or emissions, and enforcement, and..."	Noted. The comment is correct however space is limited precluding elaboration on all aspects. We consider informational requirements to be implicit in "monitoring".	Government of France	Ministère de la Transition écologique et solidaire	France
22379	39		39		Table 13.2 for the row "transformative potential" 2nd column What is a "step change"? Suggestion to write "facilitate widespread adoption of less emissions-intensive technologies, practices or products" or do you mean "facilitate adoption of technologies, practices or products with a large potential for emissions reductions"?	Accepted. Revised text "or facilitate technologies, practices or products with far lower emissions."	Government of France	Ministère de la Transition écologique et solidaire	France
52691	39		40		use of transformation goes beyond national circumstance.	Noted. Text does not constrain transformation to the national scale.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
67527	40	1	40	1	Table 13.2 last criterion "Transformative potential" is unclear and unnecessarily abstract. It should be specified exactly what you have in mind, e.g., with keywords like innovation, infrastructure, investments, divestment, habits and inertia, commitment, insurance, robustness (trading off flexibility against timely longterm investments to avoid pathdependency).	Noted. The comment is useful, however the necessary brevity of descriptions in this section does not allow for fuller elaboration of the concept.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
10135	40	2	52	38	This is a BIG improvement on the rather 'theoretical' / textbook approach to instruments adopted in AR5. Where possible, I suggest that authors look for even more opportunities to study their use in real world policy setting, focusing in particular on their performance (variously defined). At present performance is only studied in relation to some but not all the policy instruments (e.g. 13.6.4.3)	Thank you. We have done our best given literature limits	Andy 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
43339	40	2	46	10	Need to include the emergence of sustainable finance, and non financial reporting obligations as well as the green taxonomies which are being introduced in the European Union. https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting_en	Noted. We briefly touch on reporting obligations, but leave financial issus fo rthe most part to Ch 15	Ermenegilda Boccabella	Caelex	Belgium
58235	40	2	48	34	Regulatory instruments can be a complement to price-based emissions pricing (i.e., carbon taxes) but act more as a substitute to quantity-based emission pricing (i.e., cap-and-trade). Regulatory instruments applied to sectors already covered by a cap can simply have the effect of lowering the allowance price without impacting emissions if the cap remains binding. On the other hand regulatory instruments applied to sectors already covered by a carbon tax can provide additional abatement since they do not impact the level of the carbon tax. References: Fawcett, A., L. Clarke, S. Rausch, and J. Weyant, 2014, Overview off the EMF 24 Policy Scenarios. The Energy Journal 35 (special issue 1) Borenstein, S. et al. (2019) “Expecting the unexpected: emissions uncertainty and environmental market design: American Economic Review 109(11): 3953-77	We discuss these interactive effects in Sec 7, Box	Government of United States of America	U.S. Department of State	United States of America
67529	40	2	53	45	13.6.3.1. to 13.6.3.3 are beautifully structured by (i) description, (ii) evaluation along the criteria in Table 13.2. But then, the structure disappears. I acknowledge that less literature and clear findings exist about other instruments than emission pricing, however, that is no reason for deviating the structure.	Noted. As the reviewer anticipates, the structure breaks down a bit because of lack of material. We are not sure if we have a solution; maintainng the sturcture in the absence of material seemed a bad choice	Taran Fæhn	Statistics Norway, Research Dep.	Norway
46999	40	3	40	3	The sentence "Economic instruments, sometimes also referred to as market-based instruments, raise the prices of GHG emissions intensive goods and services" should say relative price instead of price. For example, subsidies to renewables will not directly raise the price of GHG-intensive goods, but rather raise their relative price.	Noted. The language has been modified	Florence Jaumotte	International Monetary Fund	United States of America
22381	40	3	40	4	Consider reformulating this sentence. Not all economic instruments raise the price of GHG-intensive goods: for instance, some economic instruments may instead lower the price of climate-friendly goods and services (e.g. some subsidies) or compensate parties that voluntarily refrain from taking GHG-intensive actions (e.g. some offset payments).	Noted.The language has been modified	Government of France	Ministère de la Transition écologique et solidaire	France
52607	40	4	40	4	to switch 'to'	Noted.The language has been modified	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58237	40	8	40	30	It's important to note that, while 20% of global CO2 emissions are covered by carbon prices, those prices are generally far too low. References: Jenkins, J. (2019) ""Why Carbon Pricing Falls Short and What to Do About It"" Kleiman Center for Energy Policy, U. Penn. World Bank (2019). ""State and Trends in Carbon Pricing"" Cullenward D, and Victor D. (2021) ""Making Climate Policy Work"".	This is now mentioned in section 13.6.3.3 the evaluation of carbon pricing policies	Government of United States of America	U.S. Department of State	United States of America
52693	40	9	15	40	paragraph specifies the Fosterview industry as sole responsible factor of greenhouse gases, the comparison to the coal industry is weak in this context. The Fossil fuel sector can with the right technologies be much cleaner , furthermore with the implementation of the circular carbon economy you close the loop and stop much of the carbon emitted.	Noted. The text deals with economic policy instruments. The options mentioned in the comment are possible responses to such policies.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
52655	40	9	40	15	Consideration should be given to the embedded carbon not just in end-user products, but in energy sources that may still by themselves a source of carbon. For example, a barrel of oil that is the result of an extremely energy efficient process, and offset by CCUS or other carbon-neutral accounting efforts, should have the same kind of tax incentive that a low carbon product has.	Noted. However, the text deals with economic policy instruments. The options mentioned in the comments are possible responses to such policies.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
2459	40	20	40	21	The claim that "carbon taxes tend to garner the least public support" is too strong. Carbon taxes are often met with resistance from the public and organized interests, but several studies shod that it is not necessarily the least popular. More specifically, hard regulation (e.g. bans) are frequently found to be even less popular. Attari et al. (2009) find this in a survey on instrument to decrease fossil fuel consupmtion, and Cherry et al. (2014) find it in lab experiment. References: Attari, Shazeen, Mary Schoen, Cliff Davidson, Michael DeKay, Wändi Bruine de Bruine, Robyn Dawes and Mitchell Small, 2009. Preferences for change: Do individuals prefer voluntary actions, soft regulations, or hard regulations to decrease fossil fuel consumption? Ecological Economics 68(6), 1701-1710. Cherry, Todd, Steffen Kallbekken and Stephan Kroll, The acceptability of efficiency-enhancing environmental taxes, subsidies and regulation: An experimental investigation. Environmental Science & Policy 16, 90-96.	Noted. However, we observe that the papers cited are all dated --2009 to 2014 -- and rely on experimental methods or limited choice surveys. Added "although some regulations also meet with opposition"	Steffen Kallbekken	CICERO	Norway
22383	40	23	40	24	(Gavard et al. 2018) is not yet peer-reviewed Missing references that can be added instead on the use of carbon tax revenue: Klenert, D. et al., 2018, Making carbon pricing work for citizens, Nature Climate Change 8, 669-677.	Citation added. Thanks.	Government of France	Ministère de la Transition écologique et solidaire	France
8585	40	23	40	24	Cite Klenert, D., Mattauch, L., Combet, E., Edenhofer, O., Hepburn, C., Rafaty, R., & Stern, N. (2018). Making carbon pricing work for citizens. Nature Climate Change, 8(8), 669-677.	Citation added. Thanks.	Jan Steckel	MCC	Germany
77825	40	25	40	30	Just as discussed on pg 41 for ETS that price floors/ceilings can make an ETS a "hybrid" instrument, a carbon tax program can be made a hybrid by allowing for the use of offsets to reduce the emitter's footprint for subsequent assessment of the tax liability. An example is South Africa's carbon tax, where companies are allowed to use offsets to reduce their footprint prior to the tax. Mexico and Columbia both have similar carbon tax programs, where offset credits from e.g. the Clean Development Mechanism can be used for compliance in lieu of paying the tax. Reference: World Bank annual carbon pricing report 2020.	The use of offsets for tax compliance is covered in the offset credits section.	Alex Rau	Climate Wedge LLC	United States of America
7553	40	25	40	26	It is difficut to adjust the instrument (taxes) to account for the addition of other policies. This is easier with quantity-based carbon policies (ETS) since, in this case, the CO2 targets are easier to adjust taking into account the CO2 impacts from the other policies (easier does no mean easy)	Agreed, but no change to the text. The text already says that tax rates may change due to changes in other policies and changes to policy ambition. The interaction is addressed in the policy interaction section.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
58239	40	25			It might be useful to insert a box here to provide country or regional examples of each policy instrument -- potentially replacing some of the other very short boxes in the section.	Noted. Unfortunatley word count precludes more additions	Government of United States of America	U.S. Department of State	United States of America
8587	40	25	40	30	The paragraph basically refers to the well established credibiltiy problem, which should at least be given some more credit here, including the relevant literature.	Added citations to Bosetti and Victor 2011 and Brunner et al. 2012.	Jan Steckel	MCC	Germany
70667	40				In order for 'Transformative potential' to become a criterion to assess policy instruments, it needs to be measurable. Definition and measurement of transformative potential is not well established yet.	Noted. We broadly agree. However, we wanted to insert criteria that are required, even if the methodology to assess them are under-developed, in order to send a signal for future research needs	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
77819	41	4	41	4	"actual emissions" should be replaced with "third-party verified emissions" or "audited emissions". Independent verification of emissions is at the heart of any ETS.	Point taken, actual changed to verified.	Alex Rau	Climate Wedge LLC	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
79741	41	6	41	13	California and Quebec (Canada) are part of the same cap-and-trade system; it deserves to be mentioned. It aims at reducing GHG emissions by 40% by 2030 (under their 1990 level). Their cap-and-trade has the largest coverage of all emission trading systems, with a price floor increasing every year. It's been working lkke that since 2013: with rapidly declining caps in the next 10 years, the real challenges are yet to come.	Noted. There is not enough space to list all of the jurisdictions with an ETS. The references list them all. Same treatment as for carbon taxes.	Angel DE LA VEGA NAVARRO	UNAM - National Autonomous University of Mexico	Mexico
31153	41	6	41	7	The section discusses ETSs in April 2020 and the EU ETS as covering 31 countries in the European Economic Area, but at this stage, although the UK was in the EU ETS (because of the Brexit transition period), it was no longer in the EEA, so the reference to the EEA should be removed.	Accepted. Reference to EEA deleted.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
27887	41	6	41	9	Analysis on the EU ETS to take into consideration recent developments related to Brexit.	Accepted. Footnote added.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
22385	41	7	41	7	The number of members is 30 from 1st January 2030 onwards (since Brexit)	Accepted. Footnote added.	Government of France	Ministère de la Transition écologique et solidaire	France
7555	41	9	41	9	The sentence "allowance prices range from just over USD1 to USD 32" in the EU ETS should be removed or further elaborated. Such as range is meaningless unless you tell, in a couple of lines how it evolved over time (ups and downs) since 2005 until now.	Rejected. The sentence is a snapshot and is similar to the statement for tax rates. The date for which the statement is valid -- April 1, 2021 -- has been added.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
22387	41	9	41	9	Update allowance prices (which have risen up to EUR 40 in February 2020) (see auction platform data EEX)	Rejected. The sentence provides a snapshot of prices from the two survey reports cited. Just like the sentence for carbon tax rates. The most current versions of the survey reports are cited.The date for which the statement is valid -- April 1, 2021 -- has been added.	Government of France	Ministère de la Transition écologique et solidaire	France
79743	41	10	41	13	China identified aomw years ago an emissions-trading market as one of its top priorities. It was stated that, when fully implemented, it could more than double the volume of worldwide carbon dioxide emissions covered by either tax or tradable permit policy (Pizer, William A., and Xiliang Zhang. 2018. "China's New National Carbon Market." AEA Papers and Proceedings, 108: 463-67). Three years later, although peer reviewed literature is not yet available, we have more elements to better understand the deficiencies and possibilities of this ETS. As different specialized media have shown (Argus, Euractiv, Phys.Org, …), scheme has encountered difficulties in establishing a comprehensive data collection system that would allow policymakers to set target levels and allocate carbon credits accordingly. China finally launched its ETS after the final version of regulations governing the scheme was issued. They took effect February 1, 2021. It allows provincial governments to set pollution caps for big power companies, and lets firms buy the right to pollute from others with a lower carbon footprint. The plan's scope has been pared back, with trading of carbon credits limited to the power generation sector rather than the eight industrial sectors included in the original outline. Aditionally, questions are raised about how much the trading scheme will actually lower China's carbon emissions.	Added a sentence to state that the national ETS came into effect in 2021.	Angel DE LA VEGA NAVARRO	UNAM - National Autonomous University of Mexico	Mexico
27889	41	10	41	13	Analysis on the pilot ETS in China to take into consideration recent developments.	Added a sentence to state that the national ETS came into effect in 2021.	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
15293	41	10	41	12	The information is inaccurate. The statement that there are 8 regional pilots ETSs in China is inconsistent with the actual situation. Therefore it is suggested to change "Eight regional pilots ETSs..." to “Seven regional pilots ETSs…”.	Sentence edited	Government of China	China Meteorological Administration	China
9195	41	10	41	11	It needs to be clarified that a total of 7 pilot carbon markets in China have been in operation since 2013.	Sentence edited	Yongxiang Zhang	National Climate Center	China
9197	41	12	41	13	For the assessment of the domestic pilot carbon market, more literatures can be added, such as:Ren et al. 2020. How do carbon prices react to regulatory announcements in China? A genetic algorithm with overlapping events. Journal of Cleaner Production, 277. 122644.	Noted. However, space is limited to get into the details of the scheme and do justice to the paper.	Yongxiang Zhang	National Climate Center	China
46279	41	17	41	18	The EU market stability reserve is volume-based (adjusting according to changes in the "market balance"), not price-based as the current wording suggests. Please revise.	Accepted. Text revised	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
77823	41	18	41	20	The Market Stability Reserve may have stabilized EUA prices during COVID, but since then it has injected volatility into the market by creating short-run scarcity for permits.	Rejected. No citation provided.	Alex Rau	Climate Wedge LLC	United States of America
77827	41	23	31	27	California's minimum price escalates each year at 5%+CPI, meaning that the floor price on carbon in the California ETS is adjusted for inflation	Rejected. The information is correct, but is too detailed for this assessment	Alex Rau	Climate Wedge LLC	United States of America
22389	41	26	41	27	Suggest addition to the sentence to make it clearer: "A price ceiling allows government to issue unlimited additional allowances at a pre-determined price, in order to limit the maximum cost of mitigation (Pizer, 2002)." and add reference to Pizer, W. 2002. Combining price and quantity controls to mitigate global climate change, Journal of Public Economics 85(3), 409-434.	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
77821	41	27	41	27	CORRECTION: Price ceiling has been activated in California's ETS, an explicit price ceiling has been adopted into law for the current market regulations, starting at $60/tCO2eq and rising by 5%+CPI.	No change needed. E-mail exchange with Rau (reviewer) revealed that he meant that the California ETS has a price ceiling. He agreed that no allowances had yet been sold at the ceiling price which is the meaning of the text..	Alex Rau	Climate Wedge LLC	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58241	41	28	44	2	This section would benefit from consideration of the Energy Modeling Forum 32 Study on U.S. Carbon Tax Scenarios. Fawcett et al. (2018) describes the various contributions in the study. McFarland et al. (2018) describes the scenarios analyzed in the EMF 32 study, and documents model-specific results for the core scenarios. Barron et al. (2018) summarizes the broader policy-relevant results from the study and discusses the strengths and limitations of this kind of modeling. Two papers detail the multi-model results for two important outcomes of a carbon tax in the United States: the distributional outcomes across income classes and regions (Caron et al. (2018)) and the impacts on sectoral output, energy production and consumption, and competitiveness (Macaluso et al. (2018)). References: Fawcett, AA, A Morris, J McFarland and JP Weyant (2018). Introduction to U.S. carbon tax strategies from EMF 32. Climate Change Economics, 9(1), 1840001. Caron, J, J Cole, R Goettle, C Onda, J McFarland and J Woollacott (2018). Distributional implications of a national CO2 tax in the U.S. across income classes and regions: A multimodel overview. Climate Change Economics, 9(1), 1840004. Barron, A, A Fawcett, M Hafstead, J McFarland and A Morris (2018). Policy insights from the EMF 32 study on U.S. carbon tax scenarios. Climate Change Economics, 9(1), 1840003. Macaluso, N, S Tuladhar, J Woollacott, J McFarland, J Creason and J Cole (2018). The impact of carbon taxation and revenue recycling on U.S. industries. Climate Change Economics, 9(1), 1840005. McFarland, J, A Fawcett, A Morris, J Reilly and P Wilcoxen (2018). Overview of economywide U.S. carbon tax strategies: Results from EMF 32. Climate Change Economics, 9(1), 1840002.	Rejected. This sub-section focuses on experiences and therefore preferred references refer to ex post quantitative assessments rather than ex ante projections. All of these papers present ex ante model projections.	Government of United States of America	U.S. Department of State	United States of America
70067	41	29	42	41	The following article would be helpful to thicken reviewed analysis on how carbon pricing worked in practice. The article provides 37 meta-review of ex-post quantitative evaluations of carbon pricing policies around the world since 1990. "Does carbon pricing reduce emissions? A review of ex-post analyses" by Jessica F. Green Accepted Manuscript online 12 January 2021 • © 2020 The Author(s). Published by IOP Publishing Ltd https://iopscience.iop.org/article/10.1088/1748-9326/abdae9/pdf	Thanks. Paper is cited.	Junko Ogawa	The Institute of Energy Economics, Japan	Japan
22391	41	30	41	31	It would be useful to detail economic theory: carbon pricing makes cost-effective emissions reductions as economic agents choose to abate emissions when abatement cost is under the price on GHG emissions	Agreed.	Government of France	Ministère de la Transition écologique et solidaire	France
58243	41	32	41	34	If ETS are to be the centerpiece of a suite of policy tools their performance needs to significantly improve. It would be helpful to have more direct discussion of the linkages of free allocations, ceiling prices, exclusion of trade exposed emissions, etc., to the performance of ETSs.	Noted. The section summarizes the literature on the performance of taxes and ETSs, and, within the confines of space limitations, do seek to discuss design issues.	Government of United States of America	U.S. Department of State	United States of America
20005	41	35	42	4	This part is overly positive regarding the effectiveness of ETS. EU-ETS turned out to be not effective due to grandparenting and institutional factors, politicians by now tend to regret the introduction of ETS. Is is not clear what you mean by "in ohter systems" where "thought to have slowed the growth in emssions". I would recommend to state clear-cut that environmental effects of ETS so far have been limited. Also this contradicts Page 53, Line 22-30 which is much less positive not to say pessimistic	Noted. The language has been modified to reflect the authors' judgement	Manuela Dr. Troschke	Scientists for Future Germany	Germany
87077	41	30	41	31	It would be useful to detail economic theory: carbon pricing makes cost-effective emissions reductions as economic agents choose to abate emissions when abatement cost is under the price on GHG emissions	Done.	Philippe Wen	Ministère de l'Éc	France
87075	41	9	41	9	Update allowance prices (which have risen above EUR 40 in March 2020) (see auction platform data EEX)	Prices are updated in section 13.6.3.1 and here based on World Bank 2021.	Philippe Wen	Ministère de l'Éc	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
22393	42	1	42	4	In the case of the EU, other policies (such as energy efficiency or development of renewable energy) outweighted the EU ETS. Carbon pricing can be a "safety net" complementing non-carbon price policies, in case other policies fail to deliver emissions reductions. (Ember 2018 https://ember-climate.org/commentary/2018/03/14/better-safe-than-sorry/; Vailles and Berghmans 2020 https://www.iddri.org/en/publications-and-events/op-ed/re-shaping-eu-ets-safety-net-not-driver) Emissions from installations covered by the ETS declined by about 35% between 2005 and 2019. (European Commission)	Noted. The text has been revised to note that ETS sources are covered by multiple policies and that the estimated contribution of the ETS is 3 to 25% of the reductions. The references are from the gre	Government of France	Ministère de la Transition écologique et solidaire	France
54397	42	1	42	4	This is an odd statement: ETS have slowed emissions, but this is actually due to other factors?	Clarified. The statement notes the effect of other policies and exogeneous factors.	Sabine Fuss	MCC Berlin	Germany
77829	42	3	42	3	Definitive reference for peer-reviewed study on impact of EU ETS on emissions: Bayer & Aklin, PNAS April 21, 2020 117, "The European Union Emissions Trading System reduced CO2 emissions despite low prices", https://www.pnas.org/content/117/16/8804#:~:text=The%20EU%20ETS%20has%20been,permits%20(%E2%80%9Ctrade%E2%80%9D).	Thanks. Reference added.	Alex Rau	Climate Wedge LLC	United States of America
22395	42	6	42	6	Suggestion to add an additional reference for the carbon tax in British Columbia here: Rivers, N. and B. Schaufele. 2015. Salience of carbon taxes in the gasoline market, Journal of Environmental Economics and Management 74, 23-36.	Rejected. More recent and more comprehensive studies of the effectiveness of the tax are cited.	Government of France	Ministère de la Transition écologique et solidaire	France
22397	42	8	42	8	Be more precise about the content of this article (the problem is the use of "most cases"): "..., but Haites et al. (2018) found that in 6 jurisdictions out of the 13 studied, actual emissions subject to the tax continued to rise."	Agreed. The text has been modified. This is covered by noting that some policies have achieved sustained emission reductions.	Government of France	Ministère de la Transition écologique et solidaire	France
70669	42	9			"The carbon taxes tend to be small relative to fossil fuel taxes." Does this mean the carbon tax itself is smaller than the fossil fuel taxes or the effect of the carbon taxes on emissions reduction is smaller that that of the fossil fuel taxes? If it means the former, this sentence is not necessary.	This sentence is now deleted	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
22399	42	11	42	11	Suggestion to also add an important reference that is missing here (at the end of the paragraph, following Aydin and Esen 2018, line 11): "In countries where the carbon tax constitutes a large part of the fossil fuel price, the effectiveness is higher. The Swedish carbon tax reduced emissions from transport by 11% between 1990 and 2005 (Andersson 2019)." and add to references: Andersson, J. Carbon taxes and CO2 emissions: Sweden as a case study. American Economic Journal: Economic	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
52695	42	12	42	20	Terms of reference should be broader than the Paris Agreement. As well as more scenarios should be taken in to consideration for a more inclusive report.	Noted. Moreover, because the Paris Agreement refers to both 2 degree and 1.5 degree goals language now refers to a range of studies that seek to estimate benchmarks for carbon prices.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
63285	42	13	42	14	Canada just announced its intention to increase its carbon price to $170/tonne by 2050. Would recommend including this here.	Rejected. The focus is on ex post analyses and we need published literature to cite	Government of Canada	Environment and Climate Change Canada	Canada
77831	42	15	42	15	CORRECTION: EU ETS prices reached $51/ton on March 12, 2021 -- all time high traded price of 42.90 euro/ton	Sentence and reference updated to World Bank 2021.	Alex Rau	Climate Wedge LLC	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
47001	42	18	42	20	The sentence could usefully clarify that these estimates of needed carbon prices are calculated in the absence of other mitigation policies. Implementing other mitigation policies may lower the carbon prices required to achieve the goals of the Paris agreement. Moreover, do these estimates factor in the fact that elasticities of emissions to carbon prices may increase over time with new technological developments, lowering required carbon prices?	Noted. Where possible the estimates use 'current policies' as part of the baseline; this is based on the explanation in Ch 3.	Florence Jaumotte	International Monetary Fund	United States of America
58245	42	18	42	22	This is an important statement and should be phrased carefully. It would be helpful to include the carbon price projected to be consistent with limiting global temperature rise to 1.5°C; however, this is not a GOAL of the Paris Agreement. The sentence would accurately read: "Carbon prices would need to rise to $X in order to keep global temperature rise below 2°C and $X to keep global temperature rise below 1.5°C." or "Carbon prices would need to rise to $X in order to be consistent with the Paris Agreement goal of keeping global temperature rise well below 2°C and pursuing efforts to limit temperature increase to 1.5°C."	Accepted, thank you. The text now gives different estimates for 2 and 1.5 degrees	Government of United States of America	U.S. Department of State	United States of America
8589	42	18	42	20	Based on observable (not "only" model based) elasticities, Rafaty et al. find ranges that are well comparable to model estimates regarding the carbon price necessary to achieve 2°C: https://www.repository.cam.ac.uk/handle/1810/315717 (in review); might be worth mentioning here	Reference cited.	Jan Steckel	MCC	Germany
8595	42	21	42	34	Important to make the point that carbon prices are however found to be more effective than other instruments, e.g. subsidies, see e.g. Gugler, K., Haxhimusa, A., & Liebensteiner, M. (2021). Effectiveness of climate policies: Carbon pricing vs. subsidizing renewables. Journal of Environmental Economics and Management, 106, 102405.	Results mentioned and reference cited.	Jan Steckel	MCC	Germany
82887	42	21	42	22	The numbers that follow do not support "majority"	text modified	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
70071	42	21	42	34	The coverage of Climate Change Tax under the Petroleum and Coal Tax Law of Japan is the highest in the world. It is levied on fossil fuel for energy purpose use and exemption is very limited. For examples, tax exemption is only for heavy oil in agriculture sector, fuel for power generation in Okinawa prefecture, diesel for train, diesel and heavy oil for coastal transportation, jet fuel for domestic transportation. The rate of the tax is flat(289yen/t-CO2e) and more than 90% of fossil fuel energy use are covered by this tax in Japan. Even low-income households bear Climate Change Tax without any exemptions. Reference Petroleum and Coal Tax Act (in Japanese) http://www.japaneselawtranslation.go.jp/law/detail/?vm=&re=&id=1061&lvm=02 Special treatment for Climate Change Tax: Exemption and refund (in Japanese) https://www.mof.go.jp/tax_policy/summary/consumption/332.pdf	Text deleted.	Junko Ogawa	The Institute of Energy Economics, Japan	Japan
31155	42	23	42	24	The text states "the share of emissions CO2 combustion emissions covered in 2019 was 45% in the EU ETS", however 45% is the EU ETS's total coverage (as noted in the Postic and Fetet 2020 document cited), not of combustion emissions, which are a smaller share as a significant portion of energy-intensive emissions are not combustion related. Perhaps the easiest way to fix this would be to remove combustion, if it is in line with the other ETSs mentioned.	Due to uncertainties pointed out by this and other reviewers, this sentence has been re-written with updated data and using different examples.	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
22401	42	23	42	23	The sentence is not clear "the share of emissions CO2 combustion emissions..."	Due to uncertainties pointed out by this and other reviewers, this sentence has been re-written with updated data and using different examples.	Government of France	Ministère de la Transition écologique et solidaire	France
77833	42	24	42	24	CORRECTION: The Mexican ETS is not operational and only in a pilot phase so it is not accurate to suggest that 37% of Mexican CO2 emissions are covered by its ETS, that could undermine the credibility of other statements in this paragraph	Due to uncertainties pointed out by this and other reviewers, this sentence has been re-written with updated data and using different examples.	Alex Rau	Climate Wedge LLC	United States of America
77835	42	32	42	34	China's national ETS has now formally launched as of Feb 1 2021 so please update or reference the China ETS launching in 2021.	Text deleted.	Alex Rau	Climate Wedge LLC	United States of America
70671	42	35	42	41	It may be a good idea to strengthen co-benefit part of this subsection. It has too little space compared with environmental effectiveness. Or you may want to have a separate subsetion for co-benefits since co-benefits can play a significant role in adopting carbon pricing.	Rejected. Unfortunatley given word count we can only briefly touch on this point. There is greater discussion of this in Sec 7 and Chapter 17	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
343	42	36	42	36	pollution	Accepted.	Sandro Fuzzi	ISAC CNR	Italy
345	42	36	42	36	"better air quality" instead of "lower air pollution"	Accepted.	Sandro Fuzzi	ISAC CNR	Italy
47003	42	37	42	38	"…fully offset carbon policy" should read "…fully offset the cost of carbon policy".	Corrected.	Florence Jaumotte	International Monetary Fund	United States of America
27891	42	38	42	40	Delete "In some cases, carbon pricing would also bring co-benefits through reducing the economic distortions from fossil fuel subsidies, and improved energy security through greater reliance on local energy sources and less exposure to fossil fuel market volatility.", as such statements should consider affordability issues and inefficient fossil fuel subsidies that encourage wasteful consumption.	Rejected. No literature supporting the proposal provided.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
47005	42	39	42	40	The list of potential co-benefits from mitigation policies could also include reduced traffic congestion, accidents, and road damages.	True but we already have enough examples and the text is too long.	Florence Jaumotte	International Monetary Fund	United States of America
52697	42	40	42	41	Different circumstances of developing countries should be taken into consideration.	Accepted. Text revised to state that co-benefits vary by jurisdiction.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
87079	42	1	42	4	In the case of the EU, other policies (such as energy efficiency or development of renewable energy) outweighted the EU ETS. Carbon pricing can be a "safety net" complementing non-carbon price policies, in case other policies fail to deliver emissions reductions. (Ember 2018 https://ember-climate.org/commentary/2018/03/14/better-safe-than-sorry/; Vailles and Berghmans 2020 https://www.iddri.org/en/publications-and-events/op-ed/re-shaping-eu-ets-safety-net-not-driver) Emissions from installations covered by the ETS declined by about 35% between 2005 and 2019. (European Commission)	Rejected. Same as comment 646. The citations are do not appear to be from the peer reviewed literature and there is other peer reviewed literature available	Philippe Wen	Ministère de l'Éc	France
79739	43	1	43	2	Pricing instruments show many exemptions and the level of carbon pricing is likely to remain very low and therefore ineffective. Non-price instruments, such as fuel and efficiency standards, subsidies for clean energy technologies, and public programs to promote low-carbon infrastructure (public transport, buildings, etc.) are more usable in developing countries. Some reasons: the costs of these non-price instruments are not generalized, contrary to a carbon tax (only those products and services affected by low carbon standards are levied); second, its redistributive effects are less regressive, compared to carbon pricing instruments; third, the effect is much less visible than carbon pricing by a tax or by a carbon market (Finon, D. 2019. Carbon policy in developing countries: Giving priority to non-price instruments. Energy Policy, 132, 38-43).	Noted. We have sought to cover the limitations of carbon pricing.	Angel DE LA VEGA NAVARRO	UNAM - National Autonomous University of Mexico	Mexico

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
31157	43	1	43	2	"Economic theory suggests that carbon pricing on the whole is the most cost effective way to reduce emissions." This both needs a citation and also needs to be compared to something, regulation? Another instrument type?	Text revised to Economic theory suggests that carbon pricing policies are on the whole more cost effective than regulations or subsidies at reducing emissions and a citation is provided.	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
27893	43	1	43	2	Delete "Economic theory suggests that carbon pricing on the whole is the most 1 cost effective way to reduce emissions.", as this statement contradicts with analysis presented in previous chapters of the SOD WGIII contribution.	Text revised to Economic theory suggests that carbon pricing policies are on the whole more cost effective than regulations or subsidies at reducing emissions and a citation is provided.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
58247	43	3	43	8	This is a key point. Competitiveness is a major concern for countries and significantly drives which and how many emissions are covered by policies. The fact that trade exposed emissions are not covered is by design, because it is politically difficult to cover them. To reach net zero emissions, this concern will need to be addressed. This is linked to the poor performance of ETSs in reducing emissions as cited earlier in Section 13.6.3.3. There should be a discussion of competitiveness here as a consideration in feasibility of policies, not only in Section 13.7 as a source of emissions leakage. This section should also link to the border adjustment box later in the chapter.	Noted. Further discussed in 13.6.6.1	Government of United States of America	U.S. Department of State	United States of America
47007	43	5	43	5	Could this be because carbon taxes are in most cases not very high or have been introduced gradually? Iif that is indeed the case, it may be worth qualifying the result. In addition, although aggregate effects are small, underlying this are large sectoral reallocations, with potentially difficult transitions for workers. An acknowledgment of the underlying structural transformation would be useful.	Rejected. The comment asks for analyses for which we don't have the data.	Florence Jaumotte	International Monetary Fund	United States of America
22403	43	5	43	5	Suggestion to add another reference here, after the sentence finishing "...or GDP growth (Metcalf and Stock, 2020)": The British Columbia carbon tax was found to yield a small increase in employment compared to other provinces without taxes over the period 2007-2013, but the magnitude varied according to each sector's carbon intensity and trade exposure (Yamazaki, 2017). and add to references: Yamazaki, A., 2017, Jobs and climate policy: Evidence from British Columbia's revenue-neutral carbon tax. Journal of Environmental Economics and Management 83, 197-216.	Accepted. Bernard paper on lack of adverse GDP impacts also cited.	Government of France	Ministère de la Transition écologique et solidaire	France
77837	43	6	43	11	It must be noted however that these studies were all conducted during prior years where the EU ETS had prevailing low carbon prices of generally below 10 euro/ton. This is now changed with carbon prices approaching $50/ton in the EU ETS, and there are significant concerns growing about industrial leakage and competitive impacts of capped industrial companies. As such the EU has started discussions around a "Carbon Border Adjustment Mechanism" which would be a carbon border tax on imports of fossil intensive materials and products.	This is already noted in the text. The Carbon Border Adjustment is discussed in section 13.6.6.1.	Alex Rau	Climate Wedge LLC	United States of America
67531	43	6	43	7	The reference to Section 13.7. is misleading. I find no reporting of output, value added, employment, investment impacts of EU ETS (only leakage)	Agreed. Text revised and supported by several citations. Reference to 13.7 deleted.	Taran Fæhn	Statistics Norway, Research Dep.	Norway

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
22405	43	8	43	8	Free allowances have nevertheless drawbacks, such as a less powerful pass-through of the price signal to final consumers. It is also a kind of subsidy for these industries vis-à-vis other sectors. The EU ETS has started in 2013 to make criteria for free allowances eligibility more tight, so that it goes primarily to EITE sectors and reflects technological changes. Chapter 11.6.1: such approaches to lowering the carbon price for industry reduces the incentive to mitigate emissions. In addition, free allowances reduce incentives for beneficiaries to green their processes and even tend to create incentives for them to over-produce Kuusi, T., Björklund, M., Kaitila, V., Kokko, K., Lehmus, M., Mehling, M., ... & Wang, M. (2020). Carbon Border Adjustment Mechanisms and Their Economic Impact on Finland and the EU. Publication of the Finnish Government's analysis, assessment and research activities. Free allowances (and their over-allocation) also induce windfall profits Bruyn (de) S., Cherif S., Huigen T., & Schep E. (2016). Calculation of additional profits of sectors and firms from the EU ETS 2008-2015. ; Joltreau, E., & Sommerfeld, K. (2019). Why does emissions trading under the EU Emissions Trading System (ETS) not affect firms' competitiveness? Empirical findings from the literature. Climate policy, 19(4), 453-471. ; Hobbie, H., Schmidt, M., & Möst, D. (2019). Windfall profits in the power sector during phase III of the EU ETS: Interplay and effects of renewables and carbon prices. Journal of Cleaner Production, 240, 118066.	This point has been pared back for length reasons	Government of France	Ministère de la Transition écologique et solidaire	France
7557	43	10	43	10	Can it be small and significant at the same time? Unless it is "statistically significant"	This text has now been edited and is no longer used	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
77839	43	12	43	17	California's ETS auctions more than 90% of all allowances, and proceeds of the auctions goes explicitly to the Greenhouse Gas Reduction Fund (GGRF), which finances and supports clean energy and greenhouse gas reduction projects. A description of the projects funded, including California's High Speed Rail Project (between San Francisco and Los Angeles), electric vehicle tax credits, etc, is at http://www.caclimateinvestments.ca.gov/about-cci	Rejected. Too detailed given length issues	Alex Rau	Climate Wedge LLC	United States of America
63287	43	15	43	16	In Canada's case, to provinces and municipalities, or directly to citizen households	Discussion of uses of tax revenue clarified. Canada's arrangements are not specifically mentioned because other taxes and ETSs also would need to be mentioned and there is not enough space for that.	Government of Canada	Environment and Climate Change Canada	Canada
11085	43	18	43	41	I find this discusion of the distributional effects of carbon pricing to be incomplete and somewhat oddly structured. It starts off defensively, by saying that whatever effects there may be can be corrected with policy, before saying whart the effects are. I find the trearment of what the dsitributional effects are to be quite superficial and non-quantitative, especially since they are not only relevant in terms of being one evaluation criterion, but also because they influence the politics of the instruments; there is a well developed political economy literature documenting that perceptions of these distributional effects have been a major barrier to adoption of high price levels, which in turn has a detrimental effect on their effectiveness. Chapter 5 has a box devoted to this issue; perhaps it would make sense for that to be a cross chapter box, as one way of adding detail here.	Text clarified and reference to Box in Chapter 5 added.	Anthony Patt	ETH Zürich	Switzerland

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
8591	43	18	43	41	The section on distributional effects in my eyes needs a thorough revision. It lacks i) recent reviews and meta analyses that specifcy the determinants of distributional outcomes (Ohlendorf, N., Jakob, M., Minx, J. C., Schröder, C., & Steckel, J. C. (2021). Distributional Impacts of Carbon Pricing: A Meta-Analysis. Environmental and Resource Economics, 78(1), 1-42.; Dorband, I. I., Jakob, M., Kalkuhl, M., & Steckel, J. C. (2019). Poverty and distributional effects of carbon pricing in low-and middle-income countries–A global comparative analysis. World Development, 115, 246-257.); ii) misses the important and more recent debates on the importance of horizontal equity (e.g. 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), S169-S208.); iii) misses a discussion of revenue recycling schemes (e.g. Klenert et al. 2018, Nature Climate Change); iv) misses a discussion of distributional effects of other policy instruments, e.g. Levinson, A. (2019). Energy efficiency standards are more regressive than energy taxes: Theory and evidence. Journal of the Association of Environmental and Resource Economists, 6(S1), S7-S36.	Agreed. Major revision to the text including some of the references provided.	Jan Steckel	MCC	Germany
8329	43	18	43	41	The discussion of distributional effects of carbon pricing does not appropriately represent the vast literature that is available on this subject. For instance, you might refer to the meta-analyis by Ohlendorf et al. (2020, ERE). Other studies that might be relevant include the comparative exercise of distributional impacts of carbon pricing for more than 80 low-income countries by Dorband et al- (2019, WD, https://doi.org/10.1016/j.worlddev.2018.11.015) as well as the meta-analysis of the equity implications of different mitigation policies by Lamb et al. (2020, ERL, https://doi.org/10.1088/1748-9326/abc11f). In this context, a more profound discussion on the potentials and limitation of using carbon pricing revenues to promote sustainable socio-economic development would be hghly welcome.	Agreed. Major revision to the text including some of the references provided.	Michael Jakob	MCC Berlin	Germany
67537	43	18	43	36	I miss reporting from the urban-rural distributional dimension. Please insert (Zachmann et al (2018) can be one source of information (already in the ref list). The urban/rural dimension might appear elsewhere in the Chapters, but then please give a reference in p 13-43.	Rejected. The rural-urban dimension would require too much detail here; pls refer to Chapter 5.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
77841	43	25	43	25	Increases in electricity prices as well as gasoline/diesel/petrol prices	Accepted	Alex Rau	Climate Wedge LLC	United States of America
70673	43	25	43	26	"Increases in electricity prices are typically the largest distributional concern of consumers". Please provide a reference.	Rejected. The rest of the paragraph notes efforts to address increases in electricity prices with references.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
67533	43	27	43	36	Please consider the following references on distributional impact: Ohlendorf, N., Jakob, M., Minx, J.C. et al., 2021: Distributional Impacts of Carbon Pricing: A Meta-Analysis. Environ Resource Econ 78, 1–42.	Thanks for the reference.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
67535	43	27	43	36	Please consider referring to Energy Modeling Forum 36 and a Special Issue in Energy Economics on modelling distributional impact of NDCs : Summary article: Böhringer et al. (SUBMITTED): Carbon Pricing after Paris_Overview of Results from EMF 36. Contact persons for all Special Issue articles (SUBMITTED): Sonja.Peterson@ifw-kiel.de or christoph.boehringer@uni-oldenburg	Rejected. This sub-section focuses on experiences and therefore preferred references refer to ex post quantitative assessments rather than ex ante projections. This is an ex ante modelling study.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
47009	43	29	42	30	Although the distributional effect may be smaller in developing countries where energy plays a smaller role in the expenditures of low-income households, there would still be a poverty effect from increases in prices due to carbon pricing that would need to be addressed. Higher electricity prices could also restricti poorer households' access to modern energy.	Reference to regressive impacts of carbon pricing in developing countries added. See next comment.	Florence Jaumotte	International Monetary Fund	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
22407	43	29	43	30	An important reference for the smaller regressive impact of carbon taxes in developing countries that is missing: Dorband, I., Jakob, M., Kalkuhl, M. and Steckel, J., 2019, Poverty and distributional effects of carbon pricing in low-and middle-income countries - a global comparative analysis, World Development 115, 246-257.	Reference cited.	Government of France	Ministère de la Transition écologique et solidaire	France
12249	43	29	43	30	Somewhat unusual references for these well-established claims, it seems to me. Consider Grainger and Kolstad 2010, EAERE for the first and Dorband et al. 2019, World Development for the second.	References cited.	LInus Mattauch	University of Oxford	United Kingdom (of Great Britain and Northern Ireland)
47011	43	31	43	32	This ignores the fact that unskilled workers tend to be disproportionately employed in unskilled occupations in emissions-intensive sectors (at least in developed countries). Hence carbon pricing could threaten their jobs and wages, with poverty effect (even if from a distribution perspecitve, richer households may be more affected due to lower capital returns).	Agreed. However, space limits make it hard to get into these details and acitation is needed.	Florence Jaumotte	International Monetary Fund	United States of America
47013	43	33	43	36	It would be worth adding government interventions to support job transitions from high- to low-carbon sectors, such as unemployment benefits, workers' retraining, reallocation assistance, government spending on low-carbon sectors that create new jobs in these sectors (e.g., green infrastructure spending). I would suggest also mentioning that sometimes mitigation policies could affect an entire region and may require geographically-targeted government support (e.g., to develop a new low-carbon industry).	Agreed. However, space limits make it hard to get into these details and acitation is needed.	Florence Jaumotte	International Monetary Fund	United States of America
54399	43	34	43	35	A useful reference for this: Klenert, D., Mattauch, L., Combet, E. et al. Making carbon pricing work for citizens. Nature Clim Change 8, 669–677 (2018). https://doi.org/10.1038/s41558-018-0201-2	Thanks. Reference cited.	Sabine Fuss	MCC Berlin	Germany
22409	43	39	43	39	About the term "to be a concern", it is rather an issue that they cannot be measured accurately: propose to substitute "to be accurately measured currently" for to be a concern"	Rejected. They are generally not a concern and that may be due to the difficulty of accurately measuring them or for other reasons.	Government of France	Ministère de la Transition écologique et solidaire	France
11087	43	42	44	2	You have no references here, but they are out there. In Lilliestam et al. WIRES Climate Change, 2021 doi.org/10.1002/wcc.681 we conducted a systematic review of papers evaluating carbon pricing instruments according to their transformative potential -- namely the desgree to which they stimulated investment into zero-carbon technoplogies -- and found it to be low. Indeed the evidence was that while carbon prices have led to declining emissions, this has not happened because of investment into zero carbon technologies. We have also been involved in a theoretical literature (e.g. Patt and Lilliestam, Joule, 2018 doi.org/10.1016/j.joule.2018.11.018) arguing that carbon price base mechanisms have deep seated flaws with respect to their transformative potential. There are other papers in that literature, such as Geels et al Science 2017 DOI: 10.1126/science.aao3760 . Rosenblook et al PNAS 2020 /doi.org/10.1073/pnas.2004093117 . More recently, many economics have raised counter-arguments. In other words there are many papers to cite.	The intent of carbon pricing is to encourage implementation of the lowest cost options. So it should not be surprising that they do not stimulate more costly zero carbon technologies. Text has been revised and references cited	Anthony Patt	ETH Zürich	Switzerland
52699	43	42	43	42	areas of transformation goes beyond the national circumstances , and should focus on transitions.	Noted. It is not clear what should be changed.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
2493	43	42	44	2	This section looking at the transformative potential of emissions trading/pricing states that carbon pricing is limited by political acceptability. A second impact of reliance on ETS systems is the extremely large administrative and institutional footprint of such instruments that act to distort the capacity of policymakers to even consider alternative or complementary policy approaches, as shown in this paper: https://www.tandfonline.com/doi/full/10.1080/13501763.2019.1567573	Noted. This is an interesting paper, but space limits make it difficult to cite.	Oscar Fitch-Roy	University of Exeter	United Kingdom (of Great Britain and Northern Ireland)
47015	43	43	43	44	From a conceptual viewpoint, it would be good to acknowledge the two channels that make carbon pricing such an effective migitation instrument: (i) it increases the relative price of emissions-intensive activity relative to low-emissions activity, triggering a reallocation of resources; and (ii) by increasing the cost of energy, it is a powerful incentive to increase energy efficiency.	Noted	Florence Jaumotte	International Monetary Fund	United States of America
70069	43	43	44	2	The following article is strongly recommended to refer. This article delves into not only emission reduction effect of carbon pricing but also how carbon pricing effect technology development and what is the hinder so far through experience in European Union, New Zealand, British Columbia, and the Nordic countries. Relationship between economic instruments and technology development becomes more crucial if we discuss transitions to net zero emission system. "The effect of carbon pricing on technological change for full energy decarbonization A review of empirical ex-post evidence" by Johan Lilliestam Anthony Patt Germán Bersalli First published: 30 September 2020 https://doi.org/10.1002/wcc.681 https://onlinelibrary.wiley.com/doi/10.1002/wcc.681	The intent of carbon pricing is to encourage implementation of the lowest cost options. So it should not be surprising that they do not stimulate more costly zero carbon technologies. Text has been revised and references cited	Junko Ogawa	The Institute of Energy Economics, Japan	Japan
10839	43	43	44	2	the logic of the last sentence is difficult to follow	Agreed. Deleted.	Philippe Waldteufel	CNRS	France
67539	43	43	44	2	The criterion "Transformative potential" is unclear and unnecessarily abstract. You could here mention lack of trandformational investments because of credibility and commitment problems (Brunner S, C. Flachsland and R. Marschinski (2012). "Credible commitment in carbon policy." Climate Policy 12(2): 255–271). See also comment 7 above.	Agreed. Reference added earlier in the section	Taran Fæhn	Statistics Norway, Research Dep.	Norway
22411	43	44	43	45	More details would be welcome: if there is a medium-term visibility on the level of carbon prices (e.g. through a price corridor or a price notional trajectory), it can trigger investments that would not have occured otherwise.	Agreed. Now discussed earlier in the section.	Government of France	Ministère de la Transition écologique et solidaire	France
22413	43	44	44	2	Introduce the evidence on carbon pricing and transformative potential here, before the sentence that starts "At high and predictable levels...": "EU-ETS has been found to have had effects on innovation through positive effects on the patenting of low-carbon technologies (Calel and Dechezleprêtre, 2016)" and add to the references: Calel, R., and A. Dechezleprêtre, 2016, Environmental policy and directed technological change: evidence from the European carbon market. Review of Economics and Statistics 98(1), 173-191.	Accepted. Reference cited together with section 13.6.6 and Chapter 16.6.6.	Government of France	Ministère de la Transition écologique et solidaire	France
87083	43	44	43	45	More details would be welcome: if there is a medium-term visibility on the level of carbon prices (e.g. through a price corridor or a price notional trajectory), it can trigger investments that would not have occured otherwise.	Agreed. Same as comment 22411.Now discussed earlier in the section.	Philippe Wen	Ministère de l'Éc	France
87081	43	8	43	8	Free allowances have nevertheless drawbacks, such as a less powerful pass-through of the price signal to final consumers. It is also a kind of subsidy for these industries vis-à-vis other sectors. The EU ETS has started in 2013 to make criteria for free allowances eligibility more tight, so that it goes primarily to EITE sectors and reflects technological changes. See Chapter 11.6.1: such approaches to lowering the carbon price for industry reduces the incentive to mitigate emissions	As noted there no peer-reviewed evidence to support these points has been provided or found.	Philippe Wen	Ministère de l'Éc	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
70675	44	1			Would you clarify "the politically feasible level of carbon pricing is limited"? Does this mean that the transformative potential of politically feasible carbon pricing is limited? or else?	Agreed. Text deleted.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
47017	44	2	44	2	There are other arguments why carbon pricing should not be the only mitigation instrument, beyond political feasibility. For instance, there are a number of market failures that make other instruments useful, such as government investment in low-carbon infrastructure and networks, government support to low-carbon R&D, etc.	Agreed. Senetence deleted.	Florence Jaumotte	International Monetary Fund	United States of America
22415	44	2	44	2	The sentence "It follows that carbon pricing has a central role ..." does not follow logically from the previous one, that says that carbon pricing is limited in most jurisdictions. But by adding the references on the effects of carbon taxes on innovation, it is more comprehensible.	Agreed. Senetence deleted.	Government of France	Ministère de la Transition écologique et solidaire	France
67541	44	4	44	27	Be more clear on how offset credits deviate from emission trading in CH 13.6.3.2	Rejected. A definition of an offset credit is provided in the first sentence and the fact that they are addressed in a different section from ETSs should be clear enough.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
77843	44	8	44	8	Offsets are also used in carbon taxes such as South Africa, Columbia	Done.	Alex Rau	Climate Wedge LLC	United States of America
19581	44	9	44	9	Add after "… Michaelowa et al. 2019). There is a wide range of national level offset systems (see overview in Michaelowa et al. 2019): Reason: The review of national level offset systems provided by this reference is important. New reference: Michaelowa, Axel; Shishlov, Igor; Bofill, Patricio; Hoch, Stephan; Espelage, Aglaja (2019): Overview and comparison of existing carbon crediting schemes, NEFCO, Helsinki	Accepted. Report cited.	Matthias Honegger	Utrecht University, Perspectives climate research, IASS-Potsdam	Germany
77845	44	11	44	11	The other major offset criteria in compliance markets/ETS are start date of the project activity, and length of the crediting period underwhich the GHG reduction activity is granted offset credits	Accepted.	Alex Rau	Climate Wedge LLC	United States of America
47019	44	14	44	15	Could you please provide the reason for why these were terminated?	Rejected. No peer reviewed sources available.	Florence Jaumotte	International Monetary Fund	United States of America
77847	44	15	44	15	CORRECTION: Not 2014, EU ETS curtailed use of certain types of industrial gas offsets from CDM/JI offsets after 12/31/2012, but only formally blocked use of offsets as of 12/31/2020	Rejected. The comment is factually correct, but most of the credit limit established by the EU for 2008-2020 was used for 2008-2012 compliance, finalised in 2014, so credit use declined sharply teherafter.	Alex Rau	Climate Wedge LLC	United States of America
19847	44	16	44	17	Delete "such as South Korea and". Reason: South Korean ETS accepts CDM credits (up to a certain share of each installation's compliance obligation).	Accepted.	Axel Michaelowa	University of Zurich	Switzerland
85879	44	17	44	19	It is incorrect to say, " An example is the Australian Emissions Reduction Fund (Climate Change Authority (Aus) 2017), where the government is the sole buyer of credits." The government is the dominant but not the sole buyer of ACCUs. It would be more accurate to say: "where credits can be sold either to the government, or in the secondary market."	Accepted.	Government of Australia	Department of Industry, Science, Energy and Resources	Australia
19849	44	21	44	21	Insert "Greiner et al. 2003" before "Millard-Ball and Ortolano 2010". Reason: This reference is the first one discussing additionality testing in detail. New reference: Greiner, Sandra, Michaelowa, Axel (2003): Defining Investment Additionality for CDM projects - practical approaches, in: Energy Policy, 31, p. 1007-1015	Accepted.	Axel Michaelowa	University of Zurich	Switzerland
47021	44	26	44	27	There could also be perverse incentives to increase baseline emissions. With all countries having to reduce emissions over the next few decades, this mechanism would like lose of its relevance.	Rejected. Beyond the scope of the discussion in this sub-section. More appropriate for Chapter 14.	Florence Jaumotte	International Monetary Fund	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
11089	44	28	45	11	I find this section on subsidies to be incomplete, especially when compared with the evaluation of the sections on carbon prices. First, there is literature on the effects of particular design elements. See for example Lilliestam et al. Nature Energy 2017 doi.org/10.1038/nenergy.2017.94. Second, given these instruments' prominence, it would seem worthy to evaluate their performance across the different criteria. In Chapter 2 they do a count of carbon price instruments, coming up with 61 examples. IRENA 2018 (Renewable energy policies in a time of transition, ISBN 978-92-9260-061-7) does a similar count of renewable energy support policeis, and comes up with over 200 examples. So they are prominent, and probably worth evaluating in some detail.	Some aspects dealt with in Policy Attribution cross-chapter box, others in sector chapters and in evaluation of other policy instruments including for innovation. The paper referenced is on learning rates for concentrating solar power, which does not come in under this heading.	Anthony Patt	ETH Zürich	Switzerland
22417	44	28	44	28	Is this section intended to describe the "subsidy" tool or to elaborate on pros-cons arguments and conditions for success? For instance, targeted subsidies can help mitigation while mitigating cost for public finance, on the other hand according to economic theory subsidies should not "choose the winner" so that all low-carbon technologies can compete on their merits. Accountability helps to avoid inefficient subsidies.	Implemented in revised text.	Government of France	Ministère de la Transition écologique et solidaire	France
67543	44	28	45	11	See Hagem, Hoel and Sterner 2020 Refunding Emission Payments: Output-Based Versus Expenditure-Based Refunding ,Environmental and Resource Economics 77(3):641-667,DOI: 10.1007/s10640-020-00513-1 on how combination of emission pricing and subsidies for mitigation is principly very similar to emission pricing and subsidies for output. I think you miss an important strand of literature on combinations of pricing and subsidies (e.g. by refunding revenue),	Noted. The definition we use for 'subsidies for mitigation' does not extent to refunds to emitters under pricing schemes, which are covered in the preceding section.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
67545	44	28	45	11	It is unsatifactory that all types of subsidies are lumped into one short subsection 13.6.3.5. Subsidies have different rationals (or not) associated with market imperfections, distribution, strategy. The field is vast and should be given more attention and evaluation, including a reference to Ch. 16.	Revised text more explicitly notes the wide range of purposes. Reference to Ch16 was already included.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
7559	44	38	44	39	I strongly disagree with this sentence. It is true of course that investment subsidies reduce the upfront costs of deployment (e.g., of RES plants) but it is also well-known that they do not encourage the efficient functioning of the installations compared to production-based incentives. So, they are really less efficient. See e.g., Ragwitz, M., Held, A. Resch, G., Faber, T., Haas, R., Huber, C., Coenraads, R., Voogt, M., Reece, G., Morthorst, P.E., Jensen, S.G., Konstantinaviciute, I., Heyder, B. 2007. OPTRES – Assessment and optimisation of renewable energy support schemes in the European electricity market. Supported by the European Commission (D.G. Energy and Transport), Brussels.).	Noted. The statement in the text refers specifically to "more effective in reducing costs and uncertainties in solar energy technologies", rather than the efficient operation of solar installations.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
22419	44	42	44	43	A reference is needed here on the empirical evidence on the effectiveness of subsidies to households. Whereas subsidies may be effective for households' adoption of renewable energy equipment, it is not always the case for subsidies for energy-efficiency improvements (insulation), which have negative effects in terms of economic costs and benefits, see Fowlie et al., 2018, Do energy efficiency investments deliver? Evidence from the weatherization assistance program, Quarterly Journal of Economics 133(3), 1597-1644.	Covered in revised text, reference included.	Government of France	Ministère de la Transition écologique et solidaire	France
7561	44	43	44	43	Not only household level, but utility-scale	Clarified by removing qualifier "Household level".	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
7563	44	43	44	45	The sentence that feed-in tariffs, in some cases, provide subsidies at higher levels than would be required to motivate deployment needs a reference at the end. DEL RIO, P., MIR, P. (2012) show this for the case of Spain. DEL RIO, P., MIR, P. (2012). Support for solar PV deployment in Spain. Some policy lessons. Renewable and Sustainable Energy Reviews 16, 5557-5566.	Revised. Now covered through use of a 2014 paper by the same author which also evaluates auction schemes. Del Río, P. and Linares, P., 2014. Back to the future? Rethinking auctions for renewable electricity support. Renewable and Sustainable Energy Reviews, 35, pp.42-56.	DEL RIO GONZÁLEZ PABLO	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
7565	44	43	44	45	A main problem with FITs is that, in addition to the relatively high levels of subsidies in some cases (previous comment), they do not provide strong incentives to locate the plants in the best locations in terms of the resources (wind, PV). Peñasco et al 2019 show this for the case of Spain. CRISTINA PENASCO, DESIDERIO ROMERO-JORDAN, and PABLO DEL RIO (2019). The Impact of Policy on the Efficiency of Solar Energy Plants in Spain: A Production-Frontier Analysis. Economics of Energy & Environmental Policy 8(2)	Revised text covers this including the reference.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
87085	44	28	44	28	Is this section intended to describe the "subsidy" tool or to elaborate on pros-cons arguments and conditions for success? For instance, targeted subsidies can help mitigation while mitigating cost for public finance, on the other hand according to economic theory subsidies should not "choose the winner" so that all low-carbon technologies can compete on their merits. Accountability helps to avoid inefficient subsidies.	(comment repeated) 22417	Philippe Wen	Ministère de l'Éc	France
7567	45	4	45	4	A recent report by del Río and Kiefer (2021) focuses explicitly on the innovation effects of deployment instruments, with a special focus on auctions. It provides an in-depth review of the literature on the innovation effects of demand-pull instruments specifically in the renewable energy technology area, where an explicit comparison between administratively-set FITs and renewable auctions is provided. The authors end up with 28 papers on the impact of deployment instruments on innovation. 17 o them have used econometric modeling, whereas the rest are either theoretical or use qualitative analysis, including case studies. However, only 6 papers especifically focus on auctions and only 4 provide a comparative analysis of the impact of auctions with respect to the other instruments. Their review of the literature leads to the conclusion that those four papers show that administratively-set FIT induces innovation to a larger extent than auctions. See Del Río, P., Kiefer, C. 2021. Analysing the effects of auctions on technological innovation. Report D4.2 of the EU-funded project. Available at http://aures2project.eu/	Noted. The auction point is covered in revised text. The substantive issues of relative effectiveness of FIT vs auctions goes beyond the scope of this brief synthesis.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
7569	45	5	45	7	I would also include the following reference from the AURES project: Mora et al (2017). Mora, D. Kitzing, L., Rosenlund Soysal, E., Steinhilber, S. Del Río, P. et al 2017 Auctions for renewable energy support - Taming the beast of competitive bidding. Final report of the EU-funded AURES project. Report D9.2, December 2017. http://auresproject.eu/sites/aures.eu/files/media/documents/aures-finalreport.pdf	Noted. However, this is not a peer reviewed report and other published literature is available.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
2495	45	5	45	7	The opening sentence of this paragraph states that renewable energy support auctions lead to lower price premia. However, the causal connection between auction use and lower premia than other instruments (well designed) is not definitively established. This, along with other concerns about the impact of auctions on supply chains and the wider political economy of renewable energy is reflected in a growing literature questioning the outcomes and the rationality of auction selection e.g.: https://www.sciencedirect.com/science/article/pii/S0301421520300033 https://www.sciencedirect.com/science/article/pii/S2214629621000104 https://www.cogitatiopress.com/politicsandgovernance/article/view/1581	Accepted. A reference is added to this point.	Oscar Fitch-Roy	University of Exeter	United Kingdom (of Great Britain and Northern Ireland)
7571	45	7	45	8	I would replace the sentence "The criteria for contract for difference sometimes also include..." by the sentence "The prequalification requirements or the assessment criteria in the auctions sometimes also include..."	Accepted	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
27901	45	12	46	15	Research papers such as 'UNEP, OECD and IISD (2019). Measuring fossil fuel subsidies in the context of sustainable development goals, UN Environment, Nairobi, Kenya' should also be considered, as well as long-standing positions and papers developed by the G20 group (e.g. IEA, OECD, OPEC, World Bank. (2010). Analysis of the scope of energy subsidies and suggestions for the G-20 initiative".	Accepted.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
14521	45	12	45	14	This would be an informative, recent reference to include in this section: Ipek Gençsü, Shelagh Whitley, Markus Trilling, Laurie van der Burg, Maeve McLynn & Leah Worrall (2020) Phasing out public financial flows to fossil fuel production in Europe, Climate Policy, 20:8, 1010-1023, DOI: 10.1080/14693062.2020.1736978	Accepted.	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	United Kingdom (of Great Britain and Northern Ireland)
27895	45	15	45	17	Delete "Removal of fossil fuel subsidies improves economic efficiency, increases government revenue and reduces GHG emissions, and will tend to reduce inequality.", otherwise analysis should refer to inefficient subsidies that encourage wasteful consumption.	Noted. Individual components of these points are mentioned and cited	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
70677	45	15	45	17	Regarding the effects of subsidy removal, line 32 - 38 give more detailed explanations and references. Hence, this sentence may be removed.	Noted. For length reasons this is deleted	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
27897	45	32	45	38	Delete "Removing fossil fuel subsidies would lower CO2 emissions, increase government revenues (Dennis 2016; Gass and Echeverria 2017; Rentschler and Bazilian 2017; Monasterolo and Raberto 2019), improve macroeconomic performance (Monasterolo and Raberto 2019), yield other environmental and sustainable development benefits (Rentschler and Bazilian 2017; Solarin 2020) and tend to reduce inequality (Dennis 2016; Monasterolo and Raberto 2019). The benefits of lower fossil fuel prices, especially in the case of gasoline, accrue mainly to higher income groups in developing countries, so subsidy removal on the whole will reduce inequality (Coady et al. 2015).", as these conclusions are based on country-case studies and should consider inefficient subsidies that encourage wasteful consumption.	Rejected. This point is well substantiated.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
54401	45	32	45	38	A useful reference: Jakob et al. (2015): Development incentives for fossil fuel subsidy reform. Nature Climate Change. doi: 10.1038/nclimate2679	Agreed. Included	Sabine Fuss	MCC Berlin	Germany
61447	45	36	45	38	The conclusion that removal of fosil fuel subsidies would "subsidy removal on the whole will reduce inequality" (Coady et al. 2015) must be balanced by acknowledgement that in the developing world (where most subsidies are applied) the removal of fossil fuel subsidies typically deepens poverty because the higher fuel costs are passed on to the poor in the form of higher costs for transport, fuel for cooking, etc... This is acknowledged to a degree on the following page (46, lines 6 & 7): "Subsidy reductions can lead to short term energy price shocks that harm the most economically vulnerable" (Zeng and Chen 2016; Rentschler and Bazilian 2017), but this is inadequate	Accepted. The point has ben made more explicitly.	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
70679	45	36	45	38	The subsidy removal effect of reducing inequality is case specific, as mentioned 'especially in the case of gasoline'. This sentence may oversimply or generalize the subsidy removal effect on inequality. I would recommend to rephrase this in a more neutral way.	Accepted. A more detailed discussion of the impacts of subsidy removal and possible revenue distribution on low income groups is provided.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
47023	45	37	45	38	But (part of) the saved revenues from removing these subsidies should be redistributed in compensatory cash transfers to low-income households, else this policy could lead to higher poverty.	Accepted	Florence Jaumotte	International Monetary Fund	United States of America
61449	46	3	46	3	The text refers to "An extensive literature documents the difficulties of phasing out fossil fuel subsidies", but does not refer to the dire political dangers to governments of removal of fossil fuel subsidies. Political unrest in Nigeria in response to the scrapping of subsidies is a case in point, and reference should be made to this barrier.	Accepted. Instances of public protests in several countries noted.	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
8593	46	3	46	9	However, difficulties can be overcome when most affected households are compensated, e.g. discussed here for the case of Ecuador: Schaffitzel, F., Jakob, M., Soria, R., Vogt-Schilb, A., & Ward, H. (2020). Can government transfers make energy subsidy reform socially acceptable? A case study on Ecuador. Energy Policy, 137, 111120.	Accepted. Text revised and reference included.	Jan Steckel	MCC	Germany
27899	46	4	46	6	Delete "Opposition comes from constituencies that depend on the subsidies, including fossil fuel industries and consumers (Fouquet 2016; Coxhead and Grainger 2018).", as fossil fuel subsidies have been phased out in many energy-exporting countries.	Sentence revised.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
11091	46	16	48	34	I find this section to be incomplete, given the prominence that regulatory instruments have in several sectors, including urban planning, buildings, energy, transportation, and industry. This is particularly relevant when discussing fossil fuel phase-out policies (e.g. Regge and Johnstone ERSS 2017 doi.org/10.1016/j.erss.2017.10.004). For example, Chapter 11 highlight policies phaseing out the sale of internal combustion engine cars. In the buildings chapter the role of building codes and comparable instruments (e.g. the EU buildings directive) is prominent. There are also papers comparing regulator approaches (e.g. RPSs) with subsidy approaches (e.g. FITs) for supporting new technologies, with interesting findings related to the effects of market uncertainty, risk, technology picking, and distributional effects. Reading this section, I miss that level of detail, which would be new material for the IPCC to cover.	This mandate of this section, indeed this entire chapter, is to provide a coherent overview of policy options without duplicating the detailed policy descriptions and evaluations in individual sectors - electricity, buildings, transportation, industry, land-use, etc. THis chapter is intended to be complementary to discussions in the sector chapters	Anthony Patt	ETH Zürich	Switzerland
50397	46		47		One of co-regulation tools can be mutual agreement between the state and private sector to protect and develop the natural sinks for example planting and afforestation. Iran's Act on increasing of efficiency in agricultural sector and natural resource permits to the state to outsource planting and other plans to protect the natural sinks to the private sector through contract.	Agreed. But as above, this level of detail is not the mandate of this section in this chapter.	Government of Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
43491	46		47		One of co-regulation tools can be mutual agreement between the state and private sector to protect and develop the natural sinks for example planting and afforestation. Iran's Act on increasing of efficiency in agricultural sector and natural resource permits to the state to outsource planting and other plans to protect the natural sinks to the private sector through contract.	Duplicat comment. See above.	sadegh zeyaeyan	Head of national center for forecasting and weather hazards management of Islamic Republic of Iran Meteorological Organization (IRIMO)	Iran
67547	47	1	48	9	Be more precise on the distinction between performance standards and technology standards - interesting differences that is often abstracted away in economic modelling	Agree. Wording changes throughout	Taran Fæhn	Statistics Norway, Research Dep.	Norway
72369	47	9	47	10	It is suggested to remove "tradable" at the beginning of the sentence as performance standards for vehicles, building and appliances are not tradable. Energy efficiency obligations and known as energy efficiency resource standards (EERS) in the US are in place in different jurisdictions and the obligation is on energy utilities to implement energy efficiency project in their customers. Some of these schemes allow trading of energy savings or obligations, see awcett, T., Rosenow, J. & Bertoldi, P. Energy efficiency obligation schemes: their future in the EU. Energy Efficiency 12, 57–71 (2019). https://doi.org/10.1007/s12053-018-9657-1	Done	bertoldi paolo	european commission	Italy
72367	47	9	47	19	RPS and Feed-in-Tariffs are also discussed extensively in section 9,9.5.	Which is why we keep it short and generic here.	bertoldi paolo	european commission	Italy

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
74263	47	9	47	19	This pargraph should be revised to note that increasingly in the Unitd States, individual states are adopting "clean energy standards" rather than renewable standards to reflect that nuclear and other clean, carbon free resources will be needed to achieve carbon reduction targets. https://www.dsireinsight.com/blog/2020/9/25/states-expanding-renewable-and-clean-energy-standards https://www.rff.org/publications/issue-briefs/clean-energy-standards/	Done	Jeffrey Merrifield	Pillsbury Law Firm	United States of America
77849	47	14	47	14	A real-time database of active RPS standards in the US states is maintained at https://www.dsireusa.org/	This should be in the appropriate chapter, but not needed here as we are trying not to overfocus on the US	Alex Rau	Climate Wedge LLC	United States of America
22421	47	20	47	22	Suggestion to add at the end of this paragraph: "Vehicle fuel efficiency performance standards have been found to be regressive (Levinson, 2019), but this depends on whether the revenue is recycled back to consumers (Davis and Kniteel, 2019)." and add to the references: Levinson, A., 2019. Energy efficiency standards are more regressive than energy taxes: Theory and evidence, Journal of the Association of Environmental and Resource Economists 6(S1), 7-36. Davis, L. and Knittel, C. Are fuel economy standards regressive? Journal of the Association of Environmental and Resource Economists 6(S1), 37-63.	Have added the general point at the end of regulatory section. But something is wrong with this specific statement in that vehicle efficiency regulations do not generate revenue for recyling to consumers as far as I am aware.	Government of France	Ministère de la Transition écologique et solidaire	France
22423	47	31	47	31	Reference needs updating: Giraudet and Quirion, 2008 (see reference list).	Corrected	Government of France	Ministère de la Transition écologique et solidaire	France
20037	47	31			The correct reference is: Giraudet, L.-G., Quirion, P., 2008. Efficiency and distributional impacts of tradable white certificates compared to taxes, subsidies and regulations. Revue d'économie politique Vol. 118, 885–914. http://www.cairn.info/article.php?ID_ARTICLE=REDP_186_0885	Corrected	Louis-Gaëtan Giraudet	CIRED, Ecole des Ponts ParisTech	France
52657	47	36	47	43	More care needs to be taken in prescription of particular technology solutions, which may require materials and minerals that are in scarce supply, and lead to a series of secondary and tertiary challenges. Moreover, the long term effect of particular technologies (the lifecycle and decommissioning cost of wind turbines and solar panels, for example), should also be factored before incentivizing technologies just because they appear to be superficially less carbon intensive.	This point is off-topic for this section. We are simply surveying and describing the different policies and how they work, not evaluating the relative material and emission impacts during a transition to net-zero economy-wide (after which the embedded emissions in a tonne of steel for building wind turbines would be near-zero).	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
72377	48	1	48	9	There is ample evidence of the very high cost effectiveness of some technology standards for appliances and lighting, in particular very effective when price signals are not enough to motivate end-users to switch to more efficient lighting and appliances and also when information has no or limited impact. Some appliances standards have resulted in cheaper and more efficient appliances, with negative carbon abatement costs.	Noted by adding a final sentence to 13.1.1.3	bertoldi paolo	european commission	Italy
58249	48	10	48	34	When evaluating the performance of regulatory policy instruments, it is important to add the effectiveness of achieving emission reductions, a potential advantage over economic instruments.	Changed wording to include	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
2461	48	13	48	16	The claim that "regulatory policy often elicits greater political support than pricing policy" can be misleading, and at least it needs to be more nuanced. It is true that soft regulation, and some types of standard, have been found to be more popular than price-based instruments, but hard regulation (e.g. bans) have often been found to be less popular. References: Attari, Shazeen, Mary Schoen, Cliff Davidson, Michael DeKay, Wändi Bruine de Bruine, Robyn Dawes and Mitchell Small, 2009. Preferences for change: Do individuals prefer voluntary actions, soft regulations, or hard regulations to decrease fossil fuel consumption? Ecological Economics 68(6), 1701-1710. Cherry, Todd, Steffen Kallbekken and Stephan Kroll, The acceptability of efficiency-enhancing environmental taxes, subsidies and regulation: An experimental investigation. Environmental Science & Policy 16, 90-96.	Language changed and references added	Steffen Kallbekken	CICERO	Norway
67549	48	13	48	13	If distinction between the pathways incl. and excl. conditional NDCs is available, that would be informative for what cap is binding by 2030.	I don't understand this comment.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
16617	48	22	48	28	Another reference of positive impacts of regulation on green job creation (See Lee. T. 2017. The effect of clean energy regulations and incentives on green jobs. Natural Resource Forum 41 (3): 145-155.	Added to the final section.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
15629	48	22	48	28	Another reference of positive impacts of regulation on green job creation (See Lee. T. 2017. The effect of clean energy regulations and incentives on green jobs. Natural Resource Forum 41 (3): 145-155.	Repeat of above comment	Taedong Lee	Yonsei University	Republic of Korea
9199	48	26	48	28	The interpretation of the cited literature Barrington-Leigh et al. 2019 is biased here. The original literature points out that alternative energy is more efficient than coal. If appropriate subsidies are given, it is also beneficial for low-income groups to use energy. Original reference: Based on evidence from our treated, lower-income village, this appears to be in part a reflection of heat pumps' technological efficiency. With electricity subsidies and heat pumps in place in the lower-income district, we observed heat- pump usage but near-zero use of traditional electric heating ('resistive' in Fig. 3). Thus, the heat pumps' factor of around threefold higher efficiency, possibly along with their better safety and convenience, apparently made their use—but not that of traditional electric heaters—economical in this district with the electricity subsidies in place. But here is simply summarized as 'A counter-example is the ban on household use of coal in Beijing which at least initially raised energy costs for modest and low-income families because of a lack of low-cost alternatives'. It is recommended to modify or delete The statement.	Statement is deleted.	Yongxiang Zhang	National Climate Center	China
83637	48	41	48	41	expand "agriculture to specify livestock and rice paddies?	Accepted.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
15295	49	4	49	6	This sentence is a contradictory statement and not part of this section. This section is about non-CO2 gas reduction policies, not emissions. Throughout this section, only China's methane emissions are highlighted without mentioning the emissions of any other country, which is not balanced or objective in its description. It is suggested to delete "Inventory data suggest that emissions peaked and began a slow decline after 2010 (Gao et al. 2020) but satellite data indicate that China's methane emissions, largely attributable to coal mining, continued to rise in line with pre-2010 trends (Miller et al. 2019)."	Rejected. Adopted the wording proposed in the next review comment instead.	Government of China	China Meteorological Administration	China

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
9201	49	4	49	6	The previous sentence is stated as “Regulations and incentives to capture and utilise methane from coal seams came into effect in China in 2010 (Tan 2018; Tao et al. 2019).” In order to better carry on the previous sentence, it is recommended to add “Inventory data suggest that Emissions peaked and began a slow decline after 2010 (Gao et al. 2020) but satellite data indicate that China's methane emissions, largely attributable to coal mining, continued to rise in line with pre-2010 trends (Miller et al. 2019).” Amend to read "Inventory data suggest that emissions peaked and began a slow decline after 2010 (Gao et al. 2020), though satellite data indicate that China's methane emissions, largely attributable to coal mining, continued to rise in line with pre-2010 trends (Miller et al. 2019).	Accepted. Note this comment and the next comments are from the same reviewer and propose different changes.	Yongxiang Zhang	National Climate Center	China
9203	49	4	6	49	It is recommended to delete the sentence about China's methane emissions. This sentence itself is contradictory and does not belong to the content of this section. This section is about non-CO2 gas emission reduction policies, not emissions. Throughout this section, only China’s methane emissions are highlighted, and no other country’s emissions are mentioned. The statement is not comprehensive, it is recommended to delete this paragraph.	Rejected. Adopted the wording proposed in the previous review comment instead. Note this comment and the next comments are from the same reviewer and propose different changes.	Yongxiang Zhang	National Climate Center	China
80715	49	10	49	13	This section should acknowledge that abatement technology has been available and utilized by manufacturers in developed countries since the 1990s. (U.S. E.P.A., 2012). Moreover, only five countries produce 86% of industrial N2O emissions: China, the United States, Singapore, Egypt, and Russia (U.S. E.P.A. (2019)), allowing for targeted approaches for N2O emission regulation. CITATIONS: U.S. E.P.A. (2012). Global Anthropogenic Non-CO2 Greenhouse Gas Emissions: 1990– 2030, at 41 (“Between 1990 and 2005, N2O emissions from production of nitric and adipic acid has decreased 37 percent, from 200 MtCO2e to 126 MtCO2e (see Table 4-2). Over this time period, production of nitric and adipic acid has increased. The decline in historical emissions is mostly due to widespread installation of abatement technologies in the adipic acid industry (Reimer et al, 1999). Most production capacity in these industries has been located in the OECD, but the proportion of emissions in the OECD has declined. In 1990, the OECD accounted for 83 percent of global N2O emissions from this source, whereas the OECD is estimated to account for 68 percent of global emissions in 2005.”). U.S. E.P.A. (2019). Global Non-CO2 Greenhouse Gas Emission Projections & Mitigation: 2015–2050 at 60.	Key points accepted, but most of the information and citations are too dated.	Durwood Zaelke	Institute for Governance & Sustainable Development	United States of America
80859	49	10	49	13	This section should acknowledge that abatement technology has been available and utilized by manufacturers in developed countries since the 1990s. (U.S. E.P.A., 2012). Moreover, only five countries produce 86% of industrial N2O emissions: China, the United States, Singapore, Egypt, and Russia (U.S. E.P.A. (2019)), allowing for targeted approaches for N2O emission regulation. CITATIONS: U.S. E.P.A. (2012). Global Anthropogenic Non-CO2 Greenhouse Gas Emissions: 1990– 2030, at 41 (“Between 1990 and 2005, N2O emissions from production of nitric and adipic acid has decreased 37 percent, from 200 MtCO2e to 126 MtCO2e (see Table 4-2). Over this time period, production of nitric and adipic acid has increased. The decline in historical emissions is mostly due to widespread installation of abatement technologies in the adipic acid industry (Reimer et al, 1999). Most production capacity in these industries has been located in the OECD, but the proportion of emissions in the OECD has declined. In 1990, the OECD accounted for 83 percent of global N2O emissions from this source, whereas the OECD is estimated to account for 68 percent of global emissions in 2005.”). U.S. E.P.A. (2019). Global Non-CO2 Greenhouse Gas Emission Projections & Mitigation: 2015–2050 at 60.	Identical to the previous comment. Key points accepted, but most of the information and citations are too dated.	Gabrielle Dreyfus	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
61451	49	11	49	12	The text in the box states that "Most N2O emissions are not regulated and global emissions have been increasing", but no reference is made to the importance of introducing regulation to better manage N2O emissions, for example by restictions, removal of subsidies or imposition of taxation on nitorgenous fertilisers	Not accepted. Too general.	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
10137	49	37	49	37	Surely this should read 'Other policy instruments'? Does 13.6.5.1 really deserve its own subheading?	Accepted/noted. Change in heading implemented. 'Transition policies' cannot readily be subsumed under a different sub-heading despite the brevity of the section	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
22425	49	37	49	37	Sustainable consumption policies should be included in the list. See review made by Southerton.	No action. Covered under 'consumption-oriented policy instruments' in 13.6.5.2.	Government of France	Ministère de la Transition écologique et solidaire	France
58251	49	40	50	4	The category name "transition policies" is a little confusing. Suggest either "just transition policies" or "transition support policies".	Accepted: 'transition support policies'	Government of United States of America	U.S. Department of State	United States of America
67551	49	40	50	4	It is difficult to understand how "Transition policies" is different from other subsidies and why it is different from other compensation schemes - see my comment 16 above. The various types of support options and rationales, included how they are often combined with other instruments, need a more solid role in your chapter and instrument classification.	Noted. There are different ways in which instruments can be grouped and presented. The differentiating factors are that subsidies transition support policies do not necessarily aim to directly reduce emissions, and that not all transition support policies involve subsidies.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
47025	50	3	50	4	This should also mention the need of policies to support job transitions from high- to low-carbon sectors (such as unemployment benefits, workers' retraining, reallocation assistance, government spending on low-carbon sectors that create new jobs in these sectors (e.g., green infrastructure spending)).	Accepted. Added text: Support policies for job transition and local economic adjustment can be a particular focus of transition policies.	Florence Jaumotte	International Monetary Fund	United States of America
58253	50	5			What about other policies that encourage voluntary consumers behavior change for energy saving?	Accepted/noted. This is implicit in 'consumer choices' mentioned in several instances. Added 'For example…' at p50-16 to indicate that the product purchase example is only an example	Government of United States of America	U.S. Department of State	United States of America
70681	50	10	50	11	An inherent issue with energy efficiency is rebound effect. I do not know where to but it would be advisable to mention rebound effect together with energy efficiency.	Noted. Rebound effects are covered in Ch9, and mentioned in Cross-Chapter Box 7. Section 13.6.5.2 does not seem the right place to cover the issue.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
2463	50	15	50	16	The claim that "alongside mandatory standards (13.6.4) information programmes can 16 nudge firms and consumers to focus on often overlooked operating cost reductions" should be backed up with references. Two potenetial referernces are 1) Carroll, James, Claurida Aravena, Marco Boeri and Elearno Denny, in press. "Show me the energy costs": Short and long-term energy cost disclosure effects on willingness-to-pay for residential energy efficiency". Energy Journal. doi: 2) Kallbekken, Steffen, Håkon Sælen and Erlend Hermansen, 2013. Bridging the energy efficiency gap: A field experiment on lifetime energy costs and household appliances. Journal of Consumer Policy 36 (1), 1-16.	Accepted. Citing Carroll et al (the more recent reference).	Steffen Kallbekken	CICERO	Norway
80723	50	26	50	29	Note the role of procurement guides developed by associations, such as the Sustainable Leadership Policy Council, which recently developed a guide for “Procurement Recommendations for Climate Friendly Refrigerants” that considers both the energy efficiency and GWP of refrigerant in cooling equipment. https://www.sustainablepurchasing.org/wp-content/uploads/2020/09/2020.09.29_Climate_Friendly_Refrigerants_Action_Team_FINAL.pdf.	Accepted. Added text "or by business associations".	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
80867	50	26	50	29	Note the role of procurement guides developed by associations, such as the Sustainable Leadership Policy Council, which recently developed a guide for “Procurement Recommendations for Climate Friendly Refrigerants” that considers both the energy efficiency and GWP of refrigerant in cooling equipment. https://www.sustainablepurchasing.org/wp-content/uploads/2020/09/2020.09.29_Climate_Friendly_Refrigerants_Action_Team_FINAL.pdf.	(Same comment as previous)	Gabrielle Dreyfus	Institute for Governance & Sustainable Development	United States of America
83639	50	37	50	37	This short section has multiple disparate themes (procurement and investment) not really captured in the title.	Accepted. Changed sub-heading from "Government provision" to "Public procurement and investment".	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
58255	50	41	51	1	Is the only procurement considered here public procurement? It would help to be clear.	No action. Text clearly specifies "public procurement".	Government of United States of America	U.S. Department of State	United States of America
15297	50	44	50	45	Taiwan is a province of China and cannot be listed in parallel with sovereign states or political groups such as the European Union and Malaysia in an example. It is strongly requested that the relevant expressions and related literature be deleted.	Replace with Chinese Taipei	Government of China	China Meteorological Administration	China
53749	50	44	50	44	Taiwan is a province of China. It should not be presented in the Government Provision.	Replace with Chinese Taipei	ZHENG XINZHU	China University of Petroleum (Beijing)	China
47027	51	4	51	4	It may be worth mentioning that government investment in low-carbon infrastructure is critical when there are network effects and to enable/increase productivity of private investment in low-carbon sectors. For a simulation of the effect of a mitigation policy package combining carbon taxation and green government infrastructure spending, you may want to add a reference to International Monetary Fund October 2020 World Economic Outlook, Chapter 3 ("Mitigating climate change--growth- and distribution-friendly strategies").	Accepted. Added text "… and can enable or increase productivity of private low-carbon investments". Citing Jaumotte et al background report to IMF report.	Florence Jaumotte	International Monetary Fund	United States of America
58257	51	9	51	14	Is there any quantitative evidence yet about the effectiveness of these measures?	Noted. Our review did not identify specific and reliable analyses of the effectiveness of green banks and related instruments. The references given provide general observations and furthe references.	Government of United States of America	U.S. Department of State	United States of America
58259	51	16	51	22	This box should be expanded based on forthcoming literature, to include specific examples. The box could highlight the climate co-benefits of other policies, and the value of mainstreaming climate into economic policy.	Noted. Space constraints preclude extension of the box. A more in-depth treatment is in Ch16.	Government of United States of America	U.S. Department of State	United States of America
52701	51	17	51	22	old resources as this is not the case anymore , as there has been a substantial increase in R&D investments.	Accepted. Added qualification "in some processes and products".	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
48575	51	25	52	3	The recent work from Neville on the shadows of divestment is quite relevant to the discussion on divestment and reinvestment (Neville, K. J. (2020). Shadows of Divestment: The Complications of Diverting Fossil Fuel Finance. Global Environmenta Politics, 20(2), 3-11.). One way this could be brought into the discussion is by highlighting that reinvestment could reinforce "same systems of environmental and social damage".	Due to length reasons, the discussion on divestment is shortened and linked to the discusson on disclosure and inforamtion	Raul Salas Reyes	University of Toronto	Canada

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
27903	51	29	51	31	Delete "Announcements by investors that they will divest have been shown to negatively affect the share price of listed companies, in a large sample of such announcements (Dordi and Weber 2019)."	No action. There is no justification for the suggested change.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
14523	51	31	51	31	This paper puts forward reseach suggesting that fossil fuel divestment does not negatively affect the value of portfolios: Auke Plantinga & Bert Scholtens (2021) The financial impact of fossil fuel divestment, Climate Policy, 21:1, 107-119, DOI: 10.1080/14693062.2020.1806020	Due to length reasons, the discussion on divestment is shortened and linked to the discusson on disclosure and information	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	United Kingdom (of Great Britain and Northern Ireland)
28989	52	1	53	42	This section seems to be missing a review of studies that have tried to assess the overall mix of any given country's climate policies, which are very important exercises to determine the "policy gap" faced by any country that has set a target under Paris. Is the mix current policies adequate to achieve the target or not? Methodologically, there is a need for policy inventories to be conducted, expert elicitations about adequacy, and also modeling. For one example, see Assessing the Policy gaps for achieving China's climate targets in the Paris Agreement, KS Gallagher, F Zhang, R Orvis, J Rissman, Q Liu, Nature Communications 10 (1), 1-10. Another example for the United States, which integrates subnational action is: Hultman et al. Fusing subnational with national climate action is central to decarbonization: the case of the United States, Nature Communications, 2020.	Noted. This is more relevant to the material on Policy Packages in 13.7	Kelly Gallagher	The Fletcher School, Tufts University	United States of America
77851	52	4	52	25	One example of a large-scale VA is the CORSIA emissions regulation agreement among global airlines as implemented by IATA, which broadly agrees to carbon neutral growth in aviation emissions feom 2025.	Accepted. Included in text.	Alex Rau	Climate Wedge LLC	United States of America
47029	52	27	52	37	In Box 13.10, you may want to add a reference to International Monetary Fund October 2020 World Economic Outlook, Chapter 3 ("Mitigating climate change--growth- and distribution-friendly strategies"). It shows that a comprehensive mitigation policy package combining carbon pricing and government green infrastructure spending (that is partly debt-financed) can reduce substantially emissions while boosting economic activity, supporting the recovery from the Covid-19 crisis. More generally, a green fiscal stimulus (e.g., debt-financed green public investment) can help offset the transitional economic costs from carbon pricing.	This material is covered in Sec 13.9 so deleted here	Florence Jaumotte	International Monetary Fund	United States of America
16619	52	27	52	37	Box 13.10 can be elaborated by reviewing green growth and green new deal literature	This material is covered in Sec 13.9 so deleted here	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
15631	52	27	52	37	Box 13.10 can be elaborated by reviewing green growth and green new deal literature	This material is covered in Sec 13.9 so deleted here	Taedong Lee	Yonsei University	Republic of Korea
22427	52	29	52	31	Suggestion to add reference after the sentence finishing with "...industrial or busness development.": Barbier, E. 2020, Greening the post-pandemic recovery in the G20, Environmental and Resource Economics 76(4), 685-703.	This material is covered in Sec 13.9 so deleted here	Government of France	Ministère de la Transition écologique et solidaire	France
22429	52	33	52	37	Also indicate that there have been few evaluations of green recovery measures so far, though if well designed it can deliver economic and environmental outcomes (Agrawala, Dussaux et Monti, 2020) https://doi.org/10.1787/c50f186f-en	This material is covered in Sec 13.9 so deleted here	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
22431	52	34	52	34	Add important missing reference here (following Bowen and Stern 2010): Chen, Z. et al. 2020, Green stimulus in a post-pandemic recovery: the role of skills for a resilient recovery, Environmental and Resource Economics 76(4), 901-911.	This material is covered in Sec 13.9 so deleted here	Government of France	Ministère de la Transition écologique et solidaire	France
10139	52	39	52	39	Ditto - surely this is about policy instrument interactions (not policy interactions)? If so, the text is inconsistent.	Noted. Policy instrument interactions is more precise. This section has been moved into 13.7 as a box and the title is changed	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
10141	52	39	53	45	This is an important section, with significant policy relevance. I suggest more space is devoted to it - and a better way to structure the discussion is devised.	It has been incorporated into a larger section on policy packages in 13.7	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
11093	52	39	53	45	It seems like a discussion of policy mixes and policy sequences would be appropriate here, in this section. That is because the effectiveness of policies on their own may be low, and yet they may be an important element in a mix or sequence that manages to be quite successful. That is a theme picked up in the Chapter 1 description of the transition dynamics analytic framing. I know you deal with them later in this chapter, but that seems a bit out of place.	It has been incorporated into a larger section on policy packages in 13.7	Anthony Patt	ETH Zürich	Switzerland
16621	52	39	53	45	policy interactions look at the interaction between climate mitigation and adaptation policy (see Lee. T et a. 2020. Does mitigation shape adaptation? The Urban climate mitigation-adaptation nexus. Climate Policy 20 (3) 341-353.	Noted, but this is Better addressed in the sub-section on Adaptation and SDG policies.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
15633	52	39	53	45	policy interactions look at the interaction between climate mitigation and adaptation policy (see Lee. T et a. 2020. Does mitigation shape adaptation? The Urban climate mitigation-adaptation nexus. Climate Policy 20 (3) 341-353.	Noted, but this is Better addressed in the sub-section on Adaptation and SDG policies.	Taedong Lee	Yonsei University	Republic of Korea
67557	52	39	53	46	Consider a subsection that addresses both theoretical and empirical policy interaction. This is not only a matter of empirics. Theory can conclude on several effects of interplays, and how instruments can support or counteract eachother. See also my comment 20	Although the title specifies "empirical" the text cocers both theoretical and empirical material.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
47031	52	40	53	6	We would recommend making a strong case for a comprehensive package, given the extent of the task at hand (a deep and rapid structural transformation of the economy) and the need for a precautionary approach, strong complementarities between various policies, and the existence of multiple market failures that make the "carbon-pricing only strategy" unlikely to be the optimal. Examples of complementarities between policies include government investment in network infrastructure and government support to the development of new low-carbon technologies increasing the responsiveness to carbon pricing. Examples of market failures include knowledge spillovers from innovation that are not taken into account by private firms; path dependency of research, which gives the established technologies an advantage and creates entry barriers (through economies of scale, sunk costs, and network effects); and difficulty accessing financing due to high uncertainty/risk, a long lag until innovation pays off, and lack of knowledge and information among investors.	These arguments are included in a sub-section on policy packages (13.7).	Florence Jaumotte	International Monetary Fund	United States of America
87089	52	23	52	24	According to Antweiler, Copeland & Taylor scale channel refers to change in emissions due to proportional change in output while technique channel encompasses reductions due to change in emission intensity. A third channel of leakage, the composition channel, includes variations in emissions due to change in country's sectoral composition. Référence : Werner Antweiler & Brian R. Copeland & M. Scott Taylor, 2001. "Is Free Trade Good for the Environment?," American Economic Review, American Economic Association, vol. 91(4), pages 877-908, September.	Rejected here. This comment and reference relate to leakage. The comment is repeated for the leakage sub-section and is addressed there in 13.6.6	Philippe Wen	Ministère de l'Éc	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
87091	52	32	52	35	Quirion P., F. Branger, 2014, Would border carbon adjustments prevent carbon leakage and heavy industry competitiveness losses? Insights from a meta-analysis of recent econoMACF studies: A meta-analysis show that most studies estimate carbon leakage in an interval between 5% and 25%. Quirion and Branger also find that a CBAM could reduce carbon leakage (to -5% to 15%)	Rejected here. This comment and reference relate to leakage. The comment is repeated for the leakage sub-section and is addressed there in 13.6.6	Philippe Wen	Ministère de l'Éc	France
87087	52	33	52	37	Also indicate that there have been few evaluations of green recovery measures so far, though if well designed it can deliver economic and environmental outcomes (Agrawala, Dussaux et Monti, 2020) https://doi.org/10.1787/c50f186f-en	Rejected here. This comment and reference relate to Covid recovery policies discussed in 13.9	Philippe Wen	Ministère de l'Éc	France
7573	53	1	53	2	Overlapping policies may reduce the costs of achieving GHG mitigation: see Fisher et al (2008), who shows that combining carbon prices and R&D subsidies for mitigation technologies reduces mitigation costs with respect to only using one of those instruments.	Accepted. Fischer and Newell 2008 cited.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
7575	53	3	53	3	Multiple mitigation policies can be justified when there are several market failures, this is the economic reasoning behind such combination.	Agreed. This is already stated in the second paragraph and supported by the Stiglitz citation.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
60355	53	7	53	9	The whole section and this paragraph in particular is highlighting the potential negative effects of overlaps, but does not speak about the potential benefits of overlaps. E.g., packages with overlapping instruments have a higher chance of success: should one of the instruments fail, the overall package would still be effective. The EU would be an example where the overlap and interplay of many policy instruments was effective, even if though the ETS was weak.	Accepted. Text revised to note increased chance of reaching an emission reduction goal.	Niklas Höhne	NewClimate Institute	Germany
7577	53	11	53	12	Interactions are not necessarily more complex with a tax. This is only true for an ETS.	Agreed. This is addressed later in the section l. 22-30.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
7579	53	15	53	17	But it is also the other way around as well: other non-price mitigation policies may increase the effectiveness of carbon tax or ETS if they address other market failures.	Agreed. This is covered in the revised second paragraph.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
77853	53	22	53	30	Conversely, complimentary policies such as renewable energy incentives or EE targets can lead to lower prices in an ETS, as witnessed by the EU ETS over the years 2010-2018, as these other poliies force reduction in capped sector emissions lowering prices	Accepted.	Alex Rau	Climate Wedge LLC	United States of America
82889	53	22	53	30	Waterbed effect could be better explained, perhaps with the example of renerwables support depressing trading prices.	Rejected.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
67559	53	22	53	30	please consider the following reference on policy interaction: Aune and Golombek 2020 Are Carbon Prices Redundant in the 2030 EU Climate and Energy Policy Package? Energy Journal DOI: 10.5547/01956574.42.3.faun	Accepted.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
60357	53	29	53	30	This sentence could be written also the other way around: "Some carbon prices may be redundant if they cause reductions that would have happened anyway because of the existence of an overlapping regulation." It would be interesting to show evidence if one or the other situation occurred more often. I would assume that in many cases the carbon price was redundant (too low) to put an effect over the regulation e.g. support of renewables and the ETS in the EU.	Accepted. Sentence revised to be neutral and a study suggesting that regulations will exceed the ETS target in the EU has been added.	Niklas Höhne	NewClimate Institute	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
7581	53	34	53	34	Of course they interact. The issue is how. What are the effects of such interaction?	Noted, but space is very limited in which to make these explanations	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
9205	53	39	53	40	As of the end of 2020, there are 8 regional carbon markets in China, and it is recommended to clarify this number.	Language changed to 'severa;' because although there were 8 ETSs, only 7 were studied	Yongxiang Zhang	National Climate Center	China
8597	54	1	55	4	It is important to note here that even if carbon prices were harmonized this would also have different effects on competitiveness of various regions, e.g. Ward, H., Steckel, J. C., & Jakob, M. (2019). How global climate policy could affect competitiveness. Energy Economics, 84, 104549.	Accepted.	Jan Steckel	MCC	Germany
79855	54	1	54	1	Regarding national policies and international cooperations, there is an article in Nature Climate Change "under review" at the moment (will be published hopefully soon). The article elaborates on the means and scope of Art 2.1c. It is the first peer-reviewed article of its kind that analyses the ambiguousness of the PAs long-term financial-goals. It evidently shows the new meaning of finance created in Paris. The way of transforming the global fiancial system must be further discussed in UNFCCC negotiations, but governments must already translate policies and regulations to scale up efforts in implementing 2.1c. The working title so far is: "Climate-consistent finance as a pretty penny for climate action". Potentially, the mentioned literature fits also in antother sub-section in chapter 13. Thank you very much for having a neutral view on the mentioned literature.	Rejected. Not relevant to leakage.	Michael König	FS UNEP Centre	Germany
9721	54	1	54	41	Important sources of intrasectoral carbon leakage is associated with global value chain and international transport. Chapter 12, section 12.6.3 has provided assessment of these chanel that may be cross-referenced here.	Accepted.	Mustafa Babiker	Saudi Aramco	Saudi Arabia
70683	54	1			I wonder if "13.7 International interactions of national mitigation policies" would fit for this chapter or Ch. 14 International Cooperation. I have no idea if it has been discussed with the authors of Ch. 14. If not, cross-chapter coordination would be recommended.	An IPCC Break Out Group on leakage decided that chapter 13 is the home for the leakage discussion because it is closely tied to policy design. Chapter 14 will tailor its discussion accordingly.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
27905	54	4	54	4	Delete "and reduction in the value of their fossil fuel resources".	Rejected. That is one of the sub-sections and no reason for deletion is given.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
58261	54	6			Consider adding some literature on the production vs. consumption based emissions accounting under the leakage section.	Rejected. The agreed definition of leakage is changes to emissions due to a unilateral policy. Consumption-production differences are not leakage but will be discussed in Chapter 14.	Government of United States of America	U.S. Department of State	United States of America
82891	54	6	54	6	This section overlaps with Chapter 14. Perhaps inevitable, but check for consistency.	Noted. The split between Chapters 13 and 14 was agreed by the break out group on leakage and subsequent communication between Chapters 13 and 14.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
8331	54	6	55	18	The discussion of leakage and anti-leakage measures is way too short to cover the main challenges of this complex issue. I think the empirical parts related to leakage could be cut and moved to Ch4. By contrast, the design of anti-leakage policies is one of the key issues these days, and a deeper analysis of design options and the related administrative, legal and political challenges seems to be essential for this chapter or policy instruments.For the case of the EU, key challenges are outlined in the recent ERCTS report (Marcu et al. 2020, https://ercst.org/border-carbon-adjustments-in-the-eu/). Most of these issues apply for other countries as well. Perhaps one could add the three implementation scenarios outlined in the report in a table.	Rejected. The scope of the leakage discussion in Chapters 13 and 14 has been agreed by the break out group on leakage and subsequent communications between the chapters.	Michael Jakob	MCC Berlin	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
8737	54	7	54	38	Section 13.7.1. Leakage Effects – This section fails to consider leakage and spillover effects in the land sector, which are relevant to mitigation action in the land sector. This seems an important omission that I suggest being addressed. For many: Meyfroidt, P., Börner, Jan, J., Garrett, R., Gardner, T., Godar, Javier, J., Kis-Katos, K., Soares-Filho, Britaldo S., B. S., & Wunder, Sven, S. (2020). Focus on leakage and spillovers: Informing land-use governance in a tele-coupled world. Environmental Research Letters, 15(9). https://doi.org/10.1088/1748-9326/ab7397 Pendrill, F., Persson, U. M., Godar, J., & Kastner, T. (2019). Deforestation displaced: Trade in forest-risk commodities and the prospects for a global forest transition. Environmental Research Letters, 14(5), 055003. https://doi.org/10.1088/1748-9326/ab0d41 Bastos Lima, M. G., Persson, U. M., & Meyfroidt, P. (2019). Leakage and boosting effects in environmental governance: A framework for analysis. Environmental Research Letters, 14(10), 105006. https://doi.org/10.1088/1748-9326/ab4551 Meyfroidt, P., Lambin, E. F., Erb, K.-H., & Hertel, T. W. (2013). Globalization of land use: Distant drivers of land change and geographic displacement of land use. Current Opinion in Environmental Sustainability, 5(5), 438–444.	Accepted. Thanks. Added as a channel of leakage	Charlotte Streck	University of Potsdam	Germany
10143	54	12	54	12	A better title would be 'types of carbon leakage'. These are all theoretical types. How many actually appear in practice in the 'real world'?	Accepted. Changed to Possible Sources of Leakage	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
15299	54	12	54	26	Box 13.11, which deals with "Channels of leakage" as seen from the title, addresses sometimes ‘channels’ and sometimes ‘effects’, both of which are theoretical and conceptual, but may not happen in reality. It is suggested to change the title of the Box to "Possible channels and effects" and to increase the supporting literature in this connection.	Accepted. Changed to Possible Sources of Leakage	Government of China	China Meteorological Administration	China
22433	54	23	54	24	According to Antweiler, Copeland & Taylor scale channel refers to change in emissions due to proportional change in output while technique channel encompasses reductions due to change in emission intensity. A third channel of leakage, the composition channel, includes variations in emissions due to change in country's sectoral composition. Référence : Werner Antweiler & Brian R. Copeland & M. Scott Taylor, 2001. "Is Free Trade Good for the Environment?," American Economic Review, American Economic Association, vol. 91(4), pages 877-908, September.	Reference included, but the not discussed because disaggregating one of the 8 channels is too much detail.	Government of France	Ministère de la Transition écologique et solidaire	France
22435	54	32	54	35	Quirion P., F. Branger, 2014, Would border carbon adjustments prevent carbon leakage and heavy industry competitiveness losses? Insights from a meta-analysis of recent econoMACF studies: A meta-analysis show that most studies estimate carbon leakage in an interval between 5% and 25%. Quirion and Branger also find that a CBAM could reduce carbon leakage (to -5% to 15%).	Accepted.	Government of France	Ministère de la Transition écologique et solidaire	France
22437	54	36	54	36	Concerning "ex post analyses", a recent ex post analysis find a carbon leakage rate of 20% (during phase 3 of the EU ETS) Kuusi, T., Björklund, M., Kaitila, V., Kokko, K., Lehmus, M., Mehling, M., ... & Wang, M. (2020). Carbon Border Adjustment Mechanisms and Their Economic Impact on Finland and the EU. Publication of the Finnish Government’s analysis, assessment and research activities.	Report cited, but 20% leakage estimate is not.	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
79255	54	38	54	38	Some econometric works do find some evidence of carbon leakage for single countries, in particular Borghesi et al (2020) for Italy, Koch and Basse Mama (already cited in the text) for Germany. The two aforementioned studies provide complementary results which, in my view, open new perspectives in the research on this topic. Though I understand the authors have space constraints, I think mentioning this research line would enrich this brief literature review showing more awareness that ex-post evidence on carbon leakage might be progressively changing as carbon prices tend to increase. Therefore, I would mention Koch and Basse Mama as part of this new country-based evidence rather than among the studies that find little/no evidence of carbon leakage. Reference: Borghesi S., Franco C., Marin G. (2020) "Outward Foreign Direct Investments Patterns of Italian Firms in the EU ETS", (2020), The Scandinavian Journal of Economics, vol. 122 (1), 219-256, DOI: https://doi.org/10.1111/sjoe.12323.	Reference cited.	Simone Borghesi	University of Siena	Italy
22439	55	1	55	3	Suggestion to add that carbon border adjustment are more effective than free allowances to prevent the risk of carbon leakage See the meta-analysis of Branger, F., & Quirion, P. (2014). Would border carbon adjustments prevent carbon leakage and heavy industry competitiveness losses? Insights from a meta-analysis of recent economic studies. Ecological Economics, 99, 29-39.	Reference cited to support statement that analyses of BCAs find they reduce but do not eliminate leakage.	Government of France	Ministère de la Transition écologique et solidaire	France
85125	55	1	55	18	Border adjustment worth expanding on given current developments. Also important to note the medium-term difficulty of sustaining free allocation in carbon schemes with a steeply declining cap on total emissions. Consistency of chapters is important - there are somewhat distinct takes on free allocation and border adjustment in Chapter 11 (industry)	Rejected. Most discussion of BCAs has been delegated to Chapter 14.	Tennant Reed	Australian Industry Group	Australia
10145	55	3	55	4	This has significant policy relevance and should be expanded - NB the EU is now actively exploring a CBAT. Why are they so rare in practice? Box 13.12 should be expanded to reflect this.	Rejected. Most discussion of BCAs has been delegated to Chapter 14.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
67561	55	5	55	28	box 13.12: I think it should be mentioned that estimating carbon content has become easier with ISO standards, communication technologies and inventory standards, and also that how carbon content is defined (how targeted they are) matters for the effectiveness and cost effectiveness of the CBAs. See, e.g., 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. http://dx.doi.org/10.1016/j.reseneeco	Reference cited.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
77855	55	6	55	18	The EU voted to adopt its CBAM border tax policy in March of 2021.	Noted. It is one of several covered by the statement that a BCA is under consideration by some governments.	Alex Rau	Climate Wedge LLC	United States of America
54403	55	6	55	18	Check this out for unwanted effects: Jakob, M., Marschinski, R. & Hübler, M. Between a Rock and a Hard Place: A Trade-Theory Analysis of Leakage Under Production- and Consumption-Based Policies. Environ Resource Econ 56, 47–72 (2013). https://doi.org/10.1007/s10640-013-9638-y	Rejected. This is not consistent with the IPCC definition of leakage.	Sabine Fuss	MCC Berlin	Germany
22441	55	7	55	8	Import taxes are not the only way to design a carbon border adjustment mechanism. This could also be a dedicated allowance system mirroring the domestic ETS, an extension of the domestic ETS or the domestic carbon tax... This mention is important, as it shows that carbon intensity of the imported good can/should be reflected in the carbon price.	Accepted. Text indicates that the BCA can be a tax or allowance purchase obligation	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
46281	55	7	55	7	Please add: "Import taxes, possibly mirrored by export rebates on carbon intensive goods". See the Definition of Border Tax Adjustment by OECD , e.g. in OECD 2006, The Political Economy of Environmentally Related Taxes, p. 93: "... any fiscal measures which put into effect, in whole or in part, the destination principle (i.e. which enable exported products to be relieved of some or all of the tax charged in the exporting country in respect of similar domestic products sold to consumers on the home market and which enable imported products sold to consumers to be charged with some or all of the tax charged in the importing country in respect of similar domestic products)".	Accepted.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
22443	55	9	55	12	Carbon border adjustment mechanisms pursue primarily a climate and environmental goal, not a competitiveness goal. They are aimed to enable carbon pricing on both domestic and imported goods, instead of having imported goods unpriced and EITE domestic goods having free allowances. https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism/F525248	Agreed.	Government of France	Ministère de la Transition écologique et solidaire	France
22445	55	9	55	9	Suggestion to add missing reference to BCAs: Monjon, S. and Quirion, P. 2011, A border adjustment for the EU ETS: Reconciling WTO rules and capacity to tackle carbon leakage, Climate Policy 11(5), 1212-1225.	Rejected. The reference is too dated. The more recent studies cited cover the same topic.	Government of France	Ministère de la Transition écologique et solidaire	France
46283	55	9	55	9	Please delete: "of such strategic use", COMMENT: all policy choices should have some strategy, the wording seems to suggest that BCAs do only follow competitive self interest; BCAs have important functions for global emission reductions.	Accepted.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
46285	55	9	55	9	Please add further functions of BCAs; carbon leakage means that embodied emissions would be imported, emissions outsourcing to developing countries has led to an increase in their territorial emissions, especially in China (Jiang et al. 2018). This puts into question national reduction targets (Meng, Jing and Co-authors, 2018: The rise of South-South trade and its effect on global CO2 emissions. Nat. Commun., https://doi.org/10.1038/s41467-018-04337-y) Please make a cross reference to Chapter 2.4.5 of this report.	Rejected. This goes beyond the scope of the BCA discussion agreed for Chapter 13. A borader discussion can be found in Chapter 14.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
46287	55	11	55	11	Please add a cross-reference to Chapter 2.3 and 2.4.5 of this WGIII draft or restate the findings there. All advantages for "consumption based accounting" are valid for border adjustments as well. Border adjustments follow the destination principle: a price is put on the carbon consumed.	Rejected. This goes beyond the scope of the BCA discussion agreed for Chapter 13. A borader discussion can be found in Chapter 14.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
46289	55	11	55	11	Please do not only quote one author, please add: Ismer/Neuhoff/Pirolot 2020, DIW, Discussion Papers 1855, Border Carbon Adjustments and Alternative Measures for the EU ETS, https://www.diw.de/documents/publikationen/73/diw_01.c.743698.de/dp1855.pdf	Accepted	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
22449	55	14	55	14	Whether this has been done successfully is very much debated, a neutral wording seems appropriate here: "countries have instead chosen to address this concern via free allowance allocations..." For evidence on the economic inefficiency of free allowances for such compensation, see Martin,R. et al. 2014. Industry compensation under relocation risk: A firm-level analysis of the EU-ETS. American Economic Review 104(8), 2482-2508.	Text has been deleted.	Government of France	Ministère de la Transition écologique et solidaire	France
22447	55	14	55	15	Please refer to supra on the better efficiency of the carbon border adjustment to prevent carbon leakage	Rejected. The paper claims that free allowances provide excess compensation. It does not evaluate border carbon adjustments.	Government of France	Ministère de la Transition écologique et solidaire	France
46291	55	14	55	14	Please delete "successfully" or limit the assertion on free allowances, rising prices will cause additional problems.	Text deleted.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
46293	55	18	55	18	Please add: "New literature suggests that a combination of free allocation of allowances and border adjustment based on consumption-based pricing is the optimal compromise for a WTO consistent measure to address Carbon Leakage and strengthen incentives for decarbonisation (Ismer/Haussner et al. 2016, Inclusion of Consumption, https://www.diw.de/documents/publikationen/73/diw_01.c.534388.de/dp1579.pdf; Ismer et. al., 2020, Border Carbon Adjustments and Alternative Measures for the EU ETS: An Evaluation, https://www.diw.de/de/diw_01.c.743700.de/publikationen/diskussionspapiere/2020_1855/border_carbon_adjustments_and_alternative_measures_for_the_eu_ets__an_evaluation.html; Brzeziński et al. 2020 Climate Contribution and its role in European industrial decarbonisation; https://climatestrategies.org/wp-content/uploads/2020/12/CFMP-Climate-Contribution-Policy-Brief.pdf	Rejected. This is a somewhat sweeping conclusion based on one study that has not been peer reviewed.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
8739	55	20	55	38	13.7.2 Market for emission reduction credits – I suggest adding reference and data to voluntary carbon markets here. The CDM is a sunset mechanism, while voluntary markets have seen a dramatic increase in attention and interest in recent years. The way how governments can take advantage of such markets, may at least to be mentioned.	Rejected. The agreed scope of the section is credit use for compliance with national policies. A broader discussion of credits can be found in Chapter 14.	Charlotte Streck	University of Potsdam	Germany
61109	55	20	55	38	With the possibility of inter-linking the carbon market segments in times to come, Dube and Chaturvedi (2021) postulated a complex picture of the existing carbon markets turning into a future supermarket.See: The climate change supermarket postulate: Dube, Lokesh Chandra; Chatterjee, Sudipta. 2021. "Forest Carbon in Climate Change Supermarket: Is India Prepared to Sail?" Environ. Sci. Proc. 3, no. 1: 41. https://doi.org/10.3390/IECF2020-08081	Rejected. The section is limited to use of international credits for compliance.	LOKESH CHANDRA DUBE	TERI School of Advanced Studies	India

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
70685	55	22	55	24	This is already mentioned in the second paragraph of '13.6.3.4 Offset credits' in page 44.	Agreed.the duplication is retained.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
58263	55	26	55	34	Suggest a couple of specific edits to this section: "The Clean Development Mechanism (CDM) is CURRENTLY the world's largest offset PROGRAMME (Chapter 14). From 2001 to 2019, over 7,500 projects with projected emission reductions in excess of 8,000 MtCO2-eq were implemented in 114 developing countries using some 140 different emissions reduction methodologies (UNFCCC, 2012; UNEP DTU Partnership, 2020). Credits reflecting over 2,000 MtCO2-eq of emission reductions by 3,260 projects have been issued. These CDM projects led to investment and in some cases technology transfer to the host countries (Murphy et al., 2015). SOME CARBON MARKETS (SUCH AS DOMESTIC, BILATERAL, OR VOLUNTARY CARBON MARKETS) MAY UTILIZE OTHER OFFSET CERTIFICATION STANDARDS OR FRAMEWORKS THAT ARE REGULATION-BASED OR INDEPENDENTLY ADMINISTERED. UNDER ANY OFFSET CERTIFICATION PROGRAMME, additionality of claimed emissions reductions is an issue to be CONSIDERED IN THE RECOGNITION OF OFFSET PROJECTS AND PROGRAMMMES (Wara and Victor, 2008; Schneider, 2009; Millard-Ball, 2013), but PROCEDURAL and measurement advances can significantly reduce that risk (Mason and Plantinga, 2013; Bento et al., 2016; Michaelowa et al., 2019).	Partially accepted. The scope of the section is limited to creditsgenerated by the Kyoto mechanisms that have been used for compliance with national policies. So discussion of bilateral and voluntary credit mechanisms is outside the scope.	Government of United States of America	U.S. Department of State	United States of America
79257	55	29	55	29	eliminate space	Accepted.	Simone Borghesi	University of Siena	Italy
77857	55	31	55	38	The authors are to be commended for their balanced description of additionality considerations in offset programs such as the CDM, they have struck the right tone of potential risks to additionality but also lessons learned to create better offset mechanisms.	Accepted.Thanks.	Alex Rau	Climate Wedge LLC	United States of America
14525	55	31	55	32	This important paper shows how CDM projects in Brazil have led to reduced income inequality, because they mostly involve labour intensive projects, which provide employment for manual workers. David Grover & Swaroop Rao (2020) Inequality, unemployment, and poverty impacts of mitigation investment: evidence from the CDM in Brazil and implications for a post-2020 mechanism, Climate Policy, 20:5, 609-625, DOI: 10.1080/14693062.2020.1760773	Accepted.	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	United Kingdom (of Great Britain and Northern Ireland)
58265	55	32	55	32	Suggest smoother transition sentence from discussing CDM to offset quality more generally (additionality, etc.), and to acknowledge that CDM is only one of several such systems. Other examples include: - Regulation-based (e.g., California's and Quebec's linked sub-national cap-and-trade system and the U.S. Northeast's Regional Greenhouse Gas Initiative, or RGGI, both have regulation-based offset protocols) - Independent (i.e., of a specific government / framework or regulation; examples include, inter alia, the Gold Standard, Verra, American Carbon Registry, Japan Joint Crediting Mechanism, Forest Carbon Partnership Facility).	Partially accepted. The scope of the section is limited to creditsgenerated by the Kyoto mechanisms that have been used for compliance with national policies. So discussion of bilateral and voluntary credit mechanisms is outside the scope.	Government of United States of America	U.S. Department of State	United States of America
58267	55	34	55	36	Any results can be cherry-picked from discrete projects. Suggest reframing the last sentence in this paragraph to address the broader concern: "Adverse impacts resulting from the implementation of activities that generate emissions reductions are possible, but can be mitigated through careful consultation, design, monitoring, and adherence to safeguards."	Accepted. Text revised.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58269	55	37	55	38	Suggest a couple of revisions to this sentence: "Article 6.4 of the Paris Agreement establishes A mechanism for GENERATING EMISSIONS REDUCTIONS CREDITS FOR potential future international trade (Section 14.3)." Also suggest adding the following sentence: "The International Civil Aviation Organization's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) also established a compliance system under which airlines offset emissions from international aviation above a specified baseline through the purchase of credits from eligible programmes."	CORSIA is mentioned earlier in the chapter	Government of United States of America	U.S. Department of State	United States of America
52609	55	40	56	1	This is a very short sub-section. As the section stands now, it is hard to understand what technology spill-over is. More explanation is needed here.	Rejected. The intent is to refer the reader to Chapter 16.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
47033	55	42	55	43	For a more recent analysis of the response of innovation to mitigation policies, you may want to add a reference to International Monetary Fund October 2020 World Economic Outlook, Chapter 3 ("Mitigating climate change--growth- and distribution-friendly strategies").	Rejected. The intent is to refer the reader to Chapter 16.	Florence Jaumotte	International Monetary Fund	United States of America
87093	55	7	55	9	Import taxes are not the only way to design a carbon border adjustment mechanism. This could also be a dedicated allowance system mirroring the domestic ETS, an extension of the domestic ETS or the domestic carbon tax... This mention is important, as it shows that carbon intensity of the imported good can/should be reflected in the carbon price.	Comment out of place; relates to BCA box. The text in the leakage section notes that an obligation on imports to purchase allowances is an option. The BCCA box has been deleted as this discussion is carried forward in Ch 14	Philippe Wen	Ministère de l'Éc	France
87095	55	9	55	12	Carbon border adjustment mechanisms pursue primarily a climate and environmental goal, not a competitiveness goal. They are aimed to enable carbon pricing on both domestic and imported goods, instead of having imported goods unpriced and EITE domestic goods having free allowances. https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism/F525248	Comment out of place; relates to BCA box. The text in the leakage section notes that an obligation on imports to purchase allowances is an option. The BCCA box has been deleted as this discussion is carried forward in Ch 15	Philippe Wen	Ministère de l'Éc	France
10147	56	4	56	4	This section, while interesting, is oddly placed. Move it somewhere else?	Rejected. This section on value of fossil fuel resources does fit in 13.6.6 we believe	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
15381	56	25	56	34	There is a growing international movement to constrain supply-side policies through a Fossil Fuel Non-Proliferation Treaty that is calling to end new exploration and production and to phase out existing stockpiles and productions. A Global Registry of Fossil Fuels is presently being created (to be compleed by COP26) which seeks to promote transparency by demonstrating that current projects will provide sufficient fossil fuels in the transition to a low-carbon economy to show that further exploration and new projects are incompatible with a 1.5 degree world. The treaty has been endorsed by several cities (including Vancouver and Barcelona; motions of endorsement have also been tabled in New York City and Los Angeles) as well as hundreds of organizations around the world.	Supply-side policies has been moved to Chapter 14.	Christie McLeod	Miller Thomson LLP	Canada

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
27907	56	25	56	34	Delete "Box 13.13 Fossil fuel supply-side policies Policies to reduce emissions from fossil fuel use typically aim to reduce demand. Equivalently, the supply of fossil fuels could be constrained (Hoel 1994). Under 'Fossil fuel supply-side policies' (Lazarus and van Asselt 2018), higher prices and lower use of fossil fuels would be achieved by limiting the supply of fossil fuel or taxes levied at the source. Revenue from taxes would accrue to governments in fossil fuel producing and exporting countries. Suppliers might enjoy higher prices, though terms-of-trade benefits of meaningful size could only be achieved if there was extensive cooperation between fossil fuel producers (Richter et al. 2018), (Böhringer et al. 2018). Whether and to what extent fossil fuel producing countries might cooperate on supply-side policy is unclear (Asheim et al. 2019; Green and Denniss 2018)."	Supply-side policies has been moved to Chapter 14.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
14527	56	25	56	34	The discussion of supply-side policies seems rather thin, especially given the increasing attention to this topic in the literature since AR5. There is much more to say on emerging policies, challenges and opportunities. This editorial, along with the Climate Policy special issue on the topic, might provide a good starting place: Georgia Piggot, Cleo Verkuijl, Harro van Asselt & Michael Lazarus (2020) Curbing fossil fuel supply to achieve climate goals, Climate Policy, 20:8, 881-887, DOI: 10.1080/14693062.2020.1804315	Supply-side policies has been moved to Chapter 14.	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	United Kingdom (of Great Britain and Northern Ireland)
67563	56	25	56	34	box 13.13: It seems suppressed that supply side policy can be meaningful/optimal as unilateral/small coalition action compared with other climate action, even if it is not equivalent to demand side policy as in a global action setting (Hoel, 1994; Richter et al.(2018), Faehn et al (2017), Hagem and Storrøsten (2019),Erickson and Lazarus, 2018). It should also be mentioned that for non-suppliers it can be optimal to impose supply-side policies by buying deposits (Eichner and Pethig (2017); Harstad (2012)). REFERENCES: Eichner, T. and R. Pethig (2017): Trade in fossil fuel deposits for preservation and strategic action, Journal of Public Economics, Volume 147; Erickson, P and Lazarus, M, 2018,Would constraining US fossil fuel production affect global CO2 emissions? A case study of US leasing policy, Climatic Change, 150(1-2), 29-42; Fæhn, T., C. Hagem, L. Lindholt, S. Mæland and K. E. Rosendahl (2017): Climate policies in a fossil fuel producing country. Demand vs supply side policies, The Energy Journal 38 (1), 77-102; Hagem C. and H. B. Storrøsten (2019): Supply versus demand-side policies in the presence of carbon leakage and the green paradox, Scandinavian Journal of Economics 121(1), 379-406; Harstad, B. (2012): Buy Coal! A Case for Supply Side Environmental Policy. 120(1): 77-115;	Supply-side policies has been moved to Chapter 14.	Taran Fæhn	Statistics Norway, Research Dep.	Norway
58271	56	31	56	32	What about the effect of higher prices on fossil fuel exploration and production? Could a higher price make some plays that were previously unprofitable profitable, and thereby reduce the avoided emissions?	Supply-side policies has been moved to Chapter 14.	Government of United States of America	U.S. Department of State	United States of America
16623	56	33	56	34	bold in the sentense?	Supply-side policies has been moved to Chapter 14.	Government of Republic of Korea	Korea Meteorological Administration (KMA)	Republic of Korea
15635	56	33	56	34	bold in the sentense?	Supply-side policies has been moved to Chapter 14.	Taedong Lee	Yonsei University	Republic of Korea
11895	56	36	73	5	The entire Chapter 13.8 is very difficult to follow. It is well known that mitigation measures differ with respect to their multifunctional impact (e.g. reductions in fuel use, land use changes) and that different policies (economics, regulatory and others) have different dispersal effects in the economy and on the environment. The chapter mixes mitigation measures and policy instruments. It is also difficult to see the distinction between policy goals and means.	Noted. The section has been completely restructured in response to comments. It is now organised to focus on policy packages as a complement to Sec 6, while adaptation is in a different section	The Royal Swedish Academy of Agriculture and Forestry (Group Review)	Kung. Skogs-och Lantbruksakademien	Sweden

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
80047	56	38	60	38	The report could do better at underlining the complexity that studies of policy integration highlight. When it comes to climate policy integration, literature also highlights the importance of benchmark both for assessing the degree of/success of policy integration and for degree of ambition towards transformational policy. The benchmark is often at odds with regular policy cycles, as it can be a long-term goal. Therefore, it is important to acknowledge the temporal challenges with policy goals that have different dates of delivery for policy integration. Further, policy integration is not the same as coherence, but rather implies a deliberate coordination effort in policy processes: integration = coherence + coordination, in a multi-level context, with horizontal, vertical and temporal integration challenges. I refer to some of my own work here (Dupont & Oberthür 2012, Insufficient climate policy integration in EU energy policy: the importance of the long-term perspective, JCER 8:2 and Dupont 2016, Climate Policy Integration into EU energy policy, London: Routledge). Further, on policy integration, the European Environment Agency released an influential report in 2005 that largely remains relevant, which also points out the importance of administrative culture for integration - this is not explicitly mentioned here. A lot of policy sciences and public administration work also looks rather from a bureaucratic perspective, e.g. Trein & Maggetti 2020 Patterns of policy integration and administrative coordination reforms: a comparative empirical analysis, Public Administration Review.	Accepted. This point on temporal consistency has been added.	Claire Dupont	Ghent University	Belgium
8599	56	38	57	26	You mention that trade-offs and co-benefits / synergies exist, but largely focus on the co-benefits (of mitigation). What would be trade-offs, e.g. between mitigation and short term development goals (Kalkuhl et al. 2019, Nature Energy make a point on foregone industrialization, so do Montrone, Kalkuhl and Steckel, in review, Resource and Energy Economics), Jakob and Steckel (2016, Environmental Research Letters) discuss trade-offs using mitigation scenarios. Surely not the sole examples, suggest to be more explicit on trade-offs and respective literatre.	Noted, this section examines policy packages to maximize synergy and minimise trade-offs. For this puprpose we note the existence of trade-offs but do not analyse them This is done in Ch 17	Jan Steckel	MCC	Germany
7583	57	7	57	10	One of the first papers (if not the first paper) to suggest this need for multi-objective frameworks in the realm of mitigation was DEL RÍO, P. (2014). On evaluating success in complex policy mixes: the case of renewable energy support schemes. Policy Sciences 47(3), 267-287	Accepted. This reference to del Rio 2014 has been added.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
85419	57	7	57	10	7 This section draws on a growing body of literature evaluating planning and implementation, and 8 emphasizes the need for multi-objective frameworks capable of identifying synergies and trade-offs in 9 multiple scales (local, state and global) and between sectors (agriculture, forestry, mining, energy, water, urban, health) 10 (Berrang-Ford et al. 2015; Berry et al. 2015; Denton et al. 2015; Grafakos et al. 2019).In order to consider the need for multi-objective frameworks capable of identifying synergies and trade-offs at multiple scales, it is necessary to consider mining and forestry (Forest or forest management)	Noted. This paragraph has now been deleted for length purposes	victor arturo miranda alfaro	Gobierno	Peru
58273	57	12			Consider adding discussion on employment and economic development. Literature on the employment impact show mixed results; also the challenges are distributional rather than just the aggregate impacts. Needs more granular research on the topic.	Noted. This issue is partially covered in Sec 9, with respect to economy wide low carbon packages	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
63193	57	13	57	26	At national and sub-national scales, and across these two levels, decarbonisation goals can complement or conflict with goals for energy, water, and food. Recognition of these cross-sectoral effects and movement toward integration of policies and targets for climate, water, energy and food can promote complementary progress and mitigate negative externatities of goals across sectors. Framing of these cross-sectoral effects at the global level through the SDGs also can support national and sub-national policy development toward decarbonisation and energy, water and food sustanability. (Sklarew D. and J. Sklarew. 2018. Integrated water-energy policy for sustainable development. Foresight and STI Governance 12(4): 10-19. doi: 10.17323/2500-2597.2018.4.10.1)	Noted. Discussion of these interactive effects are covered more completely in Ch 17, and with regard to adaptation in 13.8	Jennifer Sklarew	George Mason University	United States of America
7585	57	18	57	20	del Río (2009) and DEL RÍO, P. (2014). On evaluating success in complex policy mixes the case of renewable energy support schemes. Policy Sciences 47(3), 267-287 were the first papers claiming that the co-benefits of climate policies were and are commonly overlooked in policy-making. DEL RÍO, P. (2009). "Interactions between climate and energy policies: the case of Spain". Climate Policy 9(2), 119–138 DEL RÍO, P. (2014). On evaluating success in complex policy mixes: the case of renewable energy support schemes. Policy Sciences 47(3), 267-287	Noted. Del Rio 2014 has been referenced	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
10841	57	27	57	30	Perhaps the most frustrating aspect of such passages of the draft is that the reader gets very little information out of it. That different countries select different options is a truism rather than information. Next we learn that half a dozen of papers have been published dealing with the issue at hand. But we have no idea of what they found or concluded !	Noted. We agree in principle, but space limits make it hard to introduce examples everywhere. We have sought to take this advice on board in the revision as a whole.	Philippe Waldteufel	CNRS	France
10843	57	27	57	30	CONTINUED This is not to say that these papers lack interest. Parsonally I was most interested in Friman and Hjerpe 2015 (incidentally it is Fridahl rather than Friman). At the same time I recognize that the report has the basic task of "assessing" the litterature, which means at least mentioning it. However if the report goes on to describe what authors find or conclude, it is groing to become unbearably bulky. Perhaps an intermediate solution might be to select at least one finding or a couple of them to illustrate on examples that literature does bring added value.	Noted. We agree in principle, but space limits make it hard to introduce examples everywhere. We have sought to take this advice on board in the revision as a whole. Moreover, this point is now made as part of a larger argument about how the approach to policymaking affects the frame adn choice of policis. We checked the reference and it is Friman we are referring to	Philippe Waldteufel	CNRS	France
86565	58	1	58	1	unclear, why this should be universally true. If we had an enforceable $ 1,000 /t CO2 tax, nearly any other item would be irrelevant.	Noted. No concrete change suggested. However, this figure is being revised	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
11897	58	1	58	3	There is a need for explaining Figure 13.6. For example, a carbon tax impacts not only emissions but several other pollutants, and it affects several objectives (e.g. employment, equity etc.) of concern for society. Why is this not listed as 'multi-objectives'?	Accepted. Fig 13.6 has been entirely re-done to be more precise in response to several comments.	The Royal Swedish Academy of Agriculture and Forestry (Group Review)	Kung. Skogs-och Lantbruksakademien	Sweden
52703	58	1	58		use of transformation goes beyond national circumstance.	Noted. NO specific suggestion	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
58275	58	1	58	3	The four axis labels on Figure 13.6 are confusing. For example, on the top and bottom horizontal axes, which one is more important and how do they relate? What do the thin blue arrows within the box mean? What does the dotted line mean?	Noted Fig 13.6 has been entirely re-done to be more precise in response to several comments.	Government of United States of America	U.S. Department of State	United States of America

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
70687	58	1			RE transition, EV transition, Coal transition, REDD+' can also belong to 'Shifting incentives'. The division between 'Enabling transformation' and 'Shifting incentives' is not clear for the groups of 'EE standards, Fuel taxes, FIT, Green procuremet mandates' and 'RE transition, EV transition, Coal transition, REDD+' can also belong to 'Shifting incentives'.	Noted. Fig 13.6 has been entirely re-done to be more precise in response to several comments.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
70689	58	1			What about 'Integration needs' rather than 'Governance needs'? It sounds more plain.	Noted. Fig 13.6 has been entirely re-done to be more precise in response to several comments.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
84513	58	1	58	3	The mapping of the landscape of climate development actions covers a wide range o strategies while urban strategies is not visible in this landscape. It will be useful for the consistency of the report to represent urban planning oriented strategies in this context. The urban dimension is also relevant within this landscape.	Noted. Urban strategies are added to the revised Fig 13.6	Siir KILKIS	The Scientific and Technological Research Council of Turkey	Turkey
19851	58	2	58	2	Fig. 13.6 mixes policy instruments and specific technological actions; it should focus on the latter. Add "baseline and credit systems" in upper left section (below "cap and trade". Add "R&D into" before "Direct Air capture and weathering".	Noted. Fig 13.6 has been entirely re-done to be more precise in response to several comments.	Axel Michaelowa	University of Zurich	Switzerland
82893	58	3	58	3	Not really sure why specific measures are located where they are.	Noted. Fig 13.6 has been entirely re-done to be more precise in response to several comments.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
7587	58	8	58	9	DEL RÍO, P. (2014). On evaluating success in complex policy mixes: the case of renewable energy support schemes. Policy Sciences 47(3), 267-287 provided an analytical framework which emphasise that multile objectives requires greater attention to understanding synergies and trade-offs.	Noted. This work has been referenced	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
10149	59	5	59	5	There is a huge literature on environmental policy coordination/integration in different countries that should be draw on and learnt from. See: Jordan, A. and A. Schout, (2006) The Coordination of the European Union: Exploring the Capacities for Networked Governance. Oxford University Press: Oxford; Jordan, A.J. and A. Lenschow (2010) Environmental Policy Integration: A State of the Art Review. Environmental Policy and Governance, 20, 3, 147-158. etc etc etc.	Noted. Given space limitations, we have restricted our focus to the narrower sub-set of climate policy integration	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
80049	59	13	59	16	As mentioned in earlier comment, the horizontal/vertical distinction hides some complexity in implementing policy integration that is inherent in the temporal distinction among policy goals, (see. Dupont & Oberthür 2012).	Noted. This point has been added in 13.7.1.	Claire Dupont	Ghent University	Belgium
70691	59	15			I wonder if 'between constitutional levels of power' means relationship between national and sub-national governments. If so, make it more clear. Otherwise, mentioning national and sub-national governments would be recommended.	Accepted. Text has been modified	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
7589	59	16	59	16	I would add the reference to Howlett and del Río (2015). 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.I28	Accepted.	DEL RIO GONZÁLEZ PABLO	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
72375	59	17	59	45	There is ample evidence on the use of several policy instruments in a policy package in order to promote energy efficiency and energy conservation. For example for appliances: energy labelling, efficiency standards (over time removing from the market low performance appliances in the lower category of the energy label and thus shifting the label); financial incentive to promote the most effective appliances in the labelling schemes; public and technology procurement to introduce super-efficient appliances not yet in the market. Integrated and coordinated design of the policy in the policy package (mic) is essential. Another example for efficient industria motor system can be found in Anibal T de Almeida, Paula Fonseca, Hugh Falkner, Paolo Bertoldi, Market transformation of energy-efficient motor technologies in the EU, Energy Policy, Volume 31, Issue 6, 2003, Pages 563-575, https://doi.org/10.1016/S0301-4215(02)00100-3. (https://www.sciencedirect.com/science/article/pii/S0301421502001003) and Paolo Bertoldi, Paul Waide, Benoît Lebot, 2001, Assessing the market transformation for domestic appliances resulting from European Union policies, In proceedings of the eceee 2001 Summer Study on energy efficiency: Further than ever from Kyoto? Rethinking energy efficiency can get us there, available at https://www.eceee.org/library/conference_proceedings/eceee_Summer_Studies/2001/Panel_4/ or visit https://silo.tips/download/energy-performance-of-of-models	Noted. However, we are not able to go very deep into specific sector examples in this section. These are better dealt with in sectoral chapters 5-12	bertoldi paolo	european commission	Italy
80051	59	17	60	38	The work on policy mixes in really interesting in a policy integration context and well discussed here. I wonder is there not time/space to consider some of the more 'overarching' policy frameworks that have started to emerge? These do not necessarily require policy integration to be attached to established policies, but rather reframe all extant policies in an integrative fashion towards overarching climate policy goals. Given the importance of political commitment, recognition of policy interactions etc., for policy integration, the overarching framework could provide the cognitive/political push towards the sort of transformational policies required. Examples include the proposal for Green New Deal in the US, and the adoption of the European Green Deal in the EU. Early analyses of these tools have shown that they do have the potential to lead to more transformational policy than previously seen (even in times of crisis such as Covid-19 pandemic), particularly with the commitment behind them, and the systems-approach that they take (see Bloomfield & Steward, 2020, The politics of the green new deal, The Political Quarterly, https://doi.org/10.1111/1467-923X.12917 and Dupont, Oberthür & von Homeyer, 2020, The Covid-19 crisis: a critical juncture for EU climate policy development? Journal of European Integration, 42:8 https://www.tandfonline.com/doi/full/10.1080/07036337.2020.1853117).	Agreed. However, in the structure of the chapter, these are discussed in Sec 9	Claire Dupont	Ghent University	Belgium
58277	59	17	59	22	Are there policy packages that include transition-oriented policies for affected industries?	Noted. Some of this material is covered under a just transition rubric in Sec 9	Government of United States of America	U.S. Department of State	United States of America
82895	59	17	60	16	Doesn’t this policy mix material belong in 13.6 where it could tie together the instruments material? It doesnt read much about SD and adaptation.	Noted. In response, we have sought to explicitly carve out a new Sec7, which speaks to Sec 6, on policy mixes and interaction. Integrating into Sec 6 would have made that already long section even longer. We have pulled adaptation issues into a new Sec 8.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
7591	59	23	59	35	There is a pressumption in this paragraph that policy mixes can be designed appropriately, following the principles of "comprehensiveness, coherence, balance and consistency". While I would not deny tihs claim, it is also true that conflcits in policy mixes are unavoidable and that their assessment of "success" or "failure" depends on which policy goal is prioritised (see Howlett and del Río 2015, del Río 2014) 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. DEL RÍO, P. (2014). On evaluating success in complex policy mixes: the case of renewable energy support schemes. Policy Sciences 47(3), 267-287	Noted. We have tried to hjighlight challenges of policy packages in a context of multiple objectives.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
10151	59	36	59	36	This important section/debate overlaps with the (more economistic) discussion of interactions in s13.6.6. The discussion should be brought together in one place and made more consistent.	Noted. The discussion on interactions have been brought to gether wit hthe mixes discussion in a new section	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
7593	59	39	59	42	A bottom-up aproach to policy mixes must consider what is below the level of instruments, i.e., the design elements of the instruments. This lower level of granularity (i.e., the choice of design elements in instruments which interact with other instruments) has shown to have considerable effects on the outcomes of the policy mix, as shown by del Río and Cerdá (2017) 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. We have a box on instrument level interaction in Sec 7, and design aspects of instruments are covered in Sec 6. The various sections have to necessarily separate out discussions for tractability, even though several may be conceptually linked.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
2749	59	40	59	42	Coupling policies on renewable energy and energy efficiency domains is required to move forward decarbonisation	Noted. No specififc change suggested	Leonardo Barreto	Head of center "EU&International"	Austria
10153	60	18	60	18	This is a valuable device for integrating findings across the whole chapter. Similar attempts should be made to arrive at integrated findings on other important cross-chapter themes e.g. policy interactions/mixes; e.g. policy integration/coordination; e.g. policy outcomes/evaluation. See my point about the FAQs (below)	Noted.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
86567	60	18	63	1	It is unclear under which conditions sector transitions are feasible (or plausible). Not all examples in the cross-chapter box are "sector" transitions and some appear to be more limited in scope, some are regional, some are sectoral. What would be more valuable than the current box is an ex post assessment of the promises (policies). This is, what ultimately matters.	Noted. The purpose of the box is to illustrate the complexity of transition processes and the attention to policy mixes and governance conditions, rather than assess success/failure of individual cases. It is also meant to integrate across chapters, and the choice of case emanates from the chapters.	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
7595	60	27	60	38	Yes, this is very good but, again, I miss reference to a lower level of policy granularity (design elements or design features) since design elements have shown to play a role both in the success of instruments and in the success of combinations of instruments (del Río and Cerdá 2017). 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. While we agree in principle, regrettably, there is a limit to the level of detail we can bring across multiple cases in a table.	DEL RIO GONZÁLEZ PABLO	Consejo Superior de Investigaciones Científicas (CSIC)	Spain
80053	61	1	63	1	Why not include a study of the overarching policy frameworks like the European Green Deal/Green New Deal proposal? What is their potential for truly integrative, transformative policy and governance, given all the challenges highlighted in the chapter so far? Some of the references mentioned in earlier comments should help, and new analyses are being published or prepared...	Noted. These themes are discussed in Sec 9. Here the intent is to show examples from sector transitions	Claire Dupont	Ghent University	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58279	62		62		Cross-Chapter Box 7 contains a great deal of information and is very useful. A couple of points that relate to all cases: (1) It would be helpful to explain the finance model/source for every case; and (2) it would also be helpful to list whether projects are ongoing and whether they are successful in meeting the stated objectives. For example, a "collapse of industrial base" sounds like it could have stopped the project from moving forward. Did it? Regarding specific cases: (a) The climate smart cocoa example lists dominance of multinational corporations as a barrier. What specifically is the barrier? That incentives aren't aligned? (b) In the Shanghai example, how is high economic growth rate a barrier? (c) In the Kampala example, rapid economic development is listed as an enabler. What does "recharging to enable e-motorbikes to be genuinely competitive as they are already very cost-effective in running and maintenance costs" as a barrier mean? And (d) for the German example, what does "Strong compliance rules limit cooperation to pre-competitive status (before feasibility studies)" mean? What does it say at all about success?	Noted. The underlying boxes in chapters provide finance details in some cases, which we are unable to reproduce here for space reasons. The cases are selected to illustrate efforts at transformation, and not all of them are concluded, hence declarations of success and failure are premature. For specific questions, we would refer to the underlying boxes. We have re-written thte box to be clearer and attempt to answer the clarifications.	Government of United States of America	U.S. Department of State	United States of America
10155	64	1	64	1	Another important section. Yet, it is barely connected with the previous discussion on climate policy coordination / integration. What, in short, can we learn from climate policy integration that will enable the integration of adaptation and mitigation in to all policy areas? At the very least, it would be useful to have a conceptual clarification of all these terms / challenges / concepts.	Accepted - poicy integration and coordination is woven throughout this section	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
46295	64	1	64	18	This chapter should also mention the important concept of ecosystem-based adaptation (EbA) adopted by CBD in 2009 and taken up by many countries in the development and revision of their NDCs, NAPs and NBSAPs as well as sector policies. EbA can be understood as an issue specific concept, to address climate change adaptation within the family of nature-based solutions. Reference to the following publications is recommended: Seddon, N, Daniels, E, Davis, R, Harris, R, Hou-Jones, X, et al. (in review). Global recognition that ecosystems are key to human resilience in a warming world. Nat. Clim. Chang. Doswald, N. and Osti, M. (2011). Ecosystem-based Approaches to Adaptation and Mitigation: Good Practice Examples and Lessons Learned in Europe. BfN, Federal Agency for Nature Conservation Doswald, N., Munroe, R., Roe, D., Giuliani, A., Castelli, I., Stephens, J., et al. (2014). Effectiveness of ecosystem-based approaches for adaptation: review of the evidence base. Clim. Dev. 6 (2), 185–201 Secretariat of the Convention on Biological Diversity (2019). Voluntary guidelines for the design and effective implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction and supplementary information. Technical Series No. 93. Montreal, 156 pages.	13.8 provides a case study of EbA , and some of a Doswald and a Seddon reference has been included	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
52659	64	2	64	11	The role of adaptation should not be buried so deeply in the report. It is arguably a low cost option once the "low hanging fruit" of emissions reduction has been accomplished.	Noted. No changes made in 13.8 as adaptation is raised here. References have been made to adaptation earlier in chapter	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
80225	64	7	64	8	This discussion of ncessary adaptation measures is missing a discussion of SRM to enhance policy relevance in context of a risk management decisionmaking framework. Suggested addition: "In addition, SRM technologies may have the potential to directly mitigate heat stress as a complement for adaptation action to mitigat residual damages. It is estimated that reflecting 1-2% of the sunlight currently absorbed by the Earth could offset more than 2°C of global warming – i.e. a doubling of CO2. Recent modeling studies simulating a gradual introduction of aerosols in a controlled regime to hold global average temperature constant indicated significantly reduced impacts from warming in most parts of the world." References: Tilmes, S. ... Robock, A. (2020). Reaching 1.5 and 2.0 °C global surface temperature targets using stratospheric aerosol geoengineering. Earth System Dynamics, 11(3), 579–601. https://doi.org/10.5194/esd-11-579-2020	Rejected. This is outside the scope of this section (and chapter)	Kelly Wanser	SilverLining	United States of America
52705	64	44	65	1	Adaptation and mitigation complement each other and together they can result in mitigation co-benefits, and together can result in higher ambitions and lower GHGs emissions. Furthermore, as mentioned in the paris agreement both are ways and options to achieve climate goals , and we should not limit the solution to one aspect	Noted. This section reflects those comments.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
19853	65	4	65	4	Insert "Dang et al. 2003, " before "Klein et al. 2005". New reference: Dang, Hanh; Michaelowa, Axel; Tuan, Dao (2003): Synergy of adaptation and mitigation strategies in the context of sustainable development: the case of Vietnam, in: Climate Policy, 3, Supplement 1, p. S81-S96	Accepted and reference included.	Axel Michaelowa	University of Zurich	Switzerland
1483	65	8	65	8	Add Kongsager 2018 to the cited references "cost-effective policies (Klein et al. 2005; Locatelli et al. 2011; Kongsager 2018; Mills-Novoa and Liverman 2019). To" • Kongsager, R. (2018). Linking Climate Change Adaptation and Mitigation: A Review with Evidence from the Land-Use Sectors. Journal: Land (7)4, 158. https://doi.org/10.3390/land7040159	Accepted, most suggested references included.	RICO KONGSAGER	University College Copenhagen	Denmark
22451	65	31	65	32	Consider including saltmarsh and seagrass alongside mangrove as ecosystems that provide benefits for both attenuation and adaptation in SIDS. See Duarte et al. (2013) DOI: 10.1038/NCLIMATE1970	Accepted and reference included.	Government of France	Ministère de la Transition écologique et solidaire	France
52611	65	35	65	35	For inclusivity and a focus on economic diversification vs climate policy integration, check this paper: Aisha Al-Sarihi & Michael Mason (2020): Challenges and opportunities for climate policy integration in oil-producing countries: the case of the UAE and Oman, Climate Policy, DOI: 10.1080/14693062.2020.1781036	Noted but due to space and word constraints the reference (and its topic) was not used.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
58281	65	39	65	47	While this section is about integrating adaptation, mitigation, and sustainable development, this paragraph is about adaptation alone. While understanding adaptation is helpful for understanding policy mixes with synergies, it is as context. In this sense, the concept of adaptation deficit does not relate to understanding policy integration and synergies. Moreover, the concept of an adaptation deficit remains controversial, with some seeing adaptation as a continuous process that cannot be quantified in a single "gap" value. Furthermore, there is not a single statement in this paragraph that is not applicable to developed countries. Plenty of vulnerable communities in developed countries will face deficits. Lastly, this paragraph should not be elevated to the Executive Summary because it does not reflect the key message of the section. Suggest the following revisions: "Assessing adaptation PROGRESS has been challenging because of the QUALITATIVE NATURE of goals and sparse data with the appropriate indicators (Tompkins et al., 2018). In addition, there is neither classification of adaptation options nor systematisation of measures at the global or regional levels. SOME countries MAY BE unable to respond to the current impacts of climate variability due to various barriers that hamper adaptation (Milman and Arsano, 2014; Shackleton et al., 2015; Fankhauser and McDermott, 2016). SUCH countries MAY suffer more impacts of extreme events than OTHER countries. IN countries THAT produce marginal emissions, climate adaptation and mitigation MAY BE considered ALONG WITH broader political, economic, and development goals (Fankhauser and McDermott, 2016)."	Noted - this paragraph was deleted since this chapter is about the mitigation and adaptation links relative to policies and institutions.	Government of United States of America	U.S. Department of State	United States of America
58283	65	39	65	47	The point that the authors are attempting to communicate in this paragraph is difficult to understand. It starts with a discussion of the lack of definable goals then transitions into a specious argument about deficits to reaching these undefined goals in only one context (similar so called "deficits" could be described in many non-developing country contexts and the IPCC must take a balanced approach to this discussion). The paragraph finally concludes with an incomprehensible statement filled with buzzwords yet without meaning. The whole paragraph should be deleted.	Noted- this paragraph has been deleted	Government of United States of America	U.S. Department of State	United States of America
19855	65	41	65	41	Insert after "… regional levels": "Stadelmann et al. (2014) suggest a universal metric for assessing adaptation benefits." Reason: This reference is an important contribution to the discussion on how to measure adaptation. New reference: Stadelmann, Martin; Michaelowa, Axel; Butzengeiger-Geyer, Sonja; Köhler, Michel (2014): Universal Metrics to Compare the Effectiveness of Climate Change Adaptation Projects, in: Leal Filho, Walter (ed.): Handbook of climate change adaptation, Springer, Berlin, doi: 10.1007/978-3-642-40455-9_128-1	Noted- this paragraph has been deleted	Axel Michaelowa	University of Zurich	Switzerland
1477	66	5	66	6	Add Kongsager and Corbera 2015 to the cited reference "(Bushley 2014; Duguma et al. 2014a; Gebara et al. 2014; Kongsager and Corbera 2015; Anderson et al. 2016; Di Gregorio et al. 2016, 2017) •Kongsager, R. & Corbera, E. (2015). Linking Mitigation and Adaptation in Carbon Forestry Projects: Evidence from Belize. Journal: World Development 76, pp. 132-146. http://dx.doi.org/10.1016/j.worlddev.2015.07.003	Noted, some of these references have been included. However, before the section has been substantially shortened and reritten not all of them have been included.	RICO KONGSAGER	University College Copenhagen	Denmark
8177	66	13	66	13	Please correct: land-use change is not combined with forestry. The sector is "agriculture, forestry, and other land-uses", or "land-use, land-use change, and forestry", or, if separated, "agriculture, land-use change, forestry, …".	Accepted.	Joachim Rock	Thuenen-Institute of Forest Ecosystems	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
1485	66	13	66	13	Add Kongsager et al. 2016 to the cited reference: "(Kongsager et al. 2016; Loaiza et al. 2017; Locatelli et al. 2017). National governments" •Kongsager, R., Locatelli, B. & Chazarin, F. (2016). Addressing climate change mitigation and adaptation together: a global assessment of agriculture and forestry projects. Journal: Environmental Management 57 (2), pp 271-282. http://dx.doi.org/10.1007/s00267-015-0605-y	Noted, some of these references have been included. However, before the section has been substantially shortened and reritten not all of them have been included.	RICO KONGSAGER	University College Copenhagen	Denmark
61453	66	20	66	22	The sentence "Although this initiative has been for years, there has not yet been any 21 national assessment of co-benefits and potential trade-offs between sectors, or with local communities 22 (Locatelli et al. 2017)" is incomplete: has been ???? for years?	Accepted. Now rewritten.	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa
63195	67	5	67	15	Coordination of food, energy, water and climate targets across the global Sustainable Development Goals, as well as across national and sub-national policies, can help to resolve some of the operational challenges and support complementary progress on climate, food, energy and water sustainability. (Sklarew D. and J. Sklarew. 2018. Integrated water-energy policy for sustainable development. Foresight and STI Governance 12(4): 10-19. doi: 10.17323/2500-2597.2018.4.10.1)	Noted, an updated paper on this topic has been included (McCord et al, 2020)	Jennifer Sklarew	George Mason University	United States of America
72371	68	1	69	1	In table Table 13.3 Relationships between adaptation and mitigation measures how the example"Household energy-efficiency measures as mitigation policy, with key energy policies may improve socioeconomic development" is linked to adaptation, please clarify or remove. Perhpas an example linking efficienct cooling systems in very hot climates with the need to provide decent indoor temperatures for people during heatwaves could be better.	Accepted and rewritten.	bertoldi paolo	european commission	Italy
86569	68	1	68	1	There is a tendency to now use "natural climate solutions" rather than "nature-based solutions"	Rejected - an abundance of new literature uses the phrase 'nature-based solutions'	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
84821	68	1	68	46	Suggest that table 13.3 (line 2 - ecosystem based adaptation and nature based solutions) also note the findings in chapter 7 (AFOLU) regarding potential limits of land sector abatement / sinks and risks associated with negative impacts for some activities at a large scale (eg: forestry and monospecies plantings).	Noted and thanks for the suggestion but this has not been included in the box due to space issues.	Emily Gerrard	Comhar Group Pty Limited (law firm)	Australia

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
46297	68	1	68	1	The definition of EbA in line 2, column 1 needs to be corrected. We note with concern that this definition is focusing on greenhouse gas removal instead of vulnerability reduction via adaptation. It is not consistent with the one from the CBD ("Ecosystem-based adaptation (EbA) is the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change. EbA aims to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in the face of the adverse effects of climate change", SCBD 2009). Poverty reduction is an important co-benefit of EbA but not it's primary target. The examples mentioned in line 2, column 2 should go beyond "coastal ecosystems globally" and should include the following: "EbA involves the conservation, sustainable management and restoration of ecosystems, such as forests, grasslands, wetlands, mangroves or coral reefs to reduce the harmful impacts of climate hazards including shifting patterns or levels of rainfall, changes in maximum and minimum temperatures, stronger storms, and increasingly variable climatic conditions". Also the information on NbS in line 2, column 1 is misleading. EbA is not a synonym for NbS, but nested within the broader concept of nature-based solutions and complements and shares common elements with a wide variety of other approaches to building the resilience of social-ecological systems. These approaches include community-based adaptation, ecosystem-based disaster risk reduction, climate-smart agriculture, and green infrastructure, and often place emphasis on using participatory and inclusive processes and community/stakeholder engagement. The concept of EbA has been promoted through international fora, including the processes of the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). A number of countries make explicit references to EbA in their strategies for adaptation to climate change and their Nationally Determined Contributions (NDCs) under the Paris Agreement.	Accepted and rewritten although we have used a shortened version due to space issues.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
46299	68	1	69		Table 13.3: It is suggested also to insert the following reference for the section on Policy/action on Ecosystems-based Adaptation (EBA) and Nature-based Solutions (NBS): IPBES (2019): Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. S. Díaz, J. Settele, E. S. Brondízio E.S., H. T. Ngo, M. Guèze, J. Agard, A. Arneth, P. Balvanera, K. A. Brauman, S. H. M. Butchart, K. M. A. Chan, L. A. Garibaldi, K. Ichii, J. Liu, S. M. Subramanian, G. F. Midgley, P. Miloslavich, Z. Molnár, D. Obura, A. Pfaff, S. Polasky, A. Purvis, J. Razzaque, B. Reyers, R. Roy Chowdhury, Y. J. Shin, I. J. Visseren-Hamakers, K. J. Willis, and C. N. Zayas (eds.). IPBES secretariat, Bonn, Germany. 56 pages.	Accepted and reference included.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
10845	68	1	68	1	The most efficient actions both for adaptation and mitigation at horizon 2100 are certainly the ones which aim at reducing human population over the planet. Moreover they are fully in line with SDG 5 and target 5.6 of this SDG. It is a pity that such actions are neither mentioned in this table (where thay might figureas an holistic approach) nor in any other part of the report.	Rejected. There is a diversity of perspectives that both support and refute this claim.	Philippe Waldteufel	CNRS	France
58285	68	24	68	26	With regard to adjustment of forest management/harvesting, the changes will vary depending on specific country/sub-country situations but historically these shifts are driven by investments in forestry to support markets. What might be the incentive moving forward? How might the incentive differ in different regions?	Noted - but we are unable to add a meaningful discussion of this given space constraints.	Government of United States of America	U.S. Department of State	United States of America
61455	68				in Table 13.3, the description "Ecosystems base Adaptation (EBA)" should read "Ecosystem based Adaptation (EbA)"	Accepted and rewritten	Graham von Maltitz	UNIVERSITY OF STELLENBOSCH; UNCCD SCIENCE POLICY INTERFACE	South Africa

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
82335	68		68		Under Table 13.3, the row on "Climate adaptation at the management city scale" listed some examples of cities with A&M combined climate change action plans. Notwithstanding that the list of cities is not exhaustive, it is suggested to also mention a few more cities so readers have more points of reference. At least the following cities also have such plans (links provided below): Los Angeles: https://plan.lamayor.org/ Vancouver: https://vancouver.ca/green-vancouver/vancouvers-climate-emergency.aspx Barcelona: https://www.barcelona.cat/barcelona-pel-clima/en London: https://www.london.gov.uk/sites/default/files/london_environment_strategy_0.pdf Accra:https://cdn.locomotive.works/sites/5ab410c8a2f42204838f797e/content_entry5ab410faa2f42204838f7990/5ab5605ea2f4220acf45cfa6/files/Accra_Climate_Action_Plan.pdf?1603293785	Accepted and rewritten	Yinlong Xu	Institute of Environment and Sustainable Development in Agriculture, Chinese Academy of Agricultural Sciences	China
51779	69	1	69	70	The terminology is wrong. REDD+ should not be referred to as "mechanism", as this has very specific connotations in the UNFCCC context (CDM, JI, Article 6), and could be confusing. REDD+ activities or initiatives would be preferable.	Accepted	Florin Vladu	UNFCCC Secretariat	Germany
72373	70	1	70	39	In the EU an increasing number of cities prepare adaptation and mitigation plans in the frame of the Covenant of Mayors. Synergies and tradeoffs can be better assessed in an integrated plan, avoiding "maladaptation". Adaptation is very often more relavant at the local level where the different risks and vulnerability can be better assessed. See Bertoldi, P., Rivas Calvete, S., Kona, A., Hernandez Gonzalez, Y., Marinho Ferreira Barbosa, P., Palermo, V., Baldi, M., Lo Vullo, E. and Muntean, M., Covenant of Mayors: 2019 Assessment, EUR 30088 EN, Publications Office of the European Union,Luxembourg, 2020, ISBN 978-92-76-10722-4, doi:10.2760/775755, JRC118927 available at https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/covenant-mayors-2019-assessment .	Thank you - revision accepted and reference cited.	bertoldi paolo	european commission	Italy
80055	70	1	70	39	Agreement has been reached on accounting for ecological services, which is a certain way of approaching the co-benefits of adaptation and mitigation policy with its own ideology embedded behind it, but given the reality of policymaking, it should reveal the economic benefits of integrated approaches to adaptation/mititgation that make insufficient or delayed policy far less legitimate. Ecosystem Accounting: system of environmental economic accounting, UN Statistical Commission: https://seea.un.org/ecosystem-accounting Further, it might be worth engaging with the resilience literature on disaster risk reduction in particular, beyond just mentioning the Sendai framework, which highlights the costs of inaction based solely on expected increases of costs of various climate-induced or climate-related disasters. Part of the solution here is nature restoration to cope with such disasters and to mitigate impacts. See European Environment Agency for data and analysis in the European context. UNDRR has several important reports.	Noted but due to space and word constraints the reference (and its topic) was not included.	Claire Dupont	Ghent University	Belgium
70693	70	1			The subsection lightly touches the roles and current practices of local governments in integrating mitigation, adaptation, and SD. Provision of analyses on the division of labours between national and subnational goverments in integrating efforts would be beneficial to policy makers and readers.	Noted - unable to elaborate on division of labour given very different national circumstances, and length constraints in this chapter. This challenge is, however, noted in the last sentence of this subsection	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
86571	70	15	70	19	I cannot readily see that the IPCC 1.5 degrees report, ch. 5, is properly given credit (although it appears to deal with this issue).	Accepted - reference added	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
1481	70	18	70	19	Add Kongsager et al. 2016 to the cited reference: "reduction policies would contribute to SDGs (Kongsager et al. 2016; Di Gregorio et al. 2017; Antwi-Agyei et al. 2018; Campagnolo and Davide 2019)." •Kongsager, R., Locatelli, B. & Chazarin, F. (2016). Addressing climate change mitigation and adaptation together: a global assessment of agriculture and forestry projects. Journal: Environmental Management 57 (2), pp 271-282. http://dx.doi.org/10.1007/s00267-015-0605-y	Accepted and reference added	RICO KONGSAGER	University College Copenhagen	Denmark
58287	70	20	70	25	How does this content relate to national and subnational policies? It seems to fit more in Chapter 14.	Revised to indicate that these frameworks provide international context to the task of integrating adaptation, mitigation and SD. Paragraph moved to earlier in this subsecton	Government of United States of America	U.S. Department of State	United States of America
1479	70	24	70	25	Add Kongsager 2018 to the cited references "; Di Gregorio et al. 2017; Locatelli et al. 2017; Kongsager 2018;" • Kongsager, R. (2018). Linking Climate Change Adaptation and Mitigation: A Review with Evidence from the Land-Use Sectors. Journal: Land (7)4, 158. https://doi.org/10.3390/land7040159	Accepted - reference added	RICO KONGSAGER	University College Copenhagen	Denmark
52613	70	26	70	26	actors climate change' .... correction: climate change actors	Accepted - revision made	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52707	70	41			section should take into account the different policy practices taking place in many countries , to show a more inclusive approach	Noted - language was used throughout section to indicate diversity of approaches	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
80057	71	3	71	10	The importance here of political commitment is repeated by many studies of policy integration at multiple levels of governance, not only national levels. But political commitment has also been shown to be insufficient. Political commitment also manifests itself through a reframing of climate change as a security challenge (securitisation), which brings climate change into the deliberations of high politics and high political arenas, both nationally and supranationally/globally (prime ministers and presidents). See further literature on securitisation of climate change (Trombetta 2009 Environmental security and climate change: analysing the discourse, Cambridge Review of International Affairs; Corry, 2012 Securitisation and riskification: second-order security and the politics of climate change, Journal of International Studies 40:2; Oels, 2012, From securitisation of climate change to the climatisation of the security field: comparing three theoretical perspectives, in Scheffrin et al (eds.) climate change, human security and violent conflict; Dupont, 2019, The EU's collective securitisation of climate change, West European Politics, 42:2 https://doi.org/10.1080/01402382.2018.1510199)	Accepted - importance (but insufficiency) of polilical commitment has been noted. Securitisation of climate change, while an important issue, is beyond the scope of this subsection given space constraints.	Claire Dupont	Ghent University	Belgium
80059	71	8	71	10	The point raised by Saito 2013 that aligned timeframes are important is also supported by work that I have done (Dupont & Oberthür, 2012 and Dupont, 2016 see above), but rather than suggesting that the alignment of the timeframes is important, I show that the recognition of the functional interactions across policy sectors can include a translation of long-term policy objectives into a trajectory approach that should allow policymakers to assess whether policy decisions align with the trajectory.	Accepted - revision made and reference added	Claire Dupont	Ghent University	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
63197	71	16	71	24	Siting of facilities and infrastructure aimed at decarbonisation offers one example of such a potential conflict between climate change jimpacts and negative effects of decarbonisation policies on communities. While these facilities and infrastructure aim to mitigate climate change, they can pose environmental justice risks for host communities. Integrated attention to justice in climate, environment and energy, as well as involvement of hpst communities in siting assessments and decision-making processes, can help to avoid such conflicts. (McCord, G., D. Kanter, J. Sklarew, G. Wu, and M. Jacobson. 2020. "Accelerating Sustainable Land Use Practices in the U.S.," in America's Zero Carbon Action Plan: Roadmap to Achieving Net Zero Emissions by 2050, 262-281. New York: SDSN. https://www.unsdsn.org/Zero-Carbon-Action-Plan)	Accepted - revision and reference added	Jennifer Sklarew	George Mason University	United States of America
80061	71	29	71	31	Further complicating the equity point of ensuring exluded populations are kept in mind is a body of literature arguing for nature, animals and non-human species to be included in policy development. See for example, work by Tanasescu, 2016, Environment, political representation and the challenges of rights: speaking for nature, Springer. or Tanasescu, 2014, rethinking representation: the challenge of nor humans, Australian Journal of Political Science.	Noted - small revision made and reference added to account for constituencies without a voice	Claire Dupont	Ghent University	Belgium
10847	72	5	72	5	In spite of the title of Box 13.16, little if any is said about disabling factors!	No change made - several references to challenges are made throughout the table.	Philippe Waldteufel	CNRS	France
2751	72	6	72	11	Multi-level climate and energy dialogue platforms would allow a permanent national dialogue between local authorities, civil society organizations, the business community, investors and other relevant stakeholders	Partially accepted - reference to mult-stakeholder dialogue design (Cashore et al 2019) added	Leonardo Barreto	Head of center "EU&International"	Austria
2753	72	10	72	11	It is necessary to examine social innovations in detail and, specifically, the enabling conditions that facilitate their emergence, their contribution to the development of new business models and greater acceptance of the transition towards low-carbon, climate resilient energy systems.	Noted - innovation as an enabling factor is dealt with in more detail in Chapter 17, and mentioned in 13.9.2.	Leonardo Barreto	Head of center "EU&International"	Austria
19857	72	14	72	14	Insert "Dang et al. 2003, " before "von Stechow et al. 2015". Reason: This reference is one of the first systematic approaches to assessment of synergies with a sustainable development focus. New reference: Dang, Hanh; Michaelowa, Axel; Tuan, Dao (2003): Synergy of adaptation and mitigation strategies in the context of sustainable development: the case of Vietnam, in: Climate Policy, 3, Supplement 1, p. S81-S96	Accepted - reference added	Axel Michaelowa	University of Zurich	Switzerland

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
44097	72	18	71	23	Mandatory disclosure and retrofit are crucial measures should be added under "Employing a diverse set of tools to reach targets" (Box 13.16 Enabling and Disabling Factors for Integrated Governance of Mitigation and Adaptation at the end of the section on Governance for Equity and Sustainable Development.) Mandatory retrofit of existing buildings triggered by public health authority rather than new building codes. New Zealand's Healthy Homes regulations mandate retrofit of efficient and healthy heating system to maintain 18 °C living rooms ceiling ceilings and underfloor to the level required by the 2008 version Building Code [15] while the stringency of regulations for new construction has improved further. Mandatory disclosure of health and energy efficiency features at the point of sale and leasing. Real estate agents may not deliberately be withholding information, but In a "secret shopper" survey in Melbourne Australia, 91% of the agents didn't know the energy ratings of homes they sell or lease [16]. The Australian Nationwide Household Energy Rating Scheme (NatHERS) is being expanded to benchmark the energy demand of existing dwellings[17], but it is up to local regulators to decide if disclosure will be mandatory [18]. 15.WHO, W.H.O., Policies, regulations and legislation promoting healthy housing: a review. 2021. 16.Conlan, J., et al., Home Truths - A Lack of Information about Household Energy Needs is Costing Victorians, J.E.V.C. La Nauze, Editor. 2020, Environment Victoria: Level 2, 60 Leicester St, Carlton Victoria, Australia. https://environmentvictoria.org.au/wp-content/uploads/2020/08/Home-Truths-A-Lack-of-Information-about-Household-Energy-Needs-is-Costing-Victorians.pdf 17.NatHERS, N.H.E.R.S., Scoping Report: Extension of NatHERS to existing homes.	Accepted -new references added to include mandatory retrofits for public health purposes as mechanism to increase effciency.	Eric Peterson	University of Leeds	United Kingdom (of Great Britain and Northern Ireland)
1487	72	29	72	29	Add Kongsager et al. 2016 and Kongsager 2018 to the cited references: "Gregorio et al. 2016; Kongsager et al. 2016; Locatelli et al. 2017; Kongsager 2018; Zen et al. 2019)." •Kongsager, R., Locatelli, B. & Chazarin, F. (2016). Addressing climate change mitigation and adaptation together: a global assessment of agriculture and forestry projects. Journal: Environmental Management 57 (2), pp 271-282. http://dx.doi.org/10.1007/s00267-015-0605-y • Kongsager, R. (2018). Linking Climate Change Adaptation and Mitigation: A Review with Evidence from the Land-Use Sectors. Journal: Land (7)4, 158. https://doi.org/10.3390/land7040159	Accepted - reference added	RICO KONGSAGER	University College Copenhagen	Denmark
19859	72	31	72	31	Insert after "… OECD 2017": "The saved wealth / saved health metric for assessing adaptation benefits suggested by Stadelmann et al. (2014) could be applied in the context of an integrated framework." Reason: This reference is an important contribution to assessment of adaptation action. New reference: Stadelmann, Martin; Michaelowa, Axel; Butzengeiger-Geyer, Sonja; Köhler, Michel (2014): Universal Metrics to Compare the Effectiveness of Climate Change Adaptation Projects, in: Leal Filho, Walter (ed.): Handbook of climate change adaptation, Springer, Berlin, doi: 10.1007/978-3-642-40455-9_128-1	Rejected. While this reference is useful, we do not have the space here to describe this metric sufficiently.	Axel Michaelowa	University of Zurich	Switzerland
86573	73	7	73	7	What about adaptation and geoengineering?	Ch 13 is not specific in this way. We are giving an overview of the general types of policies and institutions for linking mitigation and adaption.	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
86551	73	7	78	46	Lock-in Argument of chapter 13.9 is not persuasive. If there ever were successful historical lock-in with coal, oil/gas, then nuclear energy would have had difficulties to emerge as would have been the case with renwables, lower GHG transport concepts etc. More specifically, it would be good to describe systematically which factors contribute to resistance to change and what evidence is offered regarding weakening of such factors.	This has been taken out.	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
52711	73	7			use of transformation goes beyond national circumstance.	the idea of the section is to think about the role policies and institutions in an economy wide systemic way.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52709	73	13	73	14	possible typo , SDG instead of SGD	This has been taken out.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
52615	73	14	73	14	SGD'....correction: SDG	This has been taken out.	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
9207	73	14	73	14	The description here does not correspond to the content of the referenced Figure 4.9. It is suspected that the picture is quoted incorrectly. It is recommended to modify the description or update the picture number.	accepted and changed	Yongxiang Zhang	National Climate Center	China
53751	73	14	73	14	The sentences here are not consistent with what shows in Figure 4.9.	accepted and changed	ZHENG XINZHU	China University of Petroleum (Beijing)	China
10849	73	38	73	43	Leaving aside grammar issues (!), one wonders about the usefulness and consistency of this paragraph. Keep in mind that "essential" is a very strong word. The Glossary in Annex A is way softer when it defines: 'Conditions that affect the feasibility of adaptation and mitigation options, and can accelerate and scale-up systemic transitions". Moreover, the quotation on lines 40-43 (which is much more in line with the Glossary definition but not with "essential") is not taken from the Glossary, and actually the reader does not know where it is taken from.	accepted and changed	Philippe Waldteufel	CNRS	France
52713	74	1	74	3	this is not a 1.5 report , it has to be more inclusive and give more examples based on different scenarios	accepted and changed	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
2755	74	5	74	6	Just transition mechanisms focusing on people, regions and sectors most affected by the energy and climate transitions can help create new jobs and new economic activities through a combination of worker education and retraining, social support, local economic development tools for communities and support to the creation of new businesses, among others	Noted. Some has been deleted and other parts rewritten.	Leonardo Barreto	Head of center "EU&International"	Austria

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
70695	74	5	74	6	It is difficult to agree that justice is also an enabling condition to accelerate transformational change. Justice can be an enabling condition to foster an inclusive and equitable transition but not necessarily to accelerate a transformational change. Accordingly, a simple list of examples in Box 13.17 cannot be evidences of an enabling condition.	rewritten	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
10157	74	22	74	24	This is a potentially important but sweeping assertion - better evidencing and referencing is required.	changed and more references given	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
63289	74	28	74	45	There also needs to be mention of the intersectional approach needed to tackle climate change. It's briefly mentioned in the beginning of the report, but not elaborated on fully: in that lower-income communities, along with BIPOC individuals tend to suffer the most from climate-related risks. Building the intersectional lens for climate change policy is crucial for a country to mitigate and and adapt to climate change.	I agree with this but section has been substantially restructured.	Government of Canada	Environment and Climate Change Canada	Canada
86575	74	29	73	44	The term "just" needs an operational definition to be useful.	Noted. We have tried to do. Chapter 4 and 5 are the lead chapters on justice.	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
14531	74	29	74	44	I suggested bolding the country names here, or placing them in a bulleted list. At the moment they are getting lost.	Rewritten	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	United Kingdom (of Great Britain and Northern Ireland)
60295	74	29	74	44	Box 13.17: In Chapter 4 there's also a box on organisations working on just transition (Box 4.4) but the content is quite different. There should be a good sync / consistency between the two.	yes, taken note of . Box now deleted.	Leonardo Nascimento	NewClimate Institute and Wageningen University and Research (WUR)	Germany
9723	74	29	74	44	Box 13.17: JT is meant to address interregional more than intraregional implications of the transitions to low carbon systems. As such these implications are critical for developing countries. The examples given in the box, however, are execlusively from developed countries -- hence a balance in that respect is needed.	Box deleted.	Mustafa Babiker	Saudi Aramco	Saudi Arabia
47383	74	29	74	44	Box 13.17: In Chapter 4 there's also a box on organisations working on just transition (Box 4.4) but the content is quite different. There should be a good sync / consistency between the two.	Box deleted.	Takeshi Kuramochi	NewClimate Institute	Germany
14529	74	32	74	32	This paper provides an excellent overview of Germany's (largely successful) policies to manage its coal phase out over decades Pao-Yu Oei, Hanna Brauers & Philipp Herpich (2020) Lessons from Germany's hard coal mining phase-out: policies and transition from 1950 to 2018, Climate Policy, 20:8, 963-979, DOI: 10.1080/14693062.2019.1688636	Thankyou - rewritten	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	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
22453	74	34	74	36	"The European Union's European Green Deal announced in December 2019 (and updated in 2020 with its stimulus package (European Commission 2020b)) " Please clarify this sentence, The green deal was presented by the Commission in the end of 2019 ; as mentionned in the green deal, the Commission adopted a european climate pact in decembre 2020 : so it is not an updated of the european green deal but an implementation	accepted and rewrittten	Government of France	Ministère de la Transition écologique et solidaire	France
10159	75	1	75	1	An important but rather jumbled section, lacking a clear storyline. Perhaps structure it according to 'enabling conditions' (see s13.9.2)?	hopefully clarified	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
9725	75	1	75	33	It is worth noting that transformational change has greater distributional implications than transitional changes from the perspective of JT that policy packages should take into account.	noted, as section has changed text on justice is more widely distributed through section	Mustafa Babiker	Saudi Aramco	Saudi Arabia
70697	75	2	75	12	One of gaps can be an institutional gap for an effective implementation of policies and deployment of technologies. As the chapter covers institutinal issues in a broad way, adding an institutional gap with a bit of emphasis would strengthen the subsection.	Noted. The text has been substantially altered.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
63291	75	4	75	5	Perhaps this would still not be the case, as Canada has released a Strengthened Climate Plan, with aggressive carbon price targets, and systems changing programs to decrease GHG emissions by an additional 85Mt by 2030, at 503Mt, lower than our Paris target of 511Mt. Also, Canada has committed to net-zero emissions by 2050.	Canada mentioned in the stimulus section	Government of Canada	Environment and Climate Change Canada	Canada
19611	75	33	75	33	Add after "... Eyre et al. 2018"." 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)". Reason: Empirical evidence of what triggered transformation is important in the context of this section. New reference: 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	Checked with Michaelowa and changed	Matthias Honegger	Utrecht University, Perspectives climate research, IASS-Potsdam	Germany
10161	75	35	75	35	Integrate this better with previous section e.g. what type of 'enabling condition' is it (financial system?)?	hopefully have done this	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
54405	75	35	77	18	Very helpful assessment of the recovery packages!	thankyou	Sabine Fuss	MCC Berlin	Germany
48347	75	43	75	43	California is not part of Energiewende, but the sentence structure lumps it into Energiewende with Germany.	accepted and changed	Susana Hancock	University of Oxford	United States of America
31159	76	1	76	2	European Green Deal is correct, not EU Green New Deal.	accepted and changed	Brendan Moore	University of East Anglia	United Kingdom (of Great Britain and Northern Ireland)
80063	76	1	76	2	In the EU, it is the European Green Deal (not the EU green new deal)	accepted and changed	Claire Dupont	Ghent University	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
52617	76	10	76	11	This Table is not very informative. More information need to be added here. For example, add a third column that lists the 'total amount of spending', and a fourth column lists the countries where the constituents were implemented.	table deleted	Government of Saudi Arabia	Sustainability Advisor to the Minister Ministry of Petroleum and Mineral Resources	Saudi Arabia
82897	76	10	76	10	Does this really need to be table? Given the limited references, text might do (I usually arge the opposite).	Deleted.	Jim Skea	Imperial College London	United Kingdom (of Great Britain and Northern Ireland)
14533	76	10	76	11	I suggest deleting Table 13.4 and instead presenting the material as narrative text. It is unusual to have a table with just one column and then the source. This seems especially jarring here, as there are only 5 sources (with 4 overwhelmingly dominating). It just looks odd, and I don't see any similar tables in the chapter. It would be easy to write a short paragraph, stating the suggested components (rather than constituents - that makes me think of elections) of successful green stimulus frameworks, with the sources proposing these.	Accepted and changed as suggested	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	United Kingdom (of Great Britain and Northern Ireland)
70699	76	16			a sustainable, low economy' --> 'a sustaiable, low carbon (or GHG) economy'?	accepted and changed	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
80065	77	9	77	15	For some further academic analysis and sources on the recovery from COVID-19 and climate policy, you may be interested in our analysis of the EU's COVID-19 recovery plan from a climate policy perspective: we find that the recovery plan advances the goals of the European Green Deal and assigns sometimes more funds than initially expected: Dupont, Oberthür & von Homeyer, 2020, The Covid-19 crisis: a critical juncture for EU climate policy development? Journal of European Integration, 42:8 https://www.tandfonline.com/doi/full/10.1080/07036337.2020.1853117	accepted and changed	Claire Dupont	Ghent University	Belgium
48349	77	9	77	9	$12.7 trillion, is this globally? Regionally? US alone?	now updated and number of countries stated	Susana Hancock	University of Oxford	United States of America
63293	77	12	77	13	Again, this may have to be recalculated to align with the new Climate Plan measures and investments. the SCP has 64 measures and an additional $15 BN in new investment strictly for climate change measures.	agreed, text altered	Government of Canada	Environment and Climate Change Canada	Canada
10163	77	20	77	20	Excellent - a model of how to write a section, ending with clear recommendations!	thankyou	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
70701	77	37	77	41	Obviously, coordination matters for accelration. If best practices of coordination could be provided, it will strengthen the subsection.	text added but 13.7 is main section for assessment of coordination	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
17831	77		78		On transformations, there is a body of literature emerging on leverage points for sustainability transformations. This work is taking an empirical look at how to intervene in systems for fundamental change, as originally envisioned by Meadows. This work argues for interventions in system intent (including values and paradigms) and system design (such as institutions and distribution of powers). See Abson et al for a conceptual framing (https://doi.org/10.1007/s13280-016-0800-y), Dorninger et al for how it is empirically applied in food and energy systems (https://doi.org/10.1016/j.ecolecon.2019.106570), Troeger and Reese on moving towards self-sufficiency values (https://doi.org/10.1007/s11625-020-00871-1) and Bryant and Thomson on how learning creates fundamental systems change (https://doi.org/10.1007/s11625-020-00808-8)	accepted and added	Julia Leventon	Global Change Institute of the Czech Academy of Sciences CzechGlobe	Czech Republic
27909	78	20	78	24	Delete "Some strategic policy goals combine national and global action. For example, global NGO coalitions have formed around strategic policy outcomes such as the 'Keep it in the Ground' movement (Carter and McKenzie 2020), and are supported via coordinated networks, such as the Powering Past Coal Alliance (Jewell et al. 2019), and with knowledge dissemination, for example, the 'Fossil Fuel Cuts Database' (Gaulin and Le Billon 2020)."	Rejected. This is an example of strategic and systematic thinking so has been kept	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
14535	78	25	78	28	This is a really important contribution to thinking about social tipping points: Simon Sharpe & Timothy M. Lenton (2021) Upward-scaling tipping cascades to meet climate goals: plausible grounds for hope, Climate Policy, DOI: 10.1080/14693062.2020.1870097	accepted and added	Joanna Depledge	Centre for Environment, Energy and Natural Resource Governance (CEENRG), University of Cambridge	United Kingdom (of Great Britain and Northern Ireland)
27911	78	28	78	32	Delete "They argue that these STIs are inter alia: removing fossil fuel subsidies and incentivising decentralised energy generation; building carbon neutral cities; divesting from assets linked to fossil fuels; revealing the moral implications of fossil fuels; strengthening climate education and engagement; and disclosing information of GHG emissions (Otto et al. 2020).", as such argumanets are not aligned with principles and practices for just transition.	Rejected. This is another example of the literature arguing for new ways to think of accelerating climate mitigation so has been kept	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
10851	78	36	78	46	This concluding paragraph seems quite wise. At the same time, what is missing in this text is an example to illustrate how coordination is both necessary and difficult. I would suggest as an example the mandatory large decrease of red meat in food. This has heavy national and international incidences over many aspects of the economy and civilisation. Focusing on this case or another one, literature showing how to implement the dual approach recommending here will be highly welcome.	Partially accepted. Victor et al 2019 case study has been added - although earlier in the same section. 13.7 now has an enlarged section on coordination	Philippe Waldteufel	CNRS	France
86577	78	43	73	44	"destabilizing current high carbon systems may weaken lock-in mechanisms": Wobbly. One is the mirror-image of the other.	accepted and altered	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
74155	79	3	79	20	Impact of authoritarian policies on national climate institutions policies across the world	noted. We are unsure if your first point meant political systems?	Mayuri Utturkar	University of Delaware, USA	United States of America
70703	79	3			Another research area can be interaction and creation of synergies between national and subnational institutions to forster climate policies and accelerate transformational change throush institutional arrangmetns and division of labours.	accepted. The scope for coordination is noted as a research area	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
80067	79	4	79	6	A Special issue on climate acts in different countries is about to be published in the journal Climate Policy, with work by Diarmuid Torney, Israel Solorio-Sandez and many others, which is likely to be relevant for this chapter.	Noted - thanks. We were in touch with Climate Policy and obtained papers from this issue	Claire Dupont	Ghent University	Belgium

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
12545	79	4	79	6	Perhaps also add 'diffusion' to this sentence, as we are also interested in how climate legislation diffuses across countries and across levels of government.	Accepted	Fay Farstad	CICERO Center for International Climate Research	Norway
22455	79	4	79	6	More research is needed to understand politico-administrative arrangements, at different levels, which facilitate climate energy policies.	Noted. This is largely covered under governance arrangements	Government of France	Ministère de la Transition écologique et solidaire	France
22457	79	10	79	10	Suggestion to rephrase "to mainstream and steer climate governance (with lightweight, non-bureaucratic and efficiency tools)"	Noted, Rewritten but using language of capacity	Government of France	Ministère de la Transition écologique et solidaire	France
27913	79	15	79	17	Delete "Comparative case research on how countries develop NDCs, and whether and how that shapes national policy processes, would contribute to an understanding of the effectiveness of the NDC process.", as NDCs are based on national circumstances, capabilities and priorities and should be assessed collectively.	Noted. The first bullet makes clear the importance of country context. But this need not mean that comparative studies are not helpful. Both are included	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
20007	79	18			Not agree. There is vast literature on smaller countriesin area studies journals e.g. on Romania, Georgia/Caucasus, Turkey in area studies journals, e.g. Südosteuropa 63 (2015) , no. 3. De Gruyters.	Noted. There remain regions that are under-studied, based on our reviews	Manuela Dr. Troschke	Scientists for Future Germany	Germany
12547	79	22	79	40	Further research needs within climate politics include a better understanding of the ways in which political parties respond to- and compete on the issue of climate change (especially in countries without an electorally successful green party and even more so in developing countries), as well as the causal mechanisms of how structural and cultural features (both alone and in combination) influence climate governance or policy outcomes.	Noted. There is a bullet focusing on political systems.	Fay Farstad	CICERO Center for International Climate Research	Norway
70705	79	22			It would be interesting to see the role of clean industries in climate politics.	Noted. There is a bullet on corporate actors, more generally	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
48351	79	22	79	22	Add section here on economy versus the climate crisis	Noted. Not sure we fully undersand, but there is a bullet on transforming economies	Susana Hancock	University of Oxford	United States of America
2491	79	23	79	31	The call here for more research into how governments and NGOs can overcome political resistance to climate policy is very welcome. However, it should be noted that the number of researchers from various fields including political science are working very actively to answer precisely these questions. For example, this paper examines the strategic and institutional challenges faced by climate advocates seeking to influence the enactment ambitious of ambitious climate legislation in New Zealand: https://www.tandfonline.com/doi/full/10.1080/14693062.2020.1868393	Noted	Oscar Fitch-Roy	University of Exeter	United Kingdom (of Great Britain and Northern Ireland)
22459	79	26	79	28	This remark and other remarks concerning the lack of research in some crucial domains (including social sciences) should be recalled in the Executive summary	Noted, but space is very limited in the ES	Government of France	Ministère de la Transition écologique et solidaire	France

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
80719	79	34	79	36	The role of industry in the Montreal Protocol provides key lessons for climate protection. See Allen, Zaelke, & Andersen, Cut Super Climate Pollutants Now! (forthcoming May 2021). Policies should also incentivize further participation of corporate actors that develop fast-acting, cost-effective CH4 and N2O reduction measures, especially as concerns over loss in productivity and competitiveness (Blandforth & Hassapoyannes, 2018). For instance, two manure additives by SOP—SOP LAGOON and Star COW—have shown potential to reduce CH4 and N2O emissions (Peterson et. al., 2019; Ross, 2020). Nitrogen inhibitors have the potential to reduce agricultural N2O emissions by 12 MtCO2e (GWP100) (U.S. E.P.A. (2019)). CITATIONS: Blandforth, D. and Hassapoyannes, K. The role of agriculture in global GHG mitigation, OECD Food, Agriculture, and Fisheries Papers No. 112 at 36 ("Another challenge associated with technical mitigation options in agriculture relates to risks to food security. This is because the technical mitigation options, focusing on reducing emissions per unit of land or animal, most of the time do not have a significant positive effect on output. In some cases they may even reduce output level (e.g. reduced tillage or rewetting of organic soils) in the absence of compensating changes in productivity. Thus, the required increases in output to meet the anticipated future growth in demand may not be achievable with technical mitigation options under current land use.). Peterson, C., et. al. (2020). Effects of SOP Lagoon Additive on Gaseous Emissions from Stored Liquid Dairy Manure, Sustainability 12: 1–17, 12 ("Compared to the CONT, the HIGH treatment achieved average emission reductions of 22.7% and 14.7% for CH4 and CO2, respectively ($p < 0.05$). The HIGH vs CONT treatment also showed an emission reduction of 45.4% for N2O."). Ross E. G., et. al. (2020) Effect of SOP "STAR COW" on Enteric Gaseous Emissions and Dairy Cattle Performance, Sustainability 12(24): 1–12, 1 ("The aim of this study was to investigate the efficacy of the commercial feed additive SOP STAR COW (SOP) to reduce enteric emissions from dairy cows and to assess potential impacts on milk production. … SOP-treated cows over time showed a reduction in	Noted but this is outside our boundary.	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
80863	79	34	79	36	The role of industry in the Montreal Protocol provides key lessons for climate protection. See Allen, Zaelke, & Andersen, Cut Super Climate Pollutants Now! (forthcoming May 2021). Policies should also incentivize further participation of corporate actors that develop fast-acting, cost-effective CH4 and N2O reduction measures, especially as concerns over loss in productivity and competitiveness (Blandforth & Hassapoyannes, 2018). For instance, two manure additives by SOP—SOP LAGOON and Star COW—have shown potential to reduce CH4 and N2O emissions (Peterson et. al., 2019; Ross, 2020). Nitrogen inhibitors have the potential to reduce agricultural N2O emissions by 12 MtCO2e (GWP100) (U.S. E.P.A. (2019)). CITATIONS: Blandforth, D. and Hassapoyannes, K. The role of agriculture in global GHG mitigation, OECD Food, Agriculture, and Fisheries Papers No. 112 at 36 ("Another challenge associated with technical mitigation options in agriculture relates to risks to food security. This is because the technical mitigation options, focusing on reducing emissions per unit of land or animal, most of the time do not have a significant positive effect on output. In some cases they may even reduce output level (e.g. reduced tillage or rewetting of organic soils) in the absence of compensating changes in productivity. Thus, the required increases in output to meet the anticipated future growth in demand may not be achievable with technical mitigation options under current land use.). Peterson, C., et. al. (2020). Effects of SOP Lagoon Additive on Gaseous Emissions from Stored Liquid Dairy Manure, Sustainability 12: 1–17, 12 ("Compared to the CONT, the HIGH treatment achieved average emission reductions of 22.7% and 14.7% for CH4 and CO2, respectively ($p < 0.05$). The HIGH vs CONT treatment also showed an emission reduction of 45.4% for N2O."). Ross E. G., et. al. (2020) Effect of SOP "STAR COW" on Enteric Gaseous Emissions and Dairy Cattle Performance, Sustainability 12(24): 1–12, 1 ("The aim of this study was to investigate the efficacy of the commercial feed additive SOP STAR COW (SOP) to reduce enteric emissions from dairy cows and to assess potential impacts on milk production. … SOP-treated cows over time showed a reduction in	Noted but this is outside our boundary.	Gabrielle Dreyfus	Institute for Governance & Sustainable Development	United States of America
70707	80	1			Because what ultimately matters is consumer behaviour, further research on consumer's behavioural chantes as a driver for more effective desing and implementation of climate policies and transforamtion change would bring a lot of value.	Noted. However, since CH 5 is centrally focused on consumer behaviour we do not go into it here.	Philippe Tulkens	European Union (EU) - DG Research & Innovation	Belgium
10165	81	1	81	1	The Faqs are an effective device to integrate findings across the chapter. I suggest adding 4-6 additional FAQs, to harvest other broader/cross cutting findings. See previous comments for potential FAQ topics.	Noted, thank you! The number of FAQs and the length of the text is limited by overall space constraints of the chapter and report.	Andy Jordan	Tyndall Centre	United Kingdom (of Great Britain and Northern Ireland)
9381	81	2	81	2	While I appreciate that you aim to use questions that might truly been frequently asked, I would also argue that there is also a risk that readers are disappointed if they do not find the answers they might have hoped for in these short texts. So this is another FAQ that seems to ask a big question and then only addresses a few aspects or takes a very general perspective. My suggestion would be to make the question more specific so that readers understand what your focus is. For example, clarify who is able to implement the policies and strategies that you refer to, what sector or what economic sector they can be applied to of how they help to reduce emissions. Another idea could be to specify "policies" and "strategies" as done in the answer (economic policy instruments, regulatory instruments, prices, taxes, technology standards, performance standards...). Especially "strategies" can mean a lot of different things, from the policy and governance level to communities or other social groups as well as individuals.	Noted, thank you.We have re-written FAQs to be more concise and directed. Incorporation of further specific details is limited by space constraints.	Maike Nicolai	Helmholtz Centre Geesthacht	Germany

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
27915	81	15	81	15	Delete "divestment strategies".	Divestment strategies are mentioned in the text and hence are included here.	Eleni Kaditi	Organization of the Petroleum Exporting Countries, OPEC	Austria
46463	81	17	81	17	FAQ 13.1: this FAQ uses language that can be interpreted as being policy-prescriptive. Please avoid phrases like "should".	Taken into account. Text has been amended.	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
86579	81	22	81	23	link to international cooperation to be included (ch. 14)	Taken into account. Text has been amended and the link to Chapter 14 has been added in FAQ 13.1	DetleF Sprinz	PIK - Potsdam Institute for Climate Impact Research	Germany
9383	81	22	81	38	Are you able share some examples that underline the effectiveness of certain structures? At the moment, I find it hard to detect the answer to the second half of your question because it is phrased very generally. I gather that coordination across systems is important, but this is only being said for sub-national institutions and could be highlighted more in my opinion.	Taken into account. Additional sentence has been added desribing the factors defining efficiency of climate policies.	Maike Nicolai	Helmholtz Centre Geesthacht	Germany
2757	81	31	81	32	It is essential to integrate climate action with poverty alleviation, including energy poverty. Dedicated efforts for both rural communities and urban slums as well as informal settlements are urgently needed. Thereby, special attention has to be given to energy for healthcare and other pressing needs of the poorest and most vulnerable populations	Noted, thank you. Both poverty alleviation and energy security have been mentioned in the text.	Leonardo Barreto	Head of center "EU&International"	Austria
46465	81	40	82	11	FAQ 13.3: this FAQ seems to be an extension to FAQ 13.2, since sub-national actors and their role is covered there as well. Please consider merging FAQ 13.2 and 13.3.	Noted, thank you! The national and sub-national have been more clearly delineated in the revision	Government of Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety International Climate Policy	Germany
9385	81	40	82	11	Again a very broad question: "actions at the sub-national level" can mean a lot of different things to different readers. Maybe this FAQ provides ideas for a more precise question and answer for FAQ 13.1 and both could be merged? In any case, I would specify in the question what kind of "action" you refer to.	Noted, thank you! The national and sub-national have been more clearly delineated in the revision	Maike Nicolai	Helmholtz Centre Geesthacht	Germany
22461	81	43	81	43	Suggestion to add "housing and community... etc" such as "infrastructure, housing and community... etc"	Taken into account. Text has been amended.	Government of France	Ministère de la Transition écologique et solidaire	France
48353	82	4	8	7	Can one work on the efficiency of these measures?	Noted, thank you. The question of efficiency of policy measures has been addressed in the updated FAQ 13.2	Susana Hancock	University of Oxford	United States of America
85609	91	2	91	32	First author name is missing.	I am sorry I am not sure what this comment relates to	San Win	Environmental Conservation Department, Ministry of Natural Resources and Environmental Conservation	Myanmar

Comment Id	From Page	From Line	To Page	To Line	Comment	Response	Reviewer Name	Reviewer Affiliation	Reviewer Country
22463	128	39	128	40	This reference needs to be updated (SSRN is not a journal but publishes working papers): Giraudet, L.-G. and Quirion, P., 2008, Efficiency and distrbutional impacts of tradable white certificates compared to taxes, subsidies and regulations, Revue d'Economie Politique 118, 885-914. This is a general comment for the entire chapter: SSRN is not a peer-reviewed journal but a website for the publication and diffusion of working papers.	Noted. This has been updated with a published paper	Government of France	Ministère de la Transition écologique et solidaire	France