

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
17118	15					This chapter does not have any acknowledgement of the global climate advocacy efforts of local governments that has focused through Local Government Climate Roadmap in 2007. A major outcome of the process was the Global Cities Covenant on Climate - the Mexico City Pact which has an international secretariat and regularly monitors progress of signatories. carbonn Cities Climate Registry in an important effort of local governments for measurable, reportable, verifiable climate action, which captures information of more than 170 cities worldwide as of July 2012. Recognition of local governments as governmental stakeholders in para.7 of Cancun Decisions is also important reflection of all these efforts in to UNFCCC processes.	Noted.
14302	15					Row "United Kingdom" - Note that the 2009 Low Carbon Transition Plan has been superceded by the "Carbon Plan" (2011). See http://www.decc.gov.uk/en/content/cms/emissions/carbon_budgets/carbon_budgets.aspx	Table deleted
4152	15					My comments are based on the observation that more attention needs to be paid to political barriers to stronger action on climate change due to their significance in preventing progress. The texts below, which have been prepared in conjunction with my colleague Ian Bailey, are designed to help remedy this. A table setting out political barriers and examples of actions designed to overcome them will be sent separately.	Noted.
4153	15					Climate change itself will create repeated opportunities to strengthen climate policies due to the strong likelihood that it will cause extreme weather events to become more frequent and more extreme (IPCC 2007). The literature on agenda-setting reviewed by Pralle (2009) points out that issues can rise to the top of decision making agendas as a result of dramatic focusing events that grab the attention of the public and policy makers alike (Downs 1972, Cobb and Elder 1983, Hilgartner and Bosk 1988, Kingdon 1995, Baumgartner and Jones 1993, Birkland 1998). To the extent that media coverage connects increasingly severe floods, hurricanes, heat waves and droughts with climate change, public support for stronger climate policies is likely to rise, creating windows of opportunity for activist governments. There is some evidence that this dynamic is already in operation, as opinion polls show that the percentage of respondents who consider climate change to be very serious rose both in Europe after the heat wave of 2003 and in the US after Hurricane Katrina in 2005 (Compston and Bailey 2012: 77). Baumgartner, F. and B.D. Jones (1993), <i>Agendas and Instability in American Politics</i> , Chicago: University of Chicago. Birkland, T. (1998), 'Focusing events, mobilization, and agenda setting', <i>Journal of Public Policy</i> 18 (1), 53-74. Cobb, R.W. and C.D. Elder (1983), <i>Participation in American Politics: The Dynamics of Agenda Building</i> , Baltimore: John Hopkins University Press. Compston, H. and I. Bailey (2012), <i>Climate Clever: How Governments can Tackle Climate Change (and Still Win Elections)</i> , London: Routledge. Downs, A. (1972), 'Up and down with ecology: The "issue-attention" cycle', <i>The Public Interest</i> , 28 (summer), 38-50. Hilgartner, S. and C. Bosk (1988), 'The rise and fall of social problems: A public arenas model', <i>American Journal of Sociology</i> 94, 53-78. IPCC (Intergovernmental Panel on Climate Change) (2007), <i>Climate Change 2007: Synthesis Report</i> . Kingdon, J. (1995), <i>Agendas, Alternatives, and Public Policies</i> , 2nd ed., New York: Longman. Pralle, S.B. (2009), 'Agenda-setting and climate change', <i>Environmental Politics</i> 18(5), 781-799.	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
4154	15					<p>One of the characteristics of mass audiences is that they are often more open to persuasion by vivid and plausible stories than by logic and evidence (Hajer 1995). For this reason accurate information about climate change needs to be supplemented by messages formulated as stories that take advantage of narrative devices such as beginnings, middles and ends as well as heroes and villains and struggles ending in dramatic resolutions. To some extent this is already being done. The disaster story casts proponents of mitigation as good guys striving against opposition to prevent catastrophe. The justice story stresses how unfair it is that those who have contributed least to climate change are likely to suffer the most. The security story posits that climate change will cause conflict due to effects such as competition over diminishing water supplies and that we therefore need to mobilize as we would to the threat of invasion. A more positive story focuses attention on solutions: climate change is a big threat but we know what needs to be done, the tools are at hand to solve it, so if we stick together and persevere we can do it. The opportunity story builds on this by adding the sub-plot that reducing emissions will involve creating new jobs and business opportunities (Compston and Bailey 2012: 56-63). The development of even more appealing stories may help to increase public support for stronger mitigation. One example of the sort of innovation required is the effort by the Apollo Alliance, a coalition of US labour, business, environmental and community leaders, to liken the required action to the Apollo programme of the 1960s that put a man on the moon (Apollo Alliance 2008). Another is the attempt by a group of economists, journalists and green activists to turn the economic crisis of 2008 to advantage by proposing what they called a Green New Deal (Green New Deal Group 2008).</p> <p>Apollo Alliance (2008), The New Apollo Program: Clean Energy, Good Jobs, http://www.apolloalliance.org/downloads/fullreportfinal.pdf, 4 September 2010, pp. 2-3.</p> <p>Compston, H., and I. Bailey (2012), Climate Clever: How Governments can Tackle Climate Change (and Still Win Elections), London: Routledge.</p> <p>Green New Deal Group (2008), A Green New Deal, New Economics Foundation, http://www.neweconomics.org/publications/green-new-deal, 3 September 2010, p.2.</p> <p>Hajer, M. (1995), The Politics of Environmental Discourse, Oxford: Oxford University Press.</p>	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
4155	15					<p>Institutional barriers and resistance from major industry groups can inhibit action in both developed and developing countries. The means to address these will vary by country but, in general terms, two options exist. The first involves negotiation with potential opponents on the terms of policy amendments or compensatory measures that may reduce opposition. These may relate to the climate policy under discussion or to other policy areas, such as business regulation (Bailey and Compston 2012). The second is to increase inter-sectoral coherence and governmental decision-making powers by means such as integrating climate and energy ministries (Carter 2008), nurturing cross-party consensus on climate change, requiring the official objectives of all relevant departments to include reducing greenhouse gas emissions, setting up high-profile independent climate change commissions (Giddens 2011), and creating framework policies (such as the UK's Climate Change Act and national climate strategies in China, India and Brazil) that establish long-term goals, targets and mechanisms for climate mitigation policy (Compston and Bailey 2012).</p> <p>Bailey, I. and H. Compston (eds) (2012), <i>Feeling the Heat: The Politics of Climate Policy in Rapidly Industrializing Countries</i>, Basingstoke: Palgrave Macmillan.</p> <p>Carter, N. (2008), 'Combating climate change in the UK: challenges and obstacles', <i>Political Quarterly</i> 79, 194–205.</p> <p>Compston, H., and I. Bailey (2012), <i>Climate Clever: How Governments can Tackle Climate Change (and Still Win Elections)</i>, London: Routledge.</p> <p>Giddens, A. (2011), <i>The Politics of Climate Change (second edition)</i>, Cambridge: Polity Press.</p>	Noted.
2943	15					in general, I thought this chapgter needed to focus more on program evaluation (the title of this part of WGIII) with less emphasis on program description, background social science such as definitions, etc.	Noted.
14876	15					Shorten substantially or entirely delete sect 15.5.4.8, /9./10 since long compared to other sub chapters albeit limited in regional scope (US) and scale compared to other existing instrumnets (eg promotion of renewable energy)	Noted. The section on emission trading will be completely rewritten in the SOD.
14877	15					very limited number of examples from developing countries; too heavy focus on US and Europe	Noted. Despite the paucity of peer-reviewed studies in developing countries, the SOD will include more such material.
14894	15					There is a substantial overlap between Chapter 15 and Chapter 7 section 11 on policies please align and refer rather than duplicate and contradict	Accepted.
14880	15					examples from small island states and least developped countries missing	Table deleted
14893	15					Project Carbon Fund missing; Sources?	Noted. Already covered in Chapter 16.
2581	15					The role of subnational and local governments in addressing Sustainable Development issues, notably climate change, has been increasingly recognized by the UM System. For instance, the Rio+20 final declaration has 23 matches to "subnationals" (initial draft had just a couple)	Noted.
13616	15					maybe you've seen this study http://repository.cmu.edu/cgi/viewcontent.cgi?article=1095&context=epp but in case not, think it would be helpful	Noted.
13619	15					Would like to again flag comment 22 - Abdel Latif (2012) which highlights the 'trigger' of the Kyoto Protocol	Noted.
13621	15					I just wanted to bring to your attention the report we did for NBS nbs.net/wp-content/uploads/NBS-Executive-Report-Policy.pdf	Noted.
17479	15					entry for the UK: the 2011 Carbon Plan supersedes the 2009 Low Carbon Transition Plan. Also relevant are the series of Energy Bills and Acts (e.g. Energy Acts 2008, 2010, 2011; May 2012 Energy Bill) which contain provisions for various energy efficiency and low-carbon measures	Table deleted

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15398	15					The executive summary exaggerates the negative cost statement. It claims cost-savings from standards but needs to mention cost of tax/cap and trade. This needs critical assessment of national actions, not merely repetition of government descriptions of plans or directives but assessments of change attributable to policies. Claims about US regional action are simply absurd: California is the only state left in the WCI, and RGGI is unraveling – see Chapter 14 for an accurate description. Combining standards and labeling is completely inappropriate. Studies have isolated regulation – and regulation will in principle restrict choices and impose costs while information has no cost other than administrative.	Accepted. The negative cost statement will be qualified. The section on tradable permits will be rewritten, as will the section on institutions and governance. Standards and labeling will be discussed in different sub-sections.
7501	15					No comments.	Noted.
5903	15					Please explain "AI" and "NAI". The table can be shortened to 1 - 2 representative examples for Annex I / non Annex I each or, if you want to include a wider variety, 4 -5 countries max. No table giving examples only should exceed 1 page in length.	Table deleted
11076	15					The styles of writing vary significantly from section to section, which makes reading difficult. For example, the styles of 15.5.3 and 15.5.4 are very different, although both of them belong to the arguments of explicit carbon pricing instruments. I prefer the style of 15.5.3. It is much more scientific.	Noted.
4289	15					I am missing the fact that VAs or Laws requiring energy management may not only be regarded to include technical measures. This comment holds for the whole chapter. Please see Thollander and Palm (2012) (Improving Energy Efficiency in Industrial Energy Systems - An Interdisciplinary Perspective on Barriers, Energy Audits, Energy Management, Policies, and Programs, Chapter 8 (and chapter 6), ISBN 978-1-4471-4161-7) where it is shown in Figure 4, chapter 8, that energy management could contribute to significantly higher energy efficiency potentials. Please also see Backlund, S., Thollander P, Palm, J., Ottosson, M., 2012. Extending the energy efficiency gap. Accepted for publication in Energy Policy holding the same line of arguments.	Noted.
18455	15					(5) In the spirit of helping update the US sub-national portion of this chapter, I point the authors to my 2011 law review article co-authored with Vicki Arroyo (Director, Georgetown Law Climate Center). We asked, what factors seem to explain why some states in the US have moved ahead in the GHG arena and others have not? We found that state action or inaction was likely attributable to a combination of the following factors: dependence on fossil fuels, affluence, presence or absence of energy shocks, energy prices, public salience, political leadership, political culture, professionalized legislatures, and patterns of campaign finance. Vivian E. Thomson and Vicki Arroyo, "Upside-Down Cooperative Federalism: Climate Change Policymaking and the States," Virginia Environmental Law Journal 29(1)(2011): 1-61.	Noted.
18453	15					(3) The EU ETS program appears to be included only in Table 15.1. That program should be described, as should the literature on the EU ETS's strengths and weaknesses.	Table has been deleted. EU ETS discussed in Ch 14
12065	15					The bar for 2009 seems out of proportion and this development is not explained in the text	Noted. The figure has been revised and this section rewritten.
18008	15					It is not quite clear to me in what way the second and the third column interact or cover the same ground.	Considered. This table has been deleted in SOD
5902	15					Can be deleted completely - the reader just read almost everything stated here in the executive summary above.	Noted. Will be rewritten.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
11080	15					This chapter can be shortened. Some descriptions seem appropriate in the conclusion chapter, which, very interestingly, lacks in this chapter, and overlap what are mentioned in the Executive Summary.	Noted. Will be rewritten.
4997	15					The advantage of tradable permits are not only cost-effectiveness but also political easiness compared with tax, which is always politically difficult to introduce.	Rejected. Taxes are used in some countries, so political feasibility varies with circumstances.
4999	15					It is not clear what the imperfect policy coordination means.	Noted.
12204	15					What is the goal of this subchapter? It is not clear why it touches on selected sub-issues and others not.	I followed the list of subtitles closely, and addressed – the best as I could – all of them. The list itself was given to me by the WG III team.
12205	15					The title of the chapter is on mitigation/adaptation capacities. 1.) In the text you also refer to policies and public good characteristics of climate change. It is not clear how this relates to mitigative/adaptive capacities. 2.) it is not clear what you mean by 'capcities', accordingly, the sentence "mitigative and adaptive capacities are fundamentally disjoint" is unclear. In addition, this statement seems to be in contradiction with chapter 4.6.1, page 54, where the authors write that there is a strong correlation between the capacity to develop sustainably and climate response capacity (pls. see comment on this text passage above)	I the revised version I removed the economics terminology. It was appropriate since climate protection requires a concerted global action, while adaptation can be carried out locally. Nevertheless, since some reviewers did not like the jargon, I rephrased the relevant sentences. I also removed the words 'fundamentally disjoint'. I am afraid, however, that the authors of 4.6.1 are too optimistic regarding the 'strong correlation'.
12206	15					You write that the stated objective of governments and int. organizations is to meet economic needs of a population. I think this statement is false. Meeting economic needs is one goal among other development goals.	The referee is right. Meeting economic needs is one of the many goals. I rephrased the relevant sentence.
12207	15					What is the task of this sub-chapter? The content of this sub-chapter is very selective. The title of 15.10 is "links to adaptation" yet here you also include mitigation.	Please see my response to 12204. Mitigation was only addressed to the extent it was unavoidable in the adaptation context.
2962	15					dealt with elsewhere in WGIII, I think, so maybe delete here.	Noted. Revised section after meeting with Chapters 13 and 16 teams to harmonise content.
2963	15					this is a subjective judgment, but I felt that this section talked down to the reader.	Noted.
8499	15					Governance is not necessarily about institutional change. It would be more accurate to state that governance is about better understanding the actions of governing, and the ways in which formal institutions and actors (eg, elected officials, etc) interact with, grant authority to, and are influence by informal actors and organizations that participate in the process of governance.	Definition of governance removed. Covered in the glossary
2945	15					this subsection was abstract and not very helpful to policymakers -- I'd suggest deleting.	shortened substantially, with a focus on how and why institutional change is relevant to Ch 15
11082	15					This chapter is well written. I like this academic flavour. IPCC report is meant to be science-based and this chapter is one of the best examples.	Thanks!

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
12046	15					The section focuses very much on the theoretical aspects of institutions and governance and how they have a tendency to block change towards mitigation policy. It should however also address capacity constraints in existing institutions or the absence of important institutions. I would argue that these are also important elements that prevent change in policies, as it is sometimes not a question of lack of will but lack of possibility to bring about change.	Emphasis on role of institutions in restricting change is included.
2946	15					the individual case studies are too long and detailed, although the table is very helpful. I suggest shortening by 50%.	Ccase studies re-written thematically. Table removed
12049	15					It is not clear what the objective of this section is and how the list of national policies interacts with the analysis of institutional structures and governance. The table takes up a large amount of space without delivering much information on the issues that should be addressed under section heading 15.2. The text in the table could be shortened considerably and if examples of sub-national policies and responsible institutions would be added could contribute to the discussion on institutions.	Re-written around clear themes and messages. Table removed to be replaced by a map. A sub-section on sub-national policies is included
2558	15					Quebec province has also a target beyond national, http://www.mddep.gouv.qc.ca/communiqués_en/2009/c20091123-cibleges.htm	Table removed
2560	15					Worth citing the Climate Group's billion tree endowment, http://www.theclimategroup.org/what-we-do/news-and-blogs/mike-rann-what-states-can-do-part-vii-plant-forests/	Section re-written to be thematic.
5904	15					Can be shortened considerably. What does Germany bring into focus that could not be explained / shown at the example of e. g. Denmark or the USA? So adding a new example seems not to be necessary.	Section re-written to be thematic.
11084	15					The very issue of "Subsidy Reduction" is missing in any case.	Covered in detail elsewhere in the chapter.
12050	15					Agree with author to drastically shorten the section! A new structure could take into account a) the different levels of jurisdictions and how they interact (community, provinces/states, national) and b) the different institutions, actors and governance structures within each level	Section re-written to be thematic.
18728	15					Inclusion of Germany will add interesting further dimensions to the conclusions on national and subnational trends, notably the concerted effort to define and plan pathways for full decarbonization across all major sectors of the economy over the medium and long term through a carefully balance instrument mix (albeit also highlighting the significant difficulties in getting this balance "right", and the ongoing and controversial debate on individual instruments such as the renewable energy feed in tariff).	German examples will be added
12051	15					The conclusion section should not focus on policies, but more on the institutional setup and what can be learned from the experiences. I.e. what is important to consider when setting up institutions or defining governance structures for mitigation activities.	Accepted; text modified
10459	15					This section needs to be expressed in a tabular format	Section shortened into text box
11085	15					I would prefer delete this section. The concept of NAMA is not matured yet, due to its strong political implications to developing countries under the UNFCCC negotiation. NAMA used to be a general expression, i.e. just "nationally appropriate mitigation actions", in the Bali Action Plan, but became very much politicized since then. I would suggest IPCC make itself isolated from the ongoing hot political debates under the UNFCCC.	NAMA discussion limited to a text box. It is retained because empirically NAMAS do provide one hook for national actions.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
18729	15					This section is somewhat fragmented, or incomplete - it successfully introduces the concept of NAMAs based on the evolution of the concept in the climate negotiations (specifically the BAP), proceeds to emphasize the definitional/conceptual uncertainties, but then - in an attempt to draw on empirical case studies - quickly gets lost in "possible NAMAs", with little systematic inference and hence limited added value. At least the concept itself should be given some more attention before leaving the reader to a vague uncertainty; e.g. breaking down the term and what it means for the definition of the concept of a NAMA ("national", "appropriate", "mitigation", "action"); differentiating the options (credited or C-NAMAs); linking the concept to more recent negotiation outcomes (what e.g. of Cancún and Durban?); and drawing on more recent literature (e.g. CCAP (2011). Nationally appropriate mitigation actions (NAMAs) and the Clean Development Mechanism (CDM). CCAP; Levina E., and N. Helme (2009). Nationally Appropriate Mitigation Actions by Developing Countries: Architecture and Key Issues. Centre for Clean Air and Policy (CCA), Washington; Okubo Y., D. Hayashi, and A. Michaelowa (2011). NAMA crediting: how to assess offsets from and additionality of policy-based mitigation actions in developing countries. Greenhouse Gas Measurement and Management 1, 37–46; Olsen K.H., J. Fenhann, and M. Hinostroza (Eds.) (2009). NAMAs and the Carbon Market -- Nationally Appropriate Mitigation Actions of developing countries. UNEP Risø Centre; Wang-Helmreich H., W. Sterk, T. Wehnert, and C. Arens (2011). Current developments in Pilot Nationally Appropriate Mitigation Actions of Developing Countries (NAMAs). Wuppertal Institute for Climate, Environment and Energy, Wuppertal.	NAMA discussion has been reduced substantially in response to comments. Definitional issues will be covered more completely.
11087	15					If some aspects of NAMA is to be mentioned, this section deserves to remain, because linking national policies to international support is indeed the core of the concept of NAMA and, therefore, has been politicized. If policy scientist can provide negotiators with any science-based studies, it would surely be highly appreciated.	Section shortened into text box
18730	15					As noted in an earlier comment, the role of active stakeholder outreach and engagement for the success of policies is borne out by practical experience in a variety of contexts, such as the introduction of complex market mechanisms (EU ETS, Chinese pilot ETS), where understanding and hence acceptance among stakeholders are often lacking. This is indeed an important sections and needs to be included.	New section will be added
18731	15					While aptly summarizing many of the preceding observations, some of the conclusions do not seem to be backed by earlier sections; one example: "Sixth, since implementation is in its early stages, it is difficult to assess the extent of leakage across jurisdictions, but there are few signs of a "race to the bottom."" - was this discussed in more detail in a preceding section? This reviewer at least only recalled brief mention of leakage as a potential problem, but no survey or assessment of actual incidences of leakage.	Accepted. The conclusion of this section will not mention race to the bottom issues.
5751	15					I think the need for gradually removing fossil fuel incentives and biofuels feed-in tariffs is just touched on while it should be more prominent (this is also part of the recommendations by the 2011 OECD-FAO prepared for the G20)	Rejected. This section now just describes in general the different policy alternatives, normative considerations are not contemplated
8500	15					Note again the importance of typologies for public policy, as well as for instruments (Lowi, etc)	Taken into account. Not only policy instruments but also policy types are now considered in 15.4. Section 15.2 also discusses this issue
14882	15					little information, terms are not used in the further analysis in section 15.5; integrate in 15.5 or delete	Noted. Section 15.5 will incorporate the criteria and 15.6 will follow this classification

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
11193	15			26	18	One should add that the subsidy generates a burden to the public finances, which makes the policy vulnerable to policy changes in times of crisis (e.g. downsizing feed-in-tariffs in renewable policies)	Accepted. Revenue demands from subsidies included in text
11386	15			26	18	One should add that the subsidy generates a burden to the public finances, which makes the policy vulnerable to policy changes in times of crisis (e.g. downsizing feed-in-tariffs in renewable policies)	Accepted. Revenue demands from subsidies included in text
3677	15					Integrate with chapter 3.8. as chapter 3.8. lacks climate change related examples.	Noted. A more practical and illustrative approach to climate change mitigation is attempted
18732	15					A brief acknowledgment of the epistemological challenges of the main criterion (environmental effectiveness: how to establish causality in complex physical and socioeconomic systems? How to define the environmental outcome that serves as the benchmark of effectiveness when mitigation policies typically pursue so many different and not always compatible environmental and other (social, economic, innovation etc.) objectives? Etc.) and the inevitable contingency, i.e. proneness to value judgments of all other criteria would seem helpful here, as it is barely discussed in ch. 3. Social science and humanities literature has begun looking at the limitations of the criteria developed in neo-classical economics, but is still scarce. See Mehling, Michael (2002): "Betwixt Scylla and Charybdis? Effectiveness in International Environmental Law." 13 Finnish Yearbook of International Law 129-182; Erkki J. Hollo, Kari Kuusiniemi, Eriika Melkas and Michael Mehling (2002), "Legal Aspects of Climate Change: Instrument Choice and the Kyoto Mechanisms," in Understanding the Global System: The Finnish Perspective, edited by Jukka Kayhkö and Linda Talve, pp. 177-182. Turku: FIGARE, 2002	Rejected. Outside the scope of the chapter: topic covered in Chapter 3
12052	15					It is not clear how this section relates to the rest of section 15.3. The following sections mainly describe the policy instruments and do not yet evaluate them. With the definition of criteria for assessment at the beginning of the section the reader expects some form of assessment to follow. I would suggest to move this section to 15.5.	Accepted. This section now just describes policy types: criteria and evaluation are in subsequent sections 15.5
12054	15					The categories do not mention energy based standards (e.g. standards set in China on energy use per unit of output)	Accepted. Text Modified: minor change in the text to avoid a closed classification of standards
13712	15					Rename section "Tradeable permits and offset credits" and revise text to cover both cap and trade (allowance-based systems) as well as baseline and credit systems (project-based offsets).	Accepted. Text modified: incorporation of baseline-and-credit trading systems
11089	15					The vulnerability of tradable permits to interferences from other policy instruments should be mentioned here.	Taken into account. This section merely describes the different policy alternatives, whose interactions are covered in Section 15.8
5002	15					The tradable permits may lower compliance costs but not necessarily reduce administration costs. The administration and political cost to sustain EU-ETS is tremendous, if compared with other scheme such as carbon tax.	Taken into account. This section merely describes the different policy alternatives, whose assessment is covered in Sections 15.5 and 15.6
5003	15					It should be mentioned that there is a concern for the accuracy of the data in carbon footprints since there is no perfect data available. Therefore, the usage of eco-labeling and certification must be carefully implemented not to mis-guide the consumers.	Accepted. Text modified: no reference now to carbon footprints: further explanations of specific topics is beyond the objective of this section
14883	15					little information, terms are not used in the further analysis in section 15.5; integrate in 15.5 or delete	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
18735	15					This section heavily focuses on economic approaches (CGE analysis) as the central way of assessing/evaluating policies and institutions. While the explanation appears balanced as far as economics is concerned (e.g. in terms of challenges faced and approaches used), it is extremely narrow in disciplinary focus and fails to incorporate the valuable (and, in the real world, highly relevant) contributions of other disciplines. One example is law, which is the means by which policies become operational in most cases and, as a discipline, by definition deals with interactions between sets of rules, principles and rights and duties. Accordingly, interactions between policies can only be fully understood when their potential legal conflicts with existing or future procedural and substantive rules are also factored in, as these can either result in the inapplicability or only partial applicability of the policy, or significantly hamper its implementation (or result in other consequences, such as litigation or liability for damages/compensation). By the same token, the success or failure of policies is often strongly affected by how well these harmonize with the existing legal framework, and how conducive that framework is to their effective implementation. For instance, procedural or institutional rules (which body has what power to play which role in the operationalization of a policy) can be decisive for the real-life application of a theoretically superior policy. Unfortunately, there has been very little jurisprudential scholarship specifically on evaluation of climate change policies, and hence it is difficult to pinpoint seminal research (see, e.g., Hollo, Erkki et al. (eds), Climate Change and the Law, Dordrecht: Springer, 2012); rather, it is necessary to understand the legal system in its entirety (and conversely grasp related scholarship very broadly) to fully capture the role of this discipline in evaluating climate policies. The same would apply to other disciplines that can contribute to the assessment of policies, such as e.g. behavioral psychology and its study of the behavioural factors that motivate or hamper change in human behavior e.g. to reduce emissions.	Noted.
12055	15					Suggested further literature on ex-post evaluation: Forster, Daniel; Falconer, Angela; Buttazoni, Marco; Greenleaf James; Eichhammer, Wolfgang; Köhler, Jonathan; Toro, Felipe; Schleich, Joachim; Sensfuss, Frank; Ragwitz, Mario; AEA Group (2009): Quantification of the Effects on Greenhouse Gas Emissions of Policies and Measures: Final Report Appendix I: Detailed Policy Methodology and Results Chapters . Oxford: AEA Group, 2009.	Noted.
12056	15					It would be helpful to the reader to have a clearer rationale why in this context only ex-post evaluation is considered and not ex-ante.	Noted.
3678	15					Integrate with chapter 3.8. as chapter 3.8. lacks climate change related examples.	Noted.
5752	15					It is important to mention and refer to the FAO recently agreed guidelines on tenure governance: http://www.fao.org/docrep/016/i2801e/i2801e.pdf	Noted
18751	15					There is a conclusion (helpful) after 15.6, but not after the much longer and variegated 15.5. It could make sense to consider a conclusion or summary that seeks to condense the main lessons/outcomes.	Rewritten, will be done.
12057	15					Each sub-section would benefit from a small overview table of the examples that are mentioned in the section, with some key characteristics and an overall finding / evaluation rating (e.g. high/medium/low effectiveness)	Noted, not sure if this is practicable but will try to do something on these lines.
12058	15					The difference between 'criteria' and 'ex-post evaluations' is not immediately clear from the text. An explanatory sentence would be useful.	Noted, text rewritten
3679	15					Integrate with chapter 3.8. as chapter 3.8. lacks climate change related examples.	Noted, will discuss w. Ch 3
14884	15					covering 'regulation' and 'information' in the same section seems only appropriate when focussing on energy efficacy standards and labels, however regulation with climate change policy incorporate also eg quotas for renewable energy or feed-in tariffs; suggest to cover the two items in separate sections thereby incorporating quotas and other regulations in the regulation section	Accepted. Regulation and information separated. RPS and FIT are dealt with at section 15.6
3680	15					Integrate with chapter 3.8. as chapter 3.8. lacks climate change related examples.	Accepted. Coordination will be made.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
5905	15					The text could be shortened considerably if you refrained from listing case studies / examples and changed the text to "statement (source)". For example, p. 30 l. 23 - 31 could be shortened to: "Building code changes can have an effect on energy consumption. For example, an increase in the stringency in Florida's energy code resulted in a decrease in the consumption of electricity by 4% and natural gas by 6%, compared to residences structured before the code came into effect (Jacobsen & Kotchen 2011)." The statement in lines 23 - 25 is pointless and can be deleted completely.	Accepted. Text modified and shortened.
5906	15					Please concentrate on core statements and avoid listing studies. Please do NOT start sentences with "X conducted ..." or "Y found that ...".	Accepted. Text modified and shortened where appropriate. See 104 for different view.
18739	15					Suggested table summarizing cost effectiveness calculations for different policies with comparable metrics would be very helpful and should be included	Noted, not sure if this is practicable
11090	15					I value the style of this section best, because it is objective and science-based; distinguish the grey literature from rigorous published works; distinguish empirical studies from theory or simulation studies. The style of this section should be a benchmark of other sections.	Noted
3681	15					Integrate with chapter 3.8. as chapter 3.8. lacks climate change related examples.	Noted, will discuss w. Ch 3
13714	15					Please also consider the following empirical literature: : Andersen, M. (2004). Vikings and virtues—a decade of CO2 taxation, in: Climate Policy, 4, p. 13-24; Andersen, M. (2010): Europe's experience with carbon-energy taxation, in: S.A.P.I.EN.S, 3.2, URL : http://sapiens.revues.org/1072 ; Enevoldsen, M., Ryelund, A.; Andersen, M. (2007). Decoupling of industrial energy consumption and CO2-emissions in energy-intensive industries in Scandinavia, in: Energy Economics, 29, p. 665-692; Godal, O.; Holtmark, B. (2001): Greenhouse gas taxation and the distribution of costs and benefits: the case of Norway, in: Energy Policy, 29, p. 653–662; Zhang, Z.; Baranzini, A. (2004): What do we know about carbon taxes? An inquiry into their impacts on competitiveness and distribution of income, in: Energy Policy, 32, p. 507–518; Ekins, P.; Pollitt, H.; Summerton, P.; Chewprech, U. (2012): Increasing carbon and material productivity through environmental tax reform, in: Energy Policy, 42, p. 365–376; Agnolucci, P. (2009): The effect of the German and British environmental taxation reforms: A simple assessment, in: Energy Policy, 37, p. 3043–3051.	Noted, text rewritten
18742	15					The empirically observed effects of the large-scale "Environmental Tax Reform" in Germany between 1999 and 2006, which incurred successive rate hikes on a number of fuel taxes as well as the introduction of a new electricity tax (hence now called the "Energy Tax") are very instructive in terms of distributional impacts, behavioural effects (and ultimately greenhouse gas reductions) as well as employment effects of recycling revenue into a reduction of non-wage labor cost. See e.g. Buehler, Ralph et al. (2011), "How Germany Became Europe's Green Leader: A Look at Four Decades of Sustainable Policymaking" 2 Solutions (2011): 51-63 and Mehling, Michael (forthcoming 2013), "Germany's Ecological Tax Reform: A Retrospective", in Manuela Achilles (ed.), Sustainability in Transatlantic Perspective: Germany and the U.S. (Basingstoke: Palgrave Macmillan).	Noted, text rewritten
13715	15					Please include: Burniaux, J.; Chateau, J. (2011): Mitigation Potential of Removing Fossil Fuel Subsidies: A General Equilibrium Assessment, OECD Economics Department Working Papers, No. 853, OECD Publishing. doi: 10.1787/5kgdx1jr2p1p-en	Noted, text rewritten
11096	15					This section is one of the most courageous section in this chapter. The message contained here is very important. Keep this as it is, and include the essence in the Executive Summary.	Noted
12061	15					Aviation and maritime transport does not fit into the logic of section 15.5.3. Since the section as written mainly refers to the absence of taxes for the sectors and not to other policy instruments under consideration for the sectors it would be better suited to include the text as a box in section 15.5.3.3.	Text rewritten

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
18744	15					The ample evidence on FIT effectiveness in countries like Germany, and the challenges nonetheless faced in setting adequate tariff rates (especially in Spain and Portugal, with an ensuing boom/bust effect) have been discussed in the literature and should be considered - in purely absolute terms, Germany has led renewable energy deployment (at least for certain energy sources such as photovoltaics) for a longer period.	Text rewritten
11097	15					The lessons learned recently in Spain and Germany should be mentioned.	Noted
18745	15					The assignment of the EU ETS to ch. 14 and national/subnational ETS to ch. 15 may make sense just going by the chapter titles, but that virtually rules out any comparison/side-by-side analysis, as would be useful here. Also, the supranational EU law is considered "domestic plane" in international law.	Noted
11098	15					This section is one of the most problematic in this chapter. This reads as if it were a gray paper to promote emission trading. Whole section should be rewritten in the style of 15.5.3. What are the issues? What kind of science-based works can be referred to each argument? Are they grey or rigorous published works? Are they empirical studies or theory or simulation? Those questions should be addressed as was the case in 15.5.3.	Text rewritten
13716	15					Add a section on the Tokyo system, using elements of p. 65, line 27- p 66, line 5, see Nishida, Y.; Hua Y. (2011): Motivating stakeholders to deliver change: Tokyo's Cap-and-Trade Program, in: Building Research & Information, 39, p. 518-533	Text rewritten
13720	15					Delete first part of the section, as not referring to greenhouse gas trading, and only retain those parts relating to GHG trading	Text rewritten
12062	15					The section is unproportionately long compared to the other sections within 15.5.4. Suggest shortening.	Done
3682	15					Cut chapter by 50% to save space.	Text substantially rewritten and shortened
18747	15					Two of the helpful lessons coming out from different surveys of the RGGI system include 1. the ability of even a very low-price ETS to influence mitigation in a meaningful way if allowances are auctioned and proceeds used for mitigation activities; 2. compliance costs have been minimal, cobenefits significant (see RGGI Inc. and Analysis Group 2011/2012).	Noted
11099	15					This section is particularly misleading. It sounds as if it deals with ex-post analyses of GHG emission tradings, but it does not. GHG reduction is very different from other pollution reductions. This section should be deleted.	Text substantially rewritten
13717	15					Delete section, as not referring to greenhouse gas trading	Noted
18748	15					The ample description of criteria pollutant trading systems can probably be abridged if space constraints necessitate doing so, as the value of lessons from conventional pollutant reduction for greenhouse gas mitigation is limited, see e.g. the experiences under the EU ETS.	Yes, done
13718	15					Delete section, as not referring to greenhouse gas trading	Text substantially rewritten
13719	15					Delete section, as not referring to greenhouse gas trading	Text substantially rewritten
18749	15					Not mentioned in this section are two major voluntary agreements on climate mitigation, both of which were only moderately effective or ineffective: the agreements between German industry and the government of 1996 and 2000 (Erklärung der Deutschen Wirtschaft zur Klimavorsorge, see http://www.bmu.de/wirtschaft_und_umwelt/selbstverpflichtungen/doc/47777.php ; for an independent monitoring report of 2010 by RWI institute, see http://www.rwi-essen.de/media/content/pages/publikationen/rwi-projektberichte/PB_CO2-Monitoring-2010.pdf ; largely replaced by the mandatory EU ETS starting in 2005); and the voluntary agreements between European, Japanese and Korean car manufacturers and the European Community (at the time), which were considered ineffective and resulted in adoption of a regulation on CO2 emission limits in 2009.	Accepted. Text modified accordingly. Literature added.
3683	15					Integrate with chapter 3.8. as chapter 3.8. lacks climate change related examples.	Accepted. Coordination will be made.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
12064	15					The section should be shortened. While Japan is a good example for a functioning voluntary system it would be more useful to discuss the necessary framework that make voluntary agreements more or less successful.	Accepted. Text modified accordingly.
13722	15					Replace by "Voluntary agreements have a rather mixed outcome with regards to their environmental effectiveness. They are effective alternatives to mandatory regulations when the target is to achieve small environmental improvements at relatively low cost (Borck and Coglianesi 2009). A credible threat of regulation is required in order to achieve stringent targets (Baranzini and Thalmann 2004). Under specific cultural circumstances, such as in Japan, voluntary agreements can also work in the absence of a direct regulatory threat (Wakabayashi 2012) . There, they provide high flexibility and are politically highly feasible." References: Baranzini, A.; Thalmann, P. (2004): Voluntary approaches in climate policy, Edward Elgar, Cheltenham. ; Borck, J; Coglianesi, C. (2009): Voluntary Environmental Programs: Assessing Their Effectiveness, in: Annual Review of Environment and Resources, 34, p. 305-324	Accepted. Literature added. Mixed outcome is mentioned.
2957	15					you could just cross-reference to the Forestry chapter and delete this section.	Accepted. Section deleted.
3684	15					Integrate with chapter 3.8. as chapter 3.8. lacks climate change related examples.	Noted, will discuss w. Ch 3
2958	15					I would suggest keep the portions of this section that are specific to emission reduction technologies and brutally shortening everything else.	Noted. Section has been shortened. Because of the limited literature on policy impacts on emissions technology, the authors believe that some discussion of the more general literature is useful.
5010	15					Most of the policy measures described in this chapter are the measures for deployment and diffusion of energy efficiency/clean technologies/energies by either incentivise or mandate them by policies. Assumption behind this is such green technologies/clean energy are expensive and this is basically true. But if clean energy/green technologies become cheaper than fossil fuels and ordinary technologies, such incentives and/or policy measures may not be necessary. Therefore, R&D of such cheap clean energy is crucially important for the mitigation. see the following papers: "Climate Pragmatism, Innovation, Resilience, and No Regrets", Bob Atkinson et al., (2011), "The Hartwell Paper, A new direction for climate policy after the crash of 2009", Gwyn Prins et al., Institute for Science, Innovation and Society, University of Oxford and Mackinder Program for the Study of Long Wave Events, London School of Economics, (May 2010)	Noted.
10456	15					Cut out this section on R&D. This serves no useful purpose, interrupts the flow of the rest of the chapter	Rejected. Theoretical and empirical literature cited in this section demonstrate the importance of technology policy for mitigation.
18750	15					The extensive experience with renewable energy promotion in Germany (feed-in priority and net metering since 1990, feed-in tariff since 2000) and the significant growth in renewable energy technology deployment in the past two years (e.g. >10 GW of new photovoltaic installation in barely a year) might merit more discussion, as they show up a number of second-level/spillover effects (e.g. merit order effect, decentralization of power generation, etc.) while also effectively underscoring how a promotion system, if properly balanced, can function (the "re-balancing" being a challenging and much discussed issue at current). There is substantial gray literature on the topic, as well as some early peer reviewed literature. Instructive also the contrast to the failed policies in Portugal and Spain applying essentially the same mechanism, but with overly generous incentives leading to a "boom and bust" cycle (for the last paragraph "cautionary experience").	Taken into account. There is additional discussion of these examples in the SOD.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
12067	15					The section very much overlaps with the content of section 15.5 as measures discussed in 15.5. are in most cases (except measures aiming at behavioural changes) finally aimed at accelerating technology deployment. A discussion how far these policies do influence also technology development is useful, but repetition needs to be avoided. Any discussion on the effectiveness of instruments on deployment should be moved to the respective sections under 15.5.	Taken into account. We have better coordinated the discussion of policies that affect deployment between the subsections.
11101	15					This is another example of far-from-science-based reports of this chapter. It reads as if it were a piece of anti-IP-protection campaign. Please refer No.15 and rewrite.	Rejected. Different individuals have very different views regarding the effects of IP policy. The conclusions in the chapter regarding the potential consequences of IP protection are supported by the published theoretical and empirical literature.
12068	15					Are 'environmental policy instruments' as used in the section meant to represent the GHG mitigation policies discussed in earlier chapters? The objective of the section is not clear. It reads like a summary / conclusion section, but the conclusion section comes later.	Noted in part, rejected in part. The text has been expanded to make clear that "environmental policy instruments" in this subsection are, indeed, the kind of generic instruments discussed in the previous subsection. That subsection did not, however, consider the impact of these instruments on technology. This subsection is not a summary/conclusions subsection but one addressing this specific issue.
12069	15					The content of this section could be moved to the conclusions in section 15.6.8. It does not present any analysis but rather draws lessons from analysis above.	Noted.
18752	15					There is an inherent tension between the - accurate - affirmation of multiple important objectives of mitigation policy in this section and a) the mention of the Tinbergen rule earlier in the chapter; b) the application of criteria for the assessment of policy instruments (also earlier on in the report) which assume clearly defined, identifiable and uniform policy objectives (whose achievement can be measure in terms of effectiveness, cost effectiveness, etc.). What may be environmentally effective may not achieve any of the other objectives mentioned in 15.7.1; what is successful at accommodating the various priorities listed here may not necessarily be the most environmentally effective; and so on.	Considered. We added a short para at the beginning of this sector to indicate the multiple objective of mitigation policies.
12070	15					It is not clear how this section interacts with section 15.3.2. It seems repetitive - consider merging. The second part of the title 'Measures to widen policy goals' is not clear and seemingly unrelated to the first part of the title.	Considered. We have reorganized 7.1-7.3 to a new section which focus on the interaction between policy objectives

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
18006	15					The literature and details covered in this paragraph are very interesting, but might or should be covered in the respective sector chapters (particularly Chapter 7). In my eyes, the role of chapter 15 would rather be to provide the link between the framing, the IAM and the sectoral discussions of SD and co-benefits/co-costs with the policy assessment literature and provide an overview of methodological challenges. In contrast to co-benefits and co-costs of individual mitigation options, Chapter 15 could build on these assessments and discuss synergies and trade-offs across different policy goals in different sectors in view of future transformation pathways.	Considered. The linkage with sectoral chapters will be enhanced when related sector chapters are ready.
18753	15					This section fails to mention some interesting and useful insights from mainstreaming efforts e.g. in Europe at the EU level and that of individual Member States, where substantial institutional restructuring (e.g. formation of Directorate General Climate Action at EU level and appointment of a Commissioner for Climate Action; creation of the Department of Energy and Climate Change in the UK; various national "Climate Laws" or statutes that bring together all relevant climate and energy provisions/rules. There is literature surveying these developments, but I have no concrete citations at hand.	This EU case study has been addressed in 15.2, institution and governance section
18756	15					That other criteria than efficiency may be relevant when discussing interactions or parallel application of two or more instruments is mentioned; what is not mentioned in this section is the discussion about the need to promote specific technologies with long lead time, such as CCS or PV deployment, even if the same sectors are covered by a quantity rationing instrument such as an ETS - this has been the rationale to retain feed-in tariffs in Europe despite the existence of a carbon price in the energy sector (carbon prices in the EU ETS will not be high enough in the foreseeable future to incentivize the higher-cost abatement technologies). There is peer-reviewed literature on this, see Braathens - Interaction between ETS and other instruments (2011); Boehringer et al. - RES and ETS Interactions (2009); Philibert - Interactions of Policies for Renewable Energy and Climate (2011). Also, section 15.7.5.1 lists coinciding application of efficiency standards and carbon pricing as beneficially interacting, when this has been a major discussion in the EU about the introduction of the energy efficiency directive (EED) and its potential to displace allowances under the EU ETS cap, thereby creating unwanted supply in the carbon market and depressing prices, see e.g. Ryan et al. - Energy Efficiency and Carbon Pricing (2011); Lecuyer et al. Combining Climate and Energy Policies- Synergies or Antagonism? Modeling Interactions with Energy Efficiency Instruments (2012).	Noted. Some references added. Several of these issues are now covered in 15.6
2959	15					isn't this covered elsewhere in WGIII?	Noted.
18760	15					What is not mentioned is the highly influential U.S. Conference of Mayors' Climate Protection Agreement, see http://www.usmayors.org/climateprotection/revise/ , that now comprises 1054 municipalities around the United States and entails a voluntary commitment to reduce GHGs to 1990 levels.	Noted.
12071	15					No references provided for the section. Why are the barriers provided in table 15.3 only applicable to the Pacific Islands? They seem rather to apply to a wide range of countries. While it of course needs to be stressed that barriers vary between countries it seems possible to identify a range of generic barriers that apply to a wide range of countries.	The comments is noted and appreciated. The barriers are generic and are not specific to the Pacific Islands Countries only. The Pacific Islands Countries was only mentioned to address the need for developing countries case studies etc in the report. The barriers have been removed from the SOD version.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
18761	15					Repeats or refutes some statements in earlier sections, e.g. "not uncommon ... to ... have a number of different policies" (see above in the chapter, Tinbergen rule and instrument interactions; Definition of policy on p. 70, line 15 somewhat idiosyncratic, what is missing is a definition of capacity building (for which ample literature exists. Also (p. 70, l. 18): policies are the outcome of decisions; they tend to guide (implementing) actions, not decisions (unless one wants to enter the complex discussion of hierarchical planes of regulation, with higher-level policies - e.g. fundamental rights, constitutional doctrines - limiting the range of permissible policies at a lower plane); p. 71, l. 3: instruments alone do not ensure progress on mitigation, as the preceding table already highlighted - a multitude of factors, institutional, technical, economic etc. are determinative. P 71, l. 9 - should read "good" policies (not "food" policies)?	A definition of CB according to the United Nations Conference on Environment and Development, is provided in the SOD. Food vs. Good policis is noted and corrected.
18762	15					Very short and not much substantial content yet.	Noted. This section is only given 2 pages and can't cover all in that space.
15399	15					Since most of the comparisons of policy instruments between global, regional and local action involve cost-effectiveness criteria, the discussion of cost-effectiveness needs to be considerably strengthened.	Noted. Will be done wherever feasible given the literature.
15400	15					A large number of published studies support the conclusion that either a carbon tax or cap and trade are more cost-effective than regulatory programs but the chapter fails to make this comparison. For examples, see the following Goulder publications: Goulder, Lawrence H. & Parry, Ian W. H. & Williams III, Robertson C. & Burtraw, Dallas, 1999. "The cost-effectiveness of alternative instruments for environmental protection in a second-best setting," Journal of Public Economics, Elsevier, vol. 72(3), pages 329-360, June. Parry, Ian W. H. & Williams, Robertson III & Goulder, Lawrence H., 1999. "When Can Carbon Abatement Policies Increase Welfare? The Fundamental Role of Distorted Factor Markets," Journal of Environmental Economics and Management, Elsevier vol. 37(1), pages 52-84, January. Instrument Choice in Environmental Policy Lawrence H. Goulder and Ian W. H. Parry**Review of Environmental Economics and Policy, volume 2, issue 2, summer 2008, pp. 152–174 doi:10.1093/reep/ren005.	Taken into account. (This section now merely describes the different policy types, whose assessment is covered in Sections 15.5 and 15.6)

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
3603	15					The executive summary refers to several issues that are to be discussed in section 5.3 (initial resistance to carbon taxes, role of hypothecation), and the introduction to the section states that (institutional) feasibility is a key criterion for assessing policy instruments, yet the whole issue of political feasibility/industry and public acceptance is almost entirely absent from section 5.3. A suggested list of references follows below: Dresner, S., Dunne, L., Clinch, P., Beuermann, C., 2006. Social and political responses to ecological tax reform in Europe: an introduction to the special issue. Energy Policy 34 (8), 895–904; Eriksson, L., Garvill, J., Nordlund, A.M., 2006. Acceptability of travel demand management measures: the importance of problem awareness, personal norm, freedom, and fairness. Journal of Environmental Psychology 26, 15–26; Fujii, S., Ga'rling, T., Jakobsson, C., Jou, R.C., 2004. A crosscountry study of fairness and infringement on freedom as determinants of car owners' acceptance of road pricing. Transportation 31, 285–295; Harrington, W., Krupnick, A., Alberini, A., 2001. Overcoming public aversion to congestion pricing. Transportation Research Part A: Policy and Practice 35, 87–105; Hsu, S., Walters, J., Purgas, A., 2008. Pollution tax heuristics: an empirical study of willingness to pay higher gasoline taxes. Energy Policy 36, 3612–3619; Jakobsson, C., Fujii, S., Ga'rling, T., 2000. Determinants of private car users' acceptance of road pricing. Transport Policy 7, 153–158; Kallbekken, S., Kroll, S., Cherry, T.L., 2010. Pigouvian tax aversion and inequity aversion in the lab. Economics Bulletin 30 (3), 1914–1921; Kallbekken, S., Kroll, S., Cherry, T.L., 2011. Do you not like Pigou or do you not understand him? Tax aversion and earmarking in the lab. Journal of Environmental Economics and Management 62 (1), 53–64; Kallbekken, S., Sælen, H., 2011. Public acceptance for environmental taxes: self-interest, environmental and distributional concerns. Energy Policy 39, 2966–2973; Kallbekken, S., Aasen, M., 2010. The demand for earmarking: results from a focus group study. Ecological Economics 69, 2183–2190; Loukopoulos, P., Jakobsson, C., Ga'rling, T., Schneider, C.M., Fujii, S., 2005. Public attitudes towards policy measures for reducing private car use: evidence from a study in Sweden. Environmental Science and Policy 8, 57–66; Schade, J., Schlag, B., 2003. Acceptability of urban transport pricing strategies. Transportation Research Part F: Traffic Psychology and Behaviour 6, 45–61; Schuitema, G., Steg, L., 2008. The role of revenue use in the acceptability of transport pricing policies. Transportation Research Part F: Traffic Psychology and Behaviour 11, 221–231; Steg, L., Dreijerink, L., Abrahamse, W., 2006. Why are energy policies acceptable and effective? Environment and Behavior 38, 92–111; Sælen, H., Kallbekken, S., 2011. A choice experiment on fuel taxation and earmarking in Norway. Ecological Economics 70, 2181–2190.	Noted.
3600	15					The review of the effect of carbon taxes should include the recent paper by Lin, B. & Li, X. (2011), The effect of carbon tax on per capita CO2 emissions. Energy Policy 39, 5137-5146. This study finds that carbon taxes in Northern European countries have had mixed effects overall, and for most countries no significant effect at all, on carbon emissions. Also, Bosquet, B. (2000, Environmental tax reform: does it work? A survey of the empirical evidence, Ecological Economics 34: 19–32) provides a useful review that should perhaps be referred to.	Noted.
15401	15					The discussion of carbon taxes cannot be confined to a survey of the very limited examples of application of these taxes. There is a large number of published studies, many using CGE models, that show how a carbon taxes or proxies like cap and trade are cost-effective and capable of bringing about emission reductions large enough to meet any feasible temperature goal. This section makes it appear that carbon taxes are nearly irrelevant, despite the many studies showing their advantages over the regulatory and subsidy policies that take up the bulk of the chapter.	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15402	15					Discussion of phaseout of fossil subsidies completely ignores the very large subsidies to certain specified renewables now in place in most countries. The notion of technologies competing on a level playing field or cap and trade established by a carbon tax or cap and trade seems entirely missing from the chapter.	Noted.
7560	15					Eco-point system for housing in Japan has to be mentioned: http://www.env.go.jp/en/wpaper/2011/pdf/22_Chapter4-3.pdf For example, insert the following sentences. Global warming countermeasures in the private sector are an issue that the residential sector should work on, and the government can actively encourage energy-saving in the housing sector, which will create an environmental effect that contributes to the establishment of a low-carbon society, and an economic effect that will stimulate new demand in the domestic market (MOE Japan 2011).	Noted
15403	15					Discussion of border tax adjustment (BTA) is incomplete in that it does not mention the difficulties of calculating accurate taxes on embodied carbon or WTO obstacles to BTA. On this see Babiker and Rutherford (The Economic Effects of Border Measures in Subglobal Climate Agreements, by Mustafa H. Babiker and Thomas F. Rutherford, 26(4), 2005, 101-128.) and Andrew Greene (Reconciling Trade and Climate: How the WTO Can Help Address Climate Change (with T. Epps) (Cheltenham, UK: Edward Elgar) [forthcoming].; "Trade Rules, Dispute Settlement and Barriers to Regional Cooperation" in Neil Craik, Debora VanNijnatten and Isabel Studor, eds., Designing Integration: Regional Governance in Climate Change in North America. [forthcoming]; "Is There a Role for Trade Sanctions in Addressing Climate Change" (with Tracey Epps) (2008) 15(1) University of California Davis Journal of International Law and Policy 1-30.)	Noted
15406	15					REDD discussion leaves out perhaps the most important problem with REDD – that the same governance failures that lead to deforestation and are going to be continuing obstacles to reversing REDD. On this see the work of Lee Alston (with Krister P. Andersson, Reducing Greenhouse Gas Emissions by Forest Protection: The Transaction Costs of Redd, February 2011, NBER Working Paper No. w16756) sources they cite.	This section will be deleted. Dealt with in Ch 11.
15407	15					I do not see any discussion of the literature that would support for the unqualified claim that commercialization needs to be supported by government, and I know that there are many examples of studies that question that claim. See for example: R.G. Newell. (December, 2008). A U.S. Innovation Strategy for Climate Change Mitigation. Hamilton Project Discussion Paper 2008-15 Brookings Institution.	Rejected. First, the claim in the text is not unqualified; we note several issues and concerns regarding government support of technology at the commercialization stage. More important, the claim that there is some appropriate role for government support of commercialization is supported by the literature cited in the section, and additional literature cited in the SRREN. (The cited Newell survey, which is "gray" literature, was reviewed and considered by the writing team.)

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15408	15					Conclusion 3 on R&D unwarranted – carbon tax would do it, govt purchase a narrow possibility.	Rejected. Theoretical literature, cited in the Chapter, emphasizes that technology markets suffer from distinct market failures that are not addressed by carbon taxes. Empirical and historical literature demonstrate the potential efficacy of sector-specific technology policy to accelerate innovation in a given sector.
15409	15					The list of problematic interactions between policies leaves out the most important cases in which regulations that mandate a more costly technology drives out cheaper technologies that would be chosen under cap and trade. (Bloomberg paper, "The Price of Carbon," in Electric Light & Power Magazine, Volume 87 (August 2009).) Aside from this good but overly limited interactions section, the chapter implies that every additional policy measure is a good idea – and that more policies are already better than less. Work by Goulder on how regulatory measures increase cost when added to cap and trade or tax policies need to be discussed. For examples, see the following Goulder publications: Goulder, Lawrence H. & Parry, Ian W. H. & Williams III, Roberton C. & Burtraw, Dallas, 1999. "The cost-effectiveness of alternative instruments for environmental protection in a second-best setting," Journal of Public Economics, Elsevier, vol. 72(3), pages 329-360, June. Parry, Ian W. H. & Williams, Roberton III & Goulder, Lawrence H., 1999. "When Can Carbon Abatement Policies Increase Welfare? The Fundamental Role of Distorted Factor Markets," Journal of Environmental Economics and Management, Elsevier, vol. 37(1), pages 52-84, January. Instrument Choice in Environmental Policy Lawrence H. Goulder* and Ian W. H. Parry**Review of Environmental Economics and Policy, volume 2, issue 2, summer 2008, pp. 152–174 doi:10.1093/reep/ren005.	Noted
7561	15					The "environmental concierge system" in Japan has to be mentioned as an excellent example: http://www.env.go.jp/en/wpaper/2011/pdf/22_Chapter4-3.pdf For example, insert the following sentences. In "The New Growth Strategy: Blueprint for Revitalizing Japan," Cabinet decision in June 2010, the "environmental concierge system" was introduced. In order for households to effectively reduce their CO2 emissions, it will be necessary not only to promote the purchase and installation of low-carbon equipment but also to provide appropriate advice on using it to the individuals having high interest.(MOE Japan 2011).	This section is about Capability to Formulate Policies. This section has been rewritten with more emphasis on the need for sound data and information in order to effectively formulate and review policies.
7429	15	0				Add a subsection (15.5.6.6) on the spillover impacts of response measures citing the most recent literature on this issue.	Rejected. This is covered in Chapter 13 section 13.8. .
12929	15	0				The chapter is still in a very draft form, e.g. some sentences are missing and many papers are not quoted in the references. However, I found it interesting, informative and original, especially part 15.7 on synergies and tradeoffs among policies (although this part still requires a lot of work). In general there is a lot of material concerning developed countries and relatively few on developing countries, but this reflects the existing literature. Since the TSU mentioned that the chapter is too long, I concentrate my comments on how to shorten it.	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15547	15	0				<p>One key issue that does not seem to be mentioned here or in any of the other chapters is the potential problem of fossil fuel prices falling in response to climate change mitigation policies. This could possibly go in 15.7.5.2. In its most extreme guise, this problem becomes the Green Paradox discussed by H-W Sinn. Emissions pricing to tackle climate change may not have the desired impact on emissions or the development of renewable energy if it drives down the pre-tax price of fossil fuels. Policy-makers need to take into account constraints and general equilibrium feedbacks throughout the economy when designing policy instruments and should not assume that market prices necessarily reflect resource costs in real-world settings (Dreze and Stern, 1990). An important example in the context of climate change and renewables policies is provided by the market prices of fossil fuels. These reflect not only the resource costs of extracting the fuels but also the rents accruing to their owners due to their scarcity value. Carbon pricing may simply push down the price received by the producers of fossil fuels, without affecting the final price to users; the scarcity rents from fossil fuel owners would then just be transferred to the authorities applying a carbon tax or to the owners of carbon emission quotas and the rate of extraction of fossil fuels would not be affected. Indeed, if carbon pricing reduces the producer prices of fossil fuels, that will stimulate demand for them in any jurisdictions not applying carbon pricing. The prospect of policies to combat climate change intensifying and the carbon price rising over time may encourage fossil fuel owners to deplete their exhaustible resources more rapidly, undermining policy-makers' objectives for both the climate and the spread of renewables technology (Sinn, 2008). Insecure property rights – perhaps made more so by the risk of coercive international action to curtail the use of fossil fuels – exacerbate the risk. Hence climate change mitigation policies and renewable energy support policies could undermine each other through their impacts on fossil fuel extraction in the near term.</p> <p>This analysis suggests that the optimal trajectory for the carbon price for maximising overall social welfare may not be a steady rise at the rate of interest, or the discount rate plus the rate of decay of greenhouse gases in the atmosphere, as often assumed in models of optimal climate-change mitigation policy (e.g. Paltsev et al., 2009). More attention needs to be given to the economics of exhaustible natural resources. Some analyses have suggested that the optimal trajectory is downward-sloping when there are negligible extraction costs, which is not a bad approximation for the largest OPEC oil producers. Such a trajectory would persuade resource owners at least to delay extraction, which would be beneficial because of discounting (Sinn, 1982; Sinclair, 1992, 1994). If these are correct, then policy-makers risk undermining their objectives, including the large-scale adoption of renewable energy, if they introduce a regime that leads to a rising carbon tax over time. Policies to promote renewables may shift the whole carbon price trajectory downwards, increasing emissions (Hoel, 2009).</p> <p>But the availability of cheap fossil fuels need not undermine climate-change policies completely. First, the optimal carbon price is likely to rise for some time, even in models where ultimately all the fossil fuels are extracted (Ulph and Ulph, 1994). Hoel and Kverndokk (1996) show that, if the stabilisation of greenhouse gases in the atmosphere is possible with some residual steady-state greenhouse gas emissions, the carbon price should rise until some moment before stabilisation is reached and then fall, so that fossil fuels are conserved until they can be used cheaply and without harming the environment, alongside renewable energy.</p>	<p>Rejected. The chapter discusses national and sub-national policies. Optimal tax policy at this level must be conditional on other jurisdictions' actions, and this is not taken into account in the literature cited. In any case, for reasons of space, we do not discuss optimal tax policy.</p>

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
16957	15	0				<p>I have a major dilemma in commenting on this chapter. The topic of assessing policies and (to a lesser extent) institutions has been the prime focus of a book written over the past two and half years: Grubb, Hourcade and Neuhoff, Planetary Economics and the Three Domains of Sustainable Energy Development Taylor & Francis forthcoming (Chapters 1 – 5 submitted, others in draft available on request).</p> <p>Rather than go through in detail, my overall observation is that the chapter could benefit from a clearer consistent structuring of the policies and measures, and an account of how they relate to each other. The key to this would seem to lie in the concluding statement, p.76 lines 3-6, which identifies: “.... Three broad categories of policies for the government to mitigate climate change effectively ...”</p> <p>The three broad categories named in this paragraph in fact align almost exactly with the classification of the three domains in our book, and the associated “3 Pillars of Policy”, though we do put them in a different order. I think this is no accident: we have converged on a fundamental structural dimension of climate change policy.</p> <p>I would suggest that</p> <p>(a) to the extent possible within the constraints, the chapter is either restructured along these lines, or if this is not possible given the negotiated outline, that the paragraph indicated is moved right up front to inject this basic categorisation into people’s minds as they read the rest</p> <p>(b) the accompanying Figure (15.5) is reviewed to see if it can be adapted to align with and reinforce this basic message</p> <p>(c) we share with the Authors of this chapter the full texts of our book, which is structured around these three pillars of policy, seeks to analyse the empirical evidence around them to date, and to then analyse how they interact. Obviously, it would then be up to the authors to decide how useful any of this material is, and to what extent it might be desirable to align terminologies etc.</p> <p>There may be some benefit to swapping the order of the first two categories in the paragraph indicated, so that it leads with regulatory and information measures. This would not only align with the terminology in our book, but more important (for the IPCC) it would align with the theoretical structures of “System 1” and “System 2” decision-making processes introduced in Chapter 2 of the FOD, since these map fairly directly on to (i) regulatory / information, and (ii) price-related, instruments. Note my comments to Chapter 2 also on the fact that many of the other things in chapter 2 that “don’t fit” in these two categories are actually manifestations of Third Domain processes, which align with the Policy Pillar of innovation and infrastructure.</p>	Noted.
13753	15	0				<p>Overall, the chapter provides a very comprehensive overview over climate policies. It is very relevant and informative. In most instances, the assessment has the right level of detail. It appropriately points to a lot of policies that have been implemented in many countries. However, there are some elements that seem somewhat outdated (e.g. 15.5.4.6-10, which can be replaced by a short summary with a pointer to appropriate references; check with AR4) and in some section, less detail may be sufficient.</p>	Accepted. The sections referred to will be re-written.
13754	15	0				<p>There are quite some references that are missing from the reference list. I have not checked all of them and cannot point out, but for example Davis 2010, De Vita et al. 2006, Sterner 2012 are missing. Please check all references.</p>	Accepted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
6710	15	0				<p>As a set of policies to reduce energy service demands is one of keys to reduce GHG emissions, it is suggested that such policies should be mentioned separately. For example, insert subsection " emission reduction policies" in Section 15.3</p> <p>As an example of policies to reduce energy service demands, Japanese experience after Fukushima nuclear accident could be referred to. For example, "To curtail power demand, in the summer of 2011, the Japanese government launched an extensive power-saving campaign and imposed a cap on power use for large consumers such as factories. As a result, electric energy sales in TEPCO's service area in July and August 2011 posted a year-on-year reduction of about 15% for large and small consumers (Katayama and Onogawa, 2012)."</p> <p>Reference: Katayama and Onogawa, 2012, The power saving behavior of the residential sector in the wake of the Great East Japan Disaster, in Lessons Learnt from the Triple Disaster in East Japan, IGES Policy Report No. 2012-01, Institute for Global Environmental Strategies, 71-88, Referred part is in 72, available at: http://enviroscope.iges.or.jp/modules/envirolib/upload/3986/attach/IGES_2012_Policy_Report_for_Disaster_Research.pdf</p>	Rejected. Emission reduction policies include all policy types.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
18763	15	0				<p>Overall, this chapter represents a solid effort to condense the current scientific consensus on the topics identified during the scoping process. There are, however, some overarching comments that can be made:</p> <p>1. Some passages, e.g. the table summarizing national policies, can be omitted to reduce overall length and free up more space for sections that are currently underdeveloped. As the table of national policies in Section 15.2.2.1 shows, any attempt to provide a snapshot of ongoing policy developments will invariably be out of date fairly quickly and selective in what it covers (see separate comments on these specific sections), undermining its added value and suggesting a more analytical, holistic approach instead that seeks to distil general lessons and trends. Likewise, the description of historical experiences with in NOx and SO2 trading in the US in Sections 15.5.4.9 and 15.5.4.10 adds little value because it is both old and applies to a generally different context; lessons from the EU ETS or the Regional Greenhouse Gas Initiative (RGGI), partly covered in other chapters, would seem more useful for climate change mitigation.</p> <p>2. By contrast, some other sections are still underdeveloped; e.g. 15.9.3 and 15.9.4, which essentially are expanded headlines and contain very little developed substance.</p> <p>3. In some cases, the current division of topics between Chapters 13, 14 and 15 renders it more difficult to reach summary conclusions or compare relevant policies and instruments in a fruitful way; e.g. the ample discussion of quantity rationing instruments (emissions trading) in Section 15.5.4 cannot draw on the wealth of experience reached in the European Union with the EU ETS, because that policy - although clearly relevant for the domestic plane and sharing many of the characteristics of national emissions trading systems, such as centralized administration, enforcement through sanctions etc. that set it apart from traditional international regional cooperation - is assigned to another Chapter.</p> <p>4. The increased focus on ex-post analysis is highly welcome, and important in various ways (see also comment on disciplinary bias below). However, it has also resulted in frequent description of situations (policy developments and legislation) that are no longer valid because of political developments since the (often older) source cited. This is particularly apparent e.g. in the description of regional climate initiatives in the U.S. in various sections of the chapter. Greater reliance on authoritative policy documents or official websites seems important to avoid this problem.</p> <p>5. There are frequent inconsistencies and tensions throughout the chapter's individual sections. For instance, in Section 15.7.1, the affirmation of multiple important objectives of a single mitigation policy seems to partly contradict the earlier mention of the Tinbergen rule (one policy - one market failure/objective) and the criteria for policy assessment applied earlier in the report, which assume clearly defined, identifiable and uniform policy objectives (whose achievement can be measured in terms of environmental effectiveness, cost effectiveness, etc.). Case in point: what may be environmentally effective may not achieve some of the other objectives mentioned in 15.7.1; what is successful at accommodating the various priorities listed in 15.7.1 may not necessarily be the most environmentally effective; and so on. Such trade-offs between different approaches are inevitable, but they should be clearly identified and discussed. Too long but the description of national policies can be taken out (needs to be much longer if useful and will probably never pass) – interesting examples can and should be used as case studies.</p>	<p>1. Accepted. The table will be deleted.</p> <p>2. Accepted. These sections will be re-written.</p> <p>3. Accepted. Chapter 14 will be referred to where needed.</p> <p>4. Noted.</p>
18674	15	0				Too long but the description of national policies can be taken out (needs to be much longer if useful and will probably never pass) – interesting examples can and should be used as case studies.	Accepted. Will be done.
18675	15	0				Isn't there a need to coordinate the sub-national aspect with chapter 12 (in reality about urbanisation and what can be done on the urban level)	Noted.
18678	15	0				There is some overlap between 13, 14 (but hard to read out in the present version) and 15 regarding description of policies etc + also overlap in relation to earlier chapters (among them c 3). Perhaps better to sort out the general stuff in chapter 13 and do cross-references. Partly repeating the same stuff is far from ideal + there is a need to stay consistent	Noted.
18679	15	0				Rebound effects discussed once again.	Noted.
18680	15	0				Boarder tax adjustments discussed one again (at least partly based on new/different material)	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
18682	15	0				(Interestingly enough, patents are thereafter used as a measure regarding innovations.)	Noted.
15560	15	0				Overall, the chapter contains very interesting information but could benefit from more structure. Across the chapter and within each section, it would be helpful to clearly state the purpose of the chapter/section and the key points of the chapter/each subsection, the contents of the chapter and subsections as well as clearly defined conclusions, both for the chapter in the executive summary and in the individual sections. Presenting the material in visually easy-to-read formats, such as through the use of bulleted conclusions, will make this more readable. At times it seemed that the content of some sections was disjointed while others were very concise. Developing a clear outline for what each section will say may help to identify what text can be cut or tightened to meet the page limit. Including an overall conclusion or key takeaway messages at the end of the chapter, at the end of each main section, and in the executive summary would significantly improve this chapter. Also, the word "however" is overused.	Accepted. The next draft will attempt to do a better job of this.
18471	15	0				The interlinkage with other AR5 policy chapters is extremely limited. (The only clear connection is 15.2.3 discussion on NAMAs). A reader misses a clear connection, e.g. a discussion on the implications of international and regional policies on national policy-making.	Noted.
18472	15	0				Chapter misses a synthesis of the policy discussions in the sectoral chapters. Where sectoral policies are currently covered in the chapter, it is in a scattered and inconsistent way. One of the key outputs expected from Chapter 15 for the AR5 would be to bring these inputs together for a concise, overarching message about how national policies address the different sectors. This could be done in e.g. a 3rd level heading in 15.5.	Noted.
18473	15	0				Consistency between section 15.3 and 15.5 in terms of policy categorization is lacking in two noticeable places: 1) Regulations & Standards and Information policies from 15.3 are combined in 15.5. The reason for this combination that appears in 15.5 is that they are 'often' implemented together. This combination is, however, not always the case. It would be much more useful for the reader to evaluate each of these policies individually (which would also allow consistency with Section 15.3 as well as Chapter 3), then to discuss synergies in 15.7, which is the logical place for policies that are implemented together. 2) 15.3 focuses on land and infrastructure planning (e.g. cities), whereas 15.5 on REDD. Why this differentiation and singled focus on individual sectors, each of which have dedicated policy section in the relevant policy chapters?	1. Accepted. 2. Noted.
18482	15	0				I applaud the focus on ex post analysis as an innovation from the AR4. However, this focus cannot EXCLUDE the theoretical literature. As such, at the very least there should be a discussion of both theoretical and empirical literature, ideally also comparing the two and explaining discrepancies. This is done in an exemplary way in 15.6, but is largely ignored in 15.5.	Accepted.
18483	15	0				The quality and consistency of the chapter text ranges widely, with some sections in a truly excellent state and others that would need to be completely restructured and rewritten. The chapter would benefit greatly from a good, strong edit by a single voice to assure a comprehensive storyline throughout. Substantial effort would be needed to bring the chapter up to a high standard throughout in time for the SOD.	Accepted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
18451	15	0				<p>I offer these comments in the spirit of helping the authors achieve the following goals:</p> <p>(a) craft a useful, important contribution to the IPCC report;</p> <p>(b) include recent and relevant research; and,</p> <p>(c) shorten the chapter.</p> <p>The Excel format for offering comments is incredibly clumsy. I have done my best to transpose my comments, which were composed in Word format.</p> <p>I have been a policymaker as recently as 2002 to 2010, when I was member and Vice Chair of the Virginia State Air Pollution Control Board.</p> <p>So I offer comments not only as an academic expert, but also as a former national (EPA) and state air pollution policymaker.</p> <p>One of my current book projects involves climate change policymaking in the US, Germany, and Brazil.</p>	Noted.
18452	15	0				<p>1) To shorten the chapter, I suggest eliminating Table 15.1 and keeping the country descriptions in text. The table provides insufficient detail.</p> <p>Any reader interested in knowing about individual country actions will refer to the text.</p> <p>Careful editing can also shorten this chapter. Many sentences are cluttered with unnecessary words and phrases, and clarity suffers.</p> <p>For example, the following sentence at the top of p. 41 can be shortened, as follows:</p> <p>Current: A problem associated with most carbon pricing systems, but one that is especially significant for RGGI, is that electricity generation and emissions may "leak" outside the cap (Burtraw, Kahn, and Palmer 2005).</p> <p>Shortened: RGGI's design has the potential for "leakage" of electricity generation and emissions (Burtraw, Kahn, and Palmer 2005).</p> <p>It would be useful to describe how Germany's emissions reductions were accomplished by a combination of closing old polluting factories in the former East Germany, implementing the EU ETS, and national energy laws. as should the ways in which those funds have been used to support programs to lower GHG emissions.</p>	Accepted. The table will be deleted.
18454	15	0				<p>(4) The US policy descriptions are outdated. The authors should add two or three sentences about EPA's vehicle standards and the Agency's efforts to regulate stationary sources of greenhouse gases under Section 111 of the Clean Air Act.</p> <p>A June 26, 2012 US Circuit Court of Appeals finding wholly supported EPA's claim that greenhouse gases can be regulated under the existing Clean Air Act.</p> <p>The authors should also indicate that plans for new coal-fired power plants in the US have fallen off, because of lower natural gas prices and also because of various EPA regulations for air, water, and waste. See, e.g., Susan Tierney, "Electric Reliability under New EPA Power Plant Regulations: A Field Guide" (www.wri.org/stories/2011/01/electric-reliability-under-new-epa-power-plant-regulations-field-guide). Here is a recent reference for the actions under Section 111 of the Clean Air Act: M. Rhead Enion, "Using Section 111 of the Clean Air Act for Cap and Trade of Greenhouse Gas Emissions: Obstacles and Solutions," <i>UCLA Journal of Environmental Law and Policy</i> 30(1)(2012): 1-50.</p>	Accepted. The material describing US policies will be rewritten.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
18456	15	0				<p>(6) The first few paragraphs of the chapter indicate that climate change policy effectiveness will be evaluated in some fashion. Yet the chapter skirts that evaluation, which is absolutely critical for policymakers. Readers will want to know, what policies work to reduce greenhouse gas emissions, and in what context?</p> <p>While recognizing the problems with determining cause and effect, the authors should seek studies that indicate how greenhouse gas emissions, emissions per capita, or emissions per GDP have changed in the places that have initiated policies with direct or indirect effects on greenhouse gas emissions. Information on costs and collateral benefits (e.g., jobs, lower solid waste production, reduced emissions of other pollutants) would be helpful, too.</p> <p>This chapter should address these issues head on, rather than skirting them by citing studies on trading programs for other pollutants. In fact, I believe the section on lead emissions trading should be eliminated and the section on the acid rain program should be reduced to a few sentences. The authors should focus on policies and programs that have affected emissions of greenhouse gases, and they should take care to include programs aimed at pollutants other than carbon dioxide. For example, the widespread closure of old landfills around the world and the spread of recycling programs have led to lower methane emissions. Such programs should be described, as should their impacts on methane emissions.</p>	Accepted. Sharper conclusions will be made where warranted. The section on tradable permits will be rewritten.
3183	15	0				<p>This chapter serves a crucial function, for it helps people understand what is known about the design and implementation of national policies. It is a difficult chapter to understand, however, because it comes at the end of the WG3 report when many of the key points (such as on policy design and to some degree on political decision-making) have already been made. Moreover, the chapter is nearly devoid of the insights that come from people who study national policy processes professionally—for example, the entire field of comparative politics and most of the field of public policy decision-making. I don't know what to advise in terms of revision, but one strategy would start with key insights from previous chapters concerning policy design and choice (e.g., chapters 2, 3 and 5) and then, with that baseline, add any comments in addition. You might also consider putting sections 15.3 and 15.4 first in the chapter as they set a foundation for understanding policy choices. Throughout, there might be more discussion of different types of governments (e.g., anocracies and democracies) and how government type affects political decision making as well as industrial organization. In general, attention to adaptation is pretty thin in this chapter. And since WG3, overall, is thin on adaptation the TSU might advise all of us on whether/how this needs to be beefed up. Throughout the chapter I thought regulation is under-played even though it is the main means of national policy related to emissions controls and the importance of markets is over-played. As analysts we might not like that—we prefer flexible markets to regulatory mandates—but the real world has spoken differently.</p>	Noted. Closer integration with other chapters will be done.
12041	15	0				<p>Outline of the chapter: I am not sure if the sub-chapter on NAMAs is appropriately positioned within section 15.2. As nationally appropriate mitigation actions are a specific construction of the UNFCCC process but in essence represent different types of mitigation actions at various possible levels they represent a specific form of policy instruments. I would therefore suggest to either include the discussion of NAMAs in section 15.3 or to dedicate a specific new sub-section to the discussion of NAMAs. Another alternative would be to include it as a box within section 15.3, as it is not really a policy instrument in itself, but a way of communicating activities at the international (UNFCCC) level.</p>	Noted. This section will be rewritten.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
12042	15	0				A general consideration would be whether the chapter only addresses policies that are specifically designed for GHG mitigation or if it also at least mentions measures that are implemented for other purposes but influence GHG emissions. Especially in the section on institutions and governance it would be good to include a discussion how important it is to ensure coordination between different institutions (especially ministries) to ensure mitigation policies are not rendered ineffective by other policies initiated by other departments for a variety of reasons.	Noted. The chapter does aim to address all policies that have major impacts on GHG emission reduction.
12043	15	0				The overall logic of the chapter is not made sufficiently clear in the introduction, and the sub-sections lack a clear explanation of the outline of the individual section structure. In many cases the rationale for the choice of sub-sections and their order is not immediately obvious. A very brief introduction to each section would be beneficial for the better understanding of the reader.	Noted.
2346	15	0				It is confused the structure of the paper by adding sub conclusions under 15.2.2.3,15.2.5,15.5.2.4. 15.5.5.4Rather having a conclusion in between subsection, this point can be merged into the main part or can be dragged into a main conclusion. Same issue can be raised "sub Introduction". These leads to exceed of length of the paper.	Noted.
10457	15	0	0			Several topics of this chapter are written in an US centric fashion and should be expanded to include the developing world	Noted. Despite the paucity of peer-reviewed studies in developing countries, the SOD will include more such material.
5900	15	1	1	92		The text could be shortened considerably if you refrained from listing case studies / examples and changed the text to "statement (source)". This might seem just a matter of style but writing "statement (sources), but see also (source)" is less space-consuming than "X wrote ..., Y found ..., but Z indicated that ...".	Noted.
13613	15	1+				Just wanted to point out the NBS study we were involved with (a systematic review regarding climate policies and their effectiveness) which may be of interest http://nbs.net/wp-content/uploads/NBS-Systematic-Review-Policy.pdf	Noted.
13620	15	1+				Re-reading the request at the beginning, thinking about the audience (which is rather broad), I would suggest deleting some text pertaining to the general debates e.g. the role of IP in hindering or helping technology diffusion at a general level (still covering the key debates but getting into less details to do with the studies. For example, there is a lot of material on the U.S. Clean Air Act and its implications (e.g. appetite and experience of market based instruments, etc). Without negating the importance and significance of this milestone, I would suggest deleting some of the details.	Accepted.
18719	15	10		16		As discussed during the ERM in Washington DC in August, omitting a table is probably preferable to attempting to define compelling boundaries (which countries and why) and seeking to balance depth and detail with available space. Moreover, inclusion of numerous jurisdictions will mean a proportional rise in the number of regulatory changes and additions, consequently resulting in the overview being outdated even sooner.	Table deleted
18676	15	10		16		Table 15.1 Legislation and Policy (pp 10 – 16) –out? To give a complete overview will be very complicated (and demanding)	Table deleted
10227	15	10		16		Landscape format would improve readability of this table	Table deleted
18469	15	10				It may be more useful to replace this table with a crisp comparison map, as was done for the IPCC SRREN (see Ch 11.2, p. 875). This will solve the problem of readability (multiple-page tables are typically discouraged in the IPCC) and also country selective bias which has the potential to be politically problematic. This way the messages of the table will be retained and chapter space saved. For comparison in this map, it would be useful to highlight policies that were covered by the AR4, and those that have evolved since that time.	Comparison map has been attempted for SOD

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
12931	15	10	16	16	1	I suggest to delete Table 15.1 and to discuss its main elements in the text of section 15.2.2.2. Presentation of policies in different countries is interesting, but I suggest to discuss each country with the same structure, in order to facilitate comparison.	Accepted
12165	15	10	16			The information in this table seems to provide limited value, especially given its length - it is unclear to me what the purpose of all the information provided is other than conveying the fact that indeed quite some countries have adopted climate policy or regulation in recent years. The stated objectives seem to originate directly from the countries own descriptions, which generally do not follow a particular structure. Therefore, the table lacks consistency. Also, notwithstanding its length, the information does not provide much on the concrete contents of policies. It might be better to rearrange content following a given structure, or reduce in size drastically.	Table deleted
12166	15	10	16			please provide description for abbreviations AI and NAI and change the column header from 'type' to e.g. 'status'	Table deleted
6716	15	10	16			What is the criteria to choose the countries? It is better to add the footnote to the policy of Canada, as Canada withdrew from Kyoto Protocol.	Table deleted
17653	15	10	16			I find the table to be of limited use. Given that it only lists G20 countries, the information is mostly limited to some wealthy or at least increasingly wealthy countries. At the same time the table is incomplete and the categorization between legislation and policy seems unnecessary.	Table deleted
18718	15	10	7	10	8	The sentence "Finally, national styles and traditions of governance also shape divergence across approaches" is somewhat unclear, especially when considering the examples that follow (China, USA): how are these two specifically divergent, and divergence across what elements/criteria? Within a single policy, across all national policies, or between policies of different nations?	Re-written
3674	15	10	9	10	9	Please add "In its long-term plans until 2020, China aims at a reduction of carbon intensity by 40-45% against 2005, an increase of non-fossil fuel share (in primary energy supply) to 15% by 2020 against 2005, an increase of forest coverage of 40mill. ha and of forest stock volume of 1.3bn m³ by 2020 against 2005 and the promotion of Green Economy, Low Carbon Economy, Circular Economy and technology development".	Section has been re-written. Also, the intent here is not to reproduce all national commitments, as that would make the section too long.
8311	15	11				For Canada, suggest to delete example of Kyoto Protocol Implementation Act as it will be repealed. Instead add "Sector by Sector GHG Regulations under Canadian Environmental Protection Act" under legislation/plan name. Under Objectives, delete existing text and add, "Regulations to reduce GHG emissions have been introduced for the transportation and electricity sectors so far. Regulations are forthcoming for other emissions-intensive industry sectors, starting with the oil and gas sector."	Table deleted
5252	15	11	Table			I thought Canada had walked away from the Kyoto 'Accord'.	Table deleted
13231	15	12		12		China: China issued a "Climate Change White Paper" in 2011. It lists all then current climate policies and plans. It supersedes the 2007 document listed here.	Table deleted
5253	15	12	Table			The EU's targets exclude 'embedded emissions' in imports, and therefore are a dishonest prospectus.	Table deleted
9917	15	13				Germany: the situation presentation in this chapter is outdated	Not applicable now - table removed
13232	15	13		13		Indonesia: Indonesia in 2009 announced a national emissions target, and subsequently announced specific policy measures to help achieve it. The 2007 plan is essentially superseded. More information can be found in Jotzo, F. (2012), 'Can Indonesia Lead on Climate Change?' in Reid, A.S. Indonesia Rising: The Repositioning of Asia's Third Giant, ISEAS, Singapore. This paper will be made available to the TSU.	Not applicable now - table removed
5254	15	13	Table			Germany's position is a shambles. Coal use is rising, fossil fuel subsidies continue until at least 2018, carbon emissions are rising rapidly. This Table is a grossly dishonest reflection of Germany's current and prospective position.	Not applicable now - table removed

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
3119	15	15				re. Turkey - very good overview here: http://www.cgseurope.net/UserFiles/file/Ankara%20workshop_june%202012/presentations/Evren%20Turkmenoglu.pdf	Thank you
3120	15	15				it would be useful if there was an additional column on national emission reduction targets. These are mentioned for some countries but not all e.g. Germany has a target for 2020 (40% reduction) and 2050 (80%)	Not applicable now - table removed
3117	15	16				UK: The Low Carbon Transition Plan was replaced by the Carbon Plan in 2011 (see http://www.decc.gov.uk/en/content/cms/tackling/carbon_plan/carbon_plan.aspx). Also, key features of the 2008 CC Act is that it enshrines the 80% 2050 target in legislation and sets a framework for carbon budgets.	Table been deleted
18677	15	16		22		The same goes for the case studies (pp 16 – 22)	Table been deleted
15562	15	16				Under United States of America row - the legislation or plan name is not the Endangerment finding but the Clean Air Act; Recommend that you change the text in the objectives column to be: Based on findings that greenhouse gases endanger public health and that contributions by motor vehicles contribute to greenhouse gas pollution, the CAA has been used to regulate emissions from motor vehicles.	Table been deleted
5000	15	16	10	22	42	It is not appropriate to list the specific cases of countries here.	Thanks for this - in the end we have had so many comments about the country case studies that we have decided to go for a description of a particular governance situation as a case study in various countries
13233	15	16	11	17	5	Motivations for China's climate policy: The discussion here should be clearer, and it is important to realise that motivations go well beyond fostering energy efficiency. Boyd (2012) identifies as China's motivations (1) energy security, (2) climate change mitigation and (3) technology leadership. One might add reduction in local air pollution to the list. Boyd, O., 2012. "China's Energy Reform and Climate Policy: The Ideas Motivating Change", Centre for Climate Economics & Policy, Crawford School of Public Policy, ANU.	Not applicable now - table removed
3675	15	16	11	16	12	Please add "One other important impetus of climate change mitigation actions in China is their impact on energy security, especially regarding the reduction of domestic oil demand. As the Chinese government aims at importing crude oil as little as possible, energy security concerns are increasing with growing net-oil imports. Climate change mitigation actions leading to a reduction of domestic oil consumption can reduce the energy security pressure (Oberheitmann, 2009)." Please cite as: Oberheitmann, A. (2009). China's energy security strategy and the regional environment - Assessment of economic growth and its environmental impact applying a dynamic welfare optimisation approach. Saarbrücken: VDM.	Not applicable now - table removed
12167	15	16	3	16	4	In fact I'm wondering if presenting a case study country-wise doesn't make more sense than thematically here, as it makes for a consistent and complete story. I'm not sure whether and which theme would be able to structure this content with similar value.	Thanks for this - in the end we have had so many comments about the country case studies that we have decided to go for a description of a particular governance situation as a case study in various countries

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
11083	15	16	3	16	4	I prefer keeping the style of this section as it is. Present description on each country is very informative. You may wish to shorten the Table 15.1 rather, by mean of reorganizing thematically here.	Thanks for this - in the end we have had so many comments about the country case studies that we have decided to go for a description of a particular governance situation as a case study in various countries
5255	15	16	Table			Again, this is a ludicrous and dishonest reflection of the UK position. Delivering cuts of one-third from 1990 levels by 2020? At end 2011, instead of a reduction of over 20% there had been an increase of 20% due to 'embedded emissions'. Sir Robert Watson, Chief Scientific Advisor to UK Department of Environment (former IPCC Chairman) has stressed the need t take embedded emissions into account, and stated this position very clearly in September, 2010, with the then relevant figures. Prof. David MacKay, Chief Scientific Advisor to th UK Dept. of Energy & Climate Change, has said much the same. Meanwhile, the UK's Planning system (e.g. PPS 22, Companion Guide at page 165) makes ludicrously exaggerated claims about capacity factors achieved by UK wind energy developments (see, for example, the actual figures compiled from the operators themselves in the Spring 2012 Bulletin of the International Association of Energy Economics), and UK Planning Inspectors use this 'guidance' to approve schemes which simply burn palm oil from countries like Indonesia despite the figures for associated carbon emissions (and habitat loss) being submitted.	Table has been deleted. Broader discussion of embedded emissions is beyond the scope of this section.
2345	15	16		22		As authors identified, the section with Case studies of national approaches and subnational implementation has to be curtailed, because they plan to add Germany as a case study. Points can be listed according the form of institutionalization of domestic climate programs in terms of legalization, implementation and co-ordination.	Noted
2314	15	16	1	22	42	TSU suggest reduction of the number of pages. Author comments that the sub section must be shortened. In line with the target of the chapter, the section should be presented in a more wide frame and gives the common experiences in developed and in developing countries. Is known that the experiences on developing countries are not enough reflected in the research works and bibliographies as needed, it is, there are a lack of peer-reviewed documents, and this gap must be commented in all the documents. It may be an important conclusion for the further research activities.	Not applicable now - table removed
18720	15	17	14	17	15	"creation of provincial carbon markets (Han et al. 2012) will require different forms of justification and possibly access to finance." Jusification vis-a-vis whom? An increasingly difficult issue in this regard is stakeholder outreach and engagement, not only to justify these measures, but also inform and foster understanding, both a prerequisite for acceptance (and hence legitimacy). As for finance, China is a beneficiary of the World Bank \$100 Mio. Partnership for Market Readiness, as well as several other initiatives (such as GIZ Sino-German Climate Change Programme) to build capacity and technical preparedness for the adoption of carbon markets. On both issues, see i.a. Mehling, Michael (Ed.), Special Issue: Developing Countries in the Carbon Market: Lessons, Trends and Case Studies. 6 Carbon & Climate Law Review (2012), forthcoming Nov. 2012.	Section re-written to be thematic.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
3676	15	17	30	17	34	China is also very proactive in climate change mitigation on the city level. In 2010, the National Development and Reform Commission launched a pilot programme for the development of Low Carbon regions in five provinces (Guangdong, Liaoning, Hubei, Shaanxi and Yunnan) and eight cities (Tianjin, Chongqing, Shenzhen, Xiamen, Hangzhou, Nanchang, Guiyang and Baoding) to develop a Low Carbon Economy and to pilot various other "green lifestyle" policies (Oberheitmann and Ruan, Forthcoming). In addition to this sub-national programme, other cities such as Wuxi City in Jiangsu Province are developing their own Low Carbon City concepts. For 2020, Wuxi even goes beyond the national target as it plans to reduce the CO2-intensity of GDP by 50% against 2005 (national target: 40-45%) (Oberheitmann, 2012). Cite as Oberheitmann, A. and Ruan X. (Forthcoming): Low carbon city planning in China. In: Frauke Urban and Johan Nordensvard (Eds.): Low Carbon Development: Key Issues. Text book for Earthscan's Key Issues Series. Oberheitmann, A. (2012). Development of a Low Carbon Economy in Wuxi City. American Journal of Climate Change. Scientific Research Publishing. 1, 64-103 (R). DOI 10.4236/ajcc.2012.12007.	Will refer this material to section on sub-national governance and linkages between levels
2554	15	18	14	18	14	São Paulo and Rio are both cities and states. In this case, references are to states.	Thanks.
2553	15	18	16	18	16	São Paulo Law (www.sp.gov.br/spcc) has a target to reduce economy-wide CO2 only, but allows for offsets with other GHGs	Thanks
18721	15	18	17	18	18	"According to Lucon and Goldemberg(2010a) this represents a rare case of a subnational entity going beyond national policy": this seems counterintuitive, given how many similar examples are known - both in the developed world (e.g. U.S. cities and progressive states, especially between 2000 and 2008; see in fact next subsection on U.S. on same page, stating precisely that) as well as developing (pilot project and pilot zones in a number of developing countries, e.g. China). The statement would seem a generalization, reflecting a value judgment rather than empirical evidence.	Agreed. Deleted
2555	15	18	22	18	26	"Brazil represents a case of a non-Annex 1 country passing national legislation, and then going beyond the plan at the regional level. Its approach is based on sectoral absolute GHG targets, adding to a reduction below the expected trajectory of emissions." In fact regions moved beyond the plan independently and, case of Sao Paulo State, precedently (enacted law 4 days prior to Brazilian NAMAs were announced). Brazilian targets are not necessarily absolute, since trendlines are forecasts. More in Lucon and Goldemberg 2010, already cited in the text. Also, remember that the US is another non-Annex I country and California has a similar case.	Agreed.
2559	15	18	22	18	26	Brazilian "sectoral absolute" GHG targets conceal an enormous lock-in effect in the Energy sector, as shows the figure in http://lcs-rmet.org/meetings/2011/10/pdf/R1.3_2%20Emilio%20La%20Rovere%20abstract.pdf	We are not seeking to assess the targets in this section.
18722	15	18	27	18	46	The section on the US (not unlike the one on China) illustrates the risk of trying to capture policy developments in different countries with any claim to being up-to-date: because much of the cited literature is from 2009/2010, it fails to reflect the fairly far-reaching (and controversial) progress of the US EPA under the Clean Air Act and attendant endangerment finding to regulate GHGs from mobile and stationary sources. Also, there is a factual error in line 46: only 10 US states are currently engaged in cap-and-trade for GHGs (9 in RGGI on the East Coast; 1 in WCI on the West Coast); even in 2010, the number never reached 23, and can only be due to a misunderstanding of the policy plans and commitments under the then still more active Midwestern Greenhouse Gas Reduction Accord and WCI, with the MWGGA never formally agreeing or setting out cap-and-trade for its members. The MWGGA no longer exists.	Case approach no longer used.
14881	15	18	28	18	28	'gravity on climate change' reads 'gravity on climate change policy'	Deleted
15563	15	18	45	18	46	Regarding 23 states having cap and trade system, that number is now outdated. More recent numbers (as of July 2012) are available at http://www.c2es.org/us-states-regions/policy-maps/electricity-emissions-caps	Case no longer used

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
2557	15	18	47	19	10	California AB-32 to Proposition 23 is a very important landmark in the US climate law. More at http://www.reuters.com/article/2010/11/03/usa-elections-california-climate-idUSN0227063820101103	Case approach no longer used.
18724	15	18		19		Although I am aware that the country-focused subsections will eventually be rearranged and a difficult balance has to be struck between being comprehensive and up-to-date while still occupying only limited space, as a close observer of US climate policy and politics I would list additional defining characteristics in addition to those already mentioned in the FOD: these include - the role of the private sector and, to a lesser extent, civil society and philanthropic initiatives, which are far more often the catalysts and originators of mitigation efforts than e.g. in the more public-authority-driven European Union; but also the all-too-apparent political ideologization of climate change in recent years, which has rendered climate change and any policy response an intensely partisan affair. Peer-reviewed literature on this is still scarce, but see inter alia Dunlap, R. E. & McCright, A. M. (2008). A widening gap: Republican and Democratic views on climate change. <i>Environment</i> , 50 (5), 26-35; McCright, A. and Dunlap, R. (2011) The politicization of climate change and polarization in the American public's views of global warming, 2001-2010, <i>The Sociological Quarterly</i> , 52, 155-194	Good points. The re-written section does not have country details. Consequently it is hard to accommodate these suggestions.
15564	15	19	12	19	13	Delete "diffusion across states"	Case approach no longer used.
15565	15	19	14	19	15	Delete "with similar efforts in the Western and Midwestern Regions" as they have fallen apart in recent years.	Case approach no longer used.
18723	15	19	15	19	15	See previous comment: these initiatives have largely been abandoned following political shifts at state and local level after the 2010 midterm elections; only California remains committed to setting up a cap-and-trade system on the West Coast, and all Midwestern States previously planning to adopt emissions trading have officially abandoned their plans. Hence, while there is little peer-reviewed literature recent enough to account for the latest changes, it would be advisable to omit reference to these outdated trends because the section appears particularly outdated otherwise (and factually wrong, given current policy realities).	Case approach no longer used.
15566	15	19	25	19	28	More recently, particularly because of the state of the U.S. economy, many if not most states (except CA and RGGI states) have moved away from climate change as a primary objective and have either minimized their climate work or reframed it based on its cobenefits value.	Case approach no longer used. Danish example not been discussed in text.
5256	15	21	4	21	46	Hasn't anyone mentioned to the authors the weaknesses of the Danish grid system; the resultant need to export large quantities of wind-generated electricity to neighbouring countries (frequently at a loss); and the other result that, instead of supplying 20% of Denmark's needs wind energy struggles to provide half of that. There is a substantial literature on this. Reflect it!	Case approach no longer used.
5257	15	21	47	22	41	This section on the UK is a nonsense, due to its complete overlooking of 'embedded emissions'. The transfer of manufacturing capacity from a number of industrialised nations since 1990, and their import of manufactured goods from countries such as China and India, must be analysed and presented in detail. The poor devised subsidy system which (though recently cut by 10%) encourages wind energy developments in locations where there is little wind, or the simple burning of palm oil transported thousands of miles, is ludicrous. The emissions targets are all bogus due to their exclusion of 'embedded emissions'.	No dedicated UK case study
18725	15	21	6	21	7	"A Danish Energy Agency was established in 1976, as an agency under the Ministry of Climate, Energy and Buildings": I would advise double-checking that: the agency undoubtedly is now under the Ministry of Climate, but in 1976 I doubt Denmark had a specialized ministry for climate and energy.	Noted. Case approach no longer used.
14307	15	22	12	22	13	Note that the Committee on Climate Change was created via the Climate Change Act (unlike DECC - see comment 35 above). It has a legal, statutory, basis and reports to Parliament.	Accepted. But no UK case in revision
3118	15	22	17			there are no 'sectoral carbon budgets'. The UK has set economy-wide carbon budgets but the CCC uses a set of sectoral indicators which it uses to monitor progress.	Accepted. But no UK case in revision

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
14304	15	22	20	22	20	This is incorrect, Great Britain is not made up of 3 devolved administrations. Great Britain refers to England, Scotland and Wales, and the United Kingdom is Great Britain + Northern Ireland. Scotland, Wales and Northern Ireland are devolved administrations of the UK.	Accepted. But no UK case in revision
3116	15	22	20			This should say 'The United Kingdom includes 3 devolved administrations' (not 'made up of' - UK - and indeed GB - also includes England which doesn't have a separate administration). Northern Ireland is not part of Great Britain but part of the UK (i.e. Great Britain = England, Wales, Scotland. United Kingdom = England, Wales, Scotland and Northern Ireland).	Accepted. But no UK case in revision
18726	15	22	20			"Great Britain is made up of 3 devolved administrations" - should read: "Great Britain comprises 3 devolved administrations." Otherwise this creates the impression that Great Britain only is made up of the 3 devolved administrations Northern Ireland, Wales and Scotland	Accepted. But no UK case in revision
2556	15	22	22	22	22	How higher are the Scottish targets? Very important to describe	Accepted. But no UK case in revision
14305	15	22	28	22	30	This is incorrect. The Office of Renewable Deployment (ORED) and the Energy Efficiency Deployment Office (EEDO) are not separate institutions from DECC. They are simply internal directorates of DECC - the institution is DECC.	Accepted. But no UK case in revision
5258	15	22	42	22	42	In the light of the grossly misleading picture given in the forgoing Table of Germany's position, their submission will have to be scrutinised most carefully.	Noted
14303	15	22	8	22	10	This is incorrect. Department of Energy and Climate Change (DECC) was not created via the Climate Change Act. DECC was created via a merger of the Energy directorate of the business department (BERR, formerly DTI) and the Climate Change directorate of the Environment department (Defra). The Climate Change Act was a piece of legislation passed after the formation of DECC, and is a policy which DECC is responsible for.	Accepted. But no UK case in revision
3115	15	22	9			the Department of Energy and Climate Change was not created via the Climate Change Act. The Committee on Climate Change (CCC) was but not DECC. It was created by the Prime Minister (Gordon Brown).	Accepted. But no UK case in revision
12002	15	23				Please make sure to mention the huge elephant in the room: the CDM has delivered, NAMAs still have not reduced a single tangible, comparable, verifiable ton of CO2 in the way the CDM has delivered one billion. This is not to suggest we do not need NAMAs but it is wrong to present NAMAs as something even remotely comparable to the achievements of the CDM: It has yet to be proven that NAMAs deliver better than the CDM. Current evidence suggest it does not.	No assessment is made here
18727	15	23	1	23	2	"For the most part, legislation and policies are directed at enabling change at a sectoral or a subsectoral level, rather than through direct enforcement mechanisms." This sentence is unclear; does it suggest that cross-sectoral policies are more likely to be directly enforcing than sectoral and sub-sectoral? That needs to be clarified; as the section argues correctly, the density and scope of national (and subnational) mitigation-related legislation has strongly grown in the past five years, and typically has even stricter enforcement clauses/provisions (as obligations become more specific). What this sentence might have been trying to say is that, with sectoral policies, some of the enforcement prerogatives are transferred to sectoral institutions or bodies, rather than leaving enforcement - as is the default - with the central authority of the state. But this is not so entirely evident at sectoral level, unlike e.g. the subnational level, where indeed provincial or municipal entities often are given exclusive implementation and enforcement rights.	Accepted.
5262	15	23	11	23		ADD: In the French Territorial Climate and Energy Plans, an adaptation component is compulsory, but obligations of results are not. Experimental but promising approaches to adaptation developed from the bottom are funded directly by the national Energy and environmental Agency (ADEME).	The information was considered but not added.
13756	15	23	13	24	37	From what I can gather here, these NAMAs are not really national policies but rather a feature or odd byproduct of international negotiations. If there is little to write about it, be brief. If this has no results, say so.	Section has been reduced to a box.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
11086	15	23	32	23	38	This paragraph is particularly problematic or incorrect. It is wrong to compare NAMA with CDM, even under the narrow perspective of politicized debates under the UNFCCC. NAMA is negotiated under the AWGLCA, while CDM is under AWGKP. There is no equivalent of NAMA in the AWGKP. CDM should be compared to Various approaches in the AWGLCA. In principle, IPCC report should be science-based and be independent from politicized debates under the UNFCCC.	The comparison is conceptual, not legal. There are potential conceptual points of comparison between NAMAs and CDM.
13710	15	23	46	23	46	Insert after"Tyler et al. 2011": " A NAMA encompassing energy efficiency and renewable energy intervention in the Mexican housing sector is described by Hayashi and Wehner (2012)". Reference: Hayashi, D.; Wehner, S. (2012): Mobilising mitigation policies in the South through a financing mix, in: Michaelowa, A. (ed): Carbon markets or climate finance?, Routledge, Abingdon, p. 168-187	Section has been reduced, leaving no space for additional examples
18474	15	23				This is the only section that clearly discusses the impact of international policy on national policies and the interaction therein. It may be useful to expand this section to embed NAMAs in a broader discussion of international and regional policy impacts.	An editorial decision was made to shrink this section.
2315	15	23	32	23	38	The differences among NAMAs and CDM should be completed, giving a more completed view on those differences. Especially, the NAMAs did not generate tradable CERs and that CDM is a basic market based mitigation instrument to fulfill the reduction targets from Developed Countries and NAMA is not. Should be reflected too the NAMA's financial mechanism that is different from CDM.	NAMAs section has been shrunk, but some discussion of this difference remains
13711	15	24	28	24	28	Insert "Okubo et al. 2011" after "Sterk 2010a", as this paper focuses on MRV of NAMAs.	section has been revised.
13223	15	24	24	24	32	The text only mentions the use of carbon credits to provide international support. However, such support could also involve direct financial support, (through grants, loans etc) in bilateral or multilateral settings. In special issue of climate policy these aspects were discussed - 2009 International Support for Domestic Climate Policies. Climate Policy 9 (5).	The section has been shortened and discussions of financing have been removed.
5001	15	25	11	27	18	This part is redundant since similar descriptions are in 15.5	Taken into account. (This section describes the different policy alternatives, whose assessment is covered in Sections 15.5 and 15.6)
6137	15	25	12	25	16	With regard to policy evaluation criteria, promotion effect of technology innovation/diffusion is missing. However, as touched upon in this section, this is basically decided by Chapter 3. I have raised the issue	Rejected (outside the scope of the chapter: criteria classification established for wg3 AR5)
2316	15	25	17	27	18	If TSU is suggesting reduction of pages and all the items 15.3.3 to 15.3.8 refers that the analyzed issue will be completed in others 15.5 section. Why will not integrates all these issues in the 15.5?.	Taken into account. (This section now describes the different policy alternatives, whose assessment is covered in Sections 15.5 and 15.6)
12053	15	25	17			The section heading should not only refer to energy policy objectives but rather more generally to 'other policy objectives'	This issue has now been transferred to 15.2.
5263	15	25	22			...the policy targets). ADD: In the French approach to adaptation the policy goals are defined from above and policy instruments are in the hands of local institutions. It is hoped that the policy targets will be developed from this.	Noted.
12168	15	25	43	25	44	apart from taxes and charges defined per unit of GHG released, they can also be defined only to apply above a given benchmark	Rejected (Given the limited space, this section only describes the main characteristics of the policy types)

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
13757	15	25	6			What do you mean by "leakage"? Odd to mention the "race to the bottom" here. What about the Porter hypothesis?	Rejected (This section now merely describes different policy alternatives. Border tax adjustments are linked to concerns over leakage, but the discussion of the Porter hypothesis is beyond the scope of this section)
11088	15	25	7	25	10	This is a good summary and deserves to be included in the Executive Summary.	Noted
17654	15	25	11	49	30	Criteria mentioned in 15.3.1 are not used for structuring the assessment in 15.5. If these criteria are to be of use at least some reference to them should be included in the policy assessment section. It would also be helpful if sections 15.3 and 15.5 were based on the same structure. In the current draft, subsection 15.3.3 for example includes regulations and standards while 15.5.2 is on regulation and information measures. Note also that the evaluation issues mentioned in 15.4 are not addressed in 15.5.	Taken into account: This section now describes different policy alternatives, whose assessment is covered in Sections 15.5. and 15.6.
12179	15	25	12			although this section announces various criteria that are used to assess policy instruments, the actual assessment of instruments in 15.5. does not clearly follow those criteria	Noted.
11192	15	25	42	26	33	In the section 15.3.4 one should stress the existence of auctioning as well as the (positive) effect on effect of carbon taxation on the public finances: The EU 'Climate and Energy Package' foresees an enhanced use of auctioning in the EU Emission Trading System (EU ETS) from less than 4% in phase 2 (2008–2012) to more than 50% in phase 3 (2013–2020). This implies a substantial generation of public revenues. Auctioning (and taxation) complies better with the 'polluter pays principle' and avoids handing out 'windfall profits' to sectors that can easily pass on the opportunity cost of allowances to their customers. Indeed, full auctioning will be the rule in the power sector from 2013 onwards (Saveyn et al., 2011). Saveyn, B., Van Regemorter, D., and Ciscar, J.C. (2011). Economic analysis of the climate pledges of the Copenhagen Accord for the EU and other major countries. Energy Economics 33, S33-S40	Taken into account. (This section merely describes the different policy alternatives. The assessment of EU policies, and particularly the EUETS, is carried out by Chapter 14)
11385	15	25	42	26	33	In the section 15.3.4 one should stress the existence of auctioning as well as the (positive) effect on effect of carbon taxation on the public finances: The EU 'Climate and Energy Package' foresees an enhanced use of auctioning in the EU Emission Trading System (EU ETS) from less than 4% in phase 2 (2008–2012) to more than 50% in phase 3 (2013–2020). This implies a substantial generation of public revenues. Auctioning (and taxation) complies better with the 'polluter pays principle' and avoids handing out 'windfall profits' to sectors that can easily pass on the opportunity cost of allowances to their customers. Indeed, full auctioning will be the rule in the power sector from 2013 onwards (Saveyn et al., 2011). Saveyn, B., Van Regemorter, D., and Ciscar, J.C. (2011). Economic analysis of the climate pledges of the Copenhagen Accord for the EU and other major countries. Energy Economics 33, S33-S40	Taken into account. (This section merely describes the different policy alternatives. The assessment of EU policies, and particularly the EUETS, is carried out by Chapter 14)
12170	15	26	11	26	12	this sentence requires explanation	Taken into account: Text modified: assessment of the different instruments is now given in other sections of the chapter
18733	15	26	11	26	12	The statement "Overall, taxes on greenhouse gases are a preferred instrument for economists" seems overly bold given the long-standing and still continuing debate over price-based (pigouvian) vs. quantity-based instruments, see e.g. Suzanne Scotchmer, " Cap-and-Trade, Emissions Taxes, and Innovation", Innovation Policy and the Economy Vol. 11, No. 1 (2011), pp. 29-54	Rejected (Text modified: assessment of the different instruments is given in other sections of the chapter)

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15567	15	26	18	26	22	It would be helpful to include an example to illustrate the types of subsidies that affect the price of fossil fuels because many in the U.S. public (and perhaps elsewhere) do not believe that there are fossil fuel subsidies.	Noted (Text modified to indicate that fossil fuel subsidies exist in developed and developing countries)
6138	15	26	18	26	22	Add after "taxes" in line 18, "in that the marginal abatement cost is equalized". Also add explanation that subsidies contradict the OECD's Polluter Pays Principle of 1972.	Taken into account (Text modified with no reference to subsidy to pollution abatement)
12169	15	26	2	26	2	there are various reasons why a tax rate could be geographically variable - stating that 'ideally' this should not be so , requires explanation of the ideal that is sought after (in this case, undisturbed market optimum for emission reductions)	Accepted (Text modified to avoid normative comments: now this section is only descriptive of policy types)
13234	15	26	23	26	33	The paragraph on tradable permits here seems to be the only place where permit trading schemes are discussed from a theoretical perspective. In the context of review of other instruments, two to three pages on the basics and practical operation of tradable permit schemes would be needed. It is true that the EU ETS is discussed in another chapter, and that new emerging trading schemes are reviewed in this chapter. Still, what is missing is a discussion of the basic operation, design options and experiences with tradable permit schemes. Otherwise this chapter is lopsided.	Taken into account. (Given space limitation, this section describes the basic policy types, which were already covered by Chapter 3 and whose practical description may be covered in other sectoral and policy chapters. Emissions trading systems in national and sub-national levels are assessed in Section 15.6)
6139	15	26	26	26	27	Change "and a continuous encouragement of cleaner technologies (Stavins 2003)" to "and theoretically a continuous encouragement of cleaner technologies (Stavins 2003)". Then after this sentence, add "However, it is unclear whether EU ETS induced technology innovation or not (Ellerman et al. 2010). This may apply for domestic cap and trade policy especially if permit price fluctuate".	Taken into account. (Text modified: this section now describes the general policy alternatives, whose particular assessment is covered in Sections 15.6)
18734	15	26	31			The claim of "high institutional feasibility" should perhaps be relativized, given the enormous challenges encountered e.g. in the EU ETS regarding data availability and reliability, registry establishment (also the ITL at international level), market oversight and fraud prevention etc.; and this in a developed country context, which gives rise to the expectation that problems might be even more challenging in a developing country context. See e.g. Ruth Greenspan Bell, Choosing Environmental Policy Instruments in the Real World, Paper prepared for the OECD Global Forum on Sustainable Development: Emissions Trading, Concerted Action on Tradeable Emissions Permits Country Forum (Mar. 17-18, 2003), available at http://www.oecd.org/dataoecd/11/9/2957706.pdf ; Bell, Ruth Greenspan (2002), Are Market-Based Instruments the Right First Choice for Countries in Transition? Resources Issue 146, p. 10-14	Taken into account. (Text modified: this section now just describes the general policy alternatives, whose particular assessment is covered in Section 15.6)
15568	15	26	32	26	33	The part of the sentence beginning with "prices unrelated to..." through the end of the sentence is unclear. What kinds of administrative costs would be lowered?	Taken into account. (Text modified: now this section only describes the main characteristics of the policy types. Experiences with policies are introduced in other sections of the chapter)
4286	15	26	34			Please note that Voluntary agreements (VA) may also be referred to as LTA (Long-term agreements). I suggest a footnote here clarifying this. Your ref to Rezessy and Bertoldi 2011 refers to LTAs. Please also include ref to the Swedish Scheme (Stenqvist and Nilsson, 2011 from the Journal Energy Efficiency).	Accepted. Text modified accordingly. Literature added in section 15.5.5

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
13713	15	26	44	26	44	Insert after "Croci 2005": ":Voluntary agreements are effective alternatives to mandatory regulations for achieving small environmental improvements at relatively low cost (Borck and Coglianese 2009)." Reference: Borck, J; Coglianese, C. (2009): Voluntary Environmental Programs: Assessing Their Effectiveness, in: Annual Review of Environment and Resources, 34, p. 305-324	Accepted. Text modified accordingly. Literature added in section 15.5.5
15569	15	26	44	26	46	Sentence beginning with "Some authors... " is poorly worded/confusing.	Noted.
2309	15	26	11	26	12	It would be helpful to know for your statement "Overall, taxes on greenhouse gases are a preferred instrument for economists" what your referent is. Do you mean preferred to product charges or preferred to all other polices (including emissions trading, for example)? I suspect you mean the former, but as written the referent is not clear.	Accepted (Text modified: assessment of the different instruments is now given in other sections of the chapter)
2307	15	26	18	26	18	The statement that " subsidies are often described as equivalent to taxes" is a at best misleading and at worst simply wrong. Because they have different effects on long run average costs, they imply different entry and exit conditions.	Accepted (Text modified with no reference to equivalence between subsidies -to pollution abatement- and taxes)
2308	15	26	28	26	28	The statement that "auctioning, which could allow the use of revenues in a green tax reform fashion" is true, but excessively narrow. In fact the revenues can, and indeed are in operating systems, be used in a variety of manners from incentivizing energy efficiency, to containing costs for heavily impacted industries, to lessening the regressive impact of the program.	Accepted (Text modified: new uses of environmental revenues are contemplated)
2947	15	27		35		is power used in the technical sense (ability to reject the null hypothesis)? Or do you just mean that the studies are methodologically very difficult and the results aren't very reliable? Clarification would be useful.	Its methodologically weak and it is now clarified.
12178	15	27	14	27	18	spatial planning at sea also has important climate change links; both in coastal zones wrt adaptation, and at sea proper wrt renewable energy from wave, offshore wind and tidal. Wrt wind energy onshore, a connection with spatial planning is also obvious.	Rejected (outside the scope of the chapter)
5264	15	27	18			ADD: The French PCET explicitly impose climate objectives in their planning attempting to achieve an equilibrium between density, vegetation and multifunctionality of services.	Rejected (outside the scope of the chapter)
5004	15	27	19	28	40	It is not clear what are the points of this 15.4. There seems to be little value added in this subsection.	Now its connected to other subsection
3121	15	27	20	27	33	please use wind 'turbines' (or talk about 'windpower') instead of wind 'mills' as 'wind mills' is not really used in relation to modern forms of windpower	Taken into account.
18475	15	27				This section is well-written, but misses a link to those criteria outlined in 15.3.1 and Chapter 3.8 as well. Can the methods here be used to provide information on cost effectiveness? Environmental effectiveness? Institutional feasibility? If not, what tools are used to measure those criteria?	Taken into account.
12181	15	27	10			Section could benefit from subheadings to distinguish each of the approaches and tools discussed in the text	Taken into account.
3602	15	28	13	28	15	It seems very strange to cite an obscure seemingly unpublished work (Kotani, Tanaka and Managi 2011) to back up a description of the role of experimental economics. It would make much more sense to cite for instance this overview paper by Nobel prize laureate James Heckman in Nature: Falk, A., Heckmann, J.J., 2009. Lab experiments are a major source of knowledge in the social sciences. Nature 326, 535–538.	Noted.
15571	15	28	34			Air pollution and CO2 are not examples of policies.	Noted.
2270	15	28	41	49	30	It is strange that the Assessment of Performance does not include attempts to find out whether greenhouse gases in the atmosphere have changed as a result of these policies. Measurements over land surfaces are almost completely neglected	Rejected. There is no literature that assesses the effects of policies on GHG concentrations as opposed to GHG emissions.
4287	15	28	41			Normally policies may be evaluated ex-post or ex-ante using process or impact evaluation. The latter two types, process or impact, should be explicitly explained.	Rejected. Process evaluations are not prominent in the literature.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15731	15	28	46	28	46	"There are fewer ex post evaluations that provide empirical evidence on the effectiveness of such policies in practice." effectiveness and efficiency. And even fewer on the efficacy of such policies...	Noted.
14892	15	28	9			'cases several polices' Please provide evidence with literature	Noted.
15570	15	28	9			overall paragraph needs editing	Noted.
18481	15	28				There is no consistency in the different sub-sections of 15.5 that allows a reader to pull concrete messages. It reads as a mis-match of text pieced together by different authors with very different approaches and emphases. I recommend implementing a common approach/structure to each sub-section that allows a reader to better navigate through them. This could be e.g.: One paragraph listing the countries who have implemented that type of policy Focus on cost effectiveness of that policy-type (including the tools from 15.4 to support the analysis) Focus on environmental effectiveness Focus on institutional feasibility etc. (going through the list of criteria from Ch 3 and 15.3.1) Conclusion	Noted.
18484	15	28				It would be useful if every sub-section contained a 'conclusions' section, to bring the main points of the policy instrument together and making the case for the application of uncertainty language. This has been done for Regulations and Voluntary agreements, but no others.	Noted.
18485	15	28				Several sections (Regulations and Voluntary Agreements) contain text that describes a combination of policies. It would be more useful for the reader to shift these discussions to 15.7.5 and focus 15.5 strictly on evaluating individual policy types.	Noted. Not always practical to do this.
12180	15	28	41			This section could benefit from following a more clear structure, e.g. by discussing each of the criteria mentioned in 15.3.1. one by one for each instrument.	Rejected. There is insufficient literature for this to be practical.
7522	15	28	41	33	22	For the effective assessment of the performance of policies and measures, credible and fit-on purpose data collection with well organized and credible methodology is indispensable. Data confidentiality is also indispensable to collect credible data from industry in tough competition circumstances. These comments is to be added somewhere in this section.	Noted.
7130	15	29	16	29	18	It is a fact that consumers place a greater value on the immediate future and heavily discount future saving, but the behavior of consumers is not as free as it seems to appear in a pure market world. Decisions are influenced by the economic capacity, but, what is more important, the drivers of consumers behavior goes beyond prices. That require governments intervention to increasingly considerer attitudes and beliefs of citizens in relation to climate change in order to influencing consumer behavior at an individual level, with a focus on the promotion of sustainable patterns of consumption and lifestyles, and not only on energy uses.	Accepted. Text added in the information section of 15.3
5265	15	29	26			ADD: Yet, information is not enough: in a qualitative and quantitative study on mobility in Lyon, 81% of interviewed said that CC was the number one challenge of the 21st century, 81% also said tat the best way for an individual to fight CC was to stop using the car, yet, 56% used their car for all activities on a daily basis (96% had a public transport accessible within 400 meters). They were thus well informed but this did not lead to action (Stéphane La Branche. « La gouvernance climatique face à la mobilité quotidienne. Le cas des Lyonnais ». Revue Environnement Urbain/Urban environment. 2011).	Rejected. Not relevant to the context
2948	15	29	27		47	These three paragraphs would be fine in a social science article, but they aren't really needed here and they just take up space.	Accepted. This part is deleted

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15404	15	29	27			This is an unsupported assertion – I have seen no analysis that describes an empirically verified and specific market failure and shows that a specific regulation is the least cost method of achieving it – see many Stavins and Jaffe publications (e.g., Robert Stavins, Judson Jaffe, and Todd Schatzki, "Too Good to Be True? An Examination of Three Economic Assessments of California Climate Change Policy." Washington, D.C.: AEI-Brookings Joint Center for Regulatory Studies, Related Publication 07-01 (January 2007).)– general reference to market failure does not constitute justification for a mandatory efficiency or technology standard.	Accepted. Text modified and literature added.
12171	15	29	8	29	9	The purpose and meaning of the sentence "To keep Long term." is unclear - please explain 'appropriate' for what?, and how any given level of energy price would make economic system less GHG intensive.	Accepted. However this section has been reorganized in the second order draft.
12059	15	29	8			To 'keep' the resulting energy price at the appropriate level: the term 'keep' seems not appropriate here as it suggests that prices are already at an appropriate level.	Accepted. However this section has been reorganized in the second order draft.
18476	15	29				This section does not seem to follow the overarching structure of the chapter, nor ultimately the broader report. The text seems to focus unnecessarily on energy efficiency policies, and fails to adhere to the sub-categories of regulations presented in 15.3.1 (emissions, technology and product standards). As mentioned in another comment, it would be more useful to address regulations and information policies separately in 15.5, and then in 15.7 to discuss the synergies that result when they are implemented together.	Accepted. Coordination is across chapters and sections are made. Synergies are mentioned in information section.
14885	15	29	19	29	47	references lacking	Accepted. References added.
15005	15	29	6			This section should include a discussion of fuel-efficiency and vehicle CO2 emissions standards. These are one of the most significant success stories for energy and CO2 reduction, but are not addressed in this chapter, except in passing.	Rejected. The standards for cars are discussed in ch8 (transport). Literature is not available for the crosscutting analysis in this chapter.
3184	15	29	6			section 15.5.2 might usefully disentangle "regulation" from "information" policies. They work in quite different ways.	Accepted. Text modified
12182	15	3	8	3	19	heading for 15.5.4 does not cover all of the sub headings; subheadings are of unequal type, covering countries, energy post analyses, and specific compounds trading programs	Noted. Will be rewritten.
6140	15	30	13	30	20	It is not clear whether a whole paragraph are based on Gillingham et al, (2006) or not. If not another literature should be cited for the description of lines 13-20.	Accepted. Literature added.
3123	15	30	16			beginning of sentence missing. Refers to Europe and UK. Do you mean European Union here? If so, UK is part of the EU and appliance standards are EU wide.	Accepted text modified.
2949	15	30	19			"remained the same" compared to what -- the previous status quo, BAU, or what?	Accepted text modified.
15572	15	30	22			Can you put the 10.6 USD/GJ in context?	Accepted. Paragraph separated
3124	15	30	25	30	37	too many US examples here - there's plenty of evidence on building standards from other countries as well.	Accepted. They are covered in building section(ch9) and they will be coordinated in next draft
12932	15	30	38	30	47	The existing literature on the rebound effect is much greater: I suggest to quote results from other papers here, like e.g. Barker, T., Ekins, P. & Foxon, T. (2007): "The Macro-Economic Rebound Effect and the UK Economy", Energy Policy, 35: 4935-4946; or Mizobuchi, K. (2008): "An Empirical Study on the Rebound Effect Considering Capital Costs", Energy Economics, 30: 2486-2516.	Accepted. Text added and literature added.
3125	15	30	38			those rebound effect references are ancient - there are plenty more up-to date studies e.g. http://ec.europa.eu/environment/eussd/pdf/rebound_effect_report.pdf (reports evidence from a range of countries) http://www.nature.com/news/2011/110217/full/news.2011.101.html	Accepted. Text added and literature added.
2950	15	30	38		47	There is more recent literature on the rebound effect. As a starting point, I suggest: For a concise overview of the leakage literature, see Gabriel Weil, Costs, Contributions, and Climate Change: How Important Are Universally Binding Emissions Commitments?, 23 GEO. INTL. ENV. L. REV. 319 (2011).	Accepted. Text added and literature added.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
12172	15	30	38	30	47	paragraph starts with statement that much of the gains might be erased by the rebound effect, and ends with arguing that a statement that rebound would lead to net increase is grossly exaggerated. Those two statements are not mutually incompatible, but the closing statement may falsely convey that rebound effect is of not importance.	Accepted. Text modified.
5005	15	30	38	30	47	Rebound is a matter but, as correctly described here, total energy consumption can be saved with energy efficiency improvement. In this regard, energy efficiency improvement is one of the key solution factors for GHG mitigation.	Accepted. Text modified.
3122	15	30	9			which country does the study by Davis refer to? This could well be different elsewhere.	Accepted. Text added.
4230	15	30	1	30	47	Attention should be given to sustainability rating systems in providing practices (and sometimes standards) and public recognition for improving sustainability, reducing emissions and adapting to climate change. In U.S. practice these include: LEED ratings for sustainable buildings and sites – www.usgbc.org, Green Globes ratings for sustainable buildings – www.thegbi.org, International Green Construction Code – www.iccsafe.org, and Envision™ ratings for sustainable infrastructure – <www.sustainableinfrastructure.org>.	Accepted. The range of policy instruments for buildings are covered in ch9 (building)
6141	15	31	1	31	6	Afrer (Price and Lu 2011), add "Akimoto (2012)" as additional reference. For Reference; Akimoto (2012), Potential for Energy Efficiency Improvement and Barriers. In: Climate Change Mitigation, A Balanced Approach to Climate Change. M. Yamaguchi, (ed.), Springer, London pp. 161-177.	Accepted. Literature added.
12933	15	31	2	33	14	This section can be shortened and major results summarised.	Accepted. Text shortened as appropriate
18737	15	31	34			Cited source "Kimura 2009" missing from bibliography	Accepted
4288	15	31	34			You may also want to refer to Thollander and Ottosson (2010) and Backlund et al (2012) and Thollander and Palm (2012), when referring to studies concerning energy management practices. (Backlund, S., Thollander P, Palm, J., Ottosson, M., 2012. Extending the energy efficiency gap. Accepted for publication in Energy Policy.)(Thollander P, Ottosson M, 2010. Energy management practices in Swedish energy-intensive industries. Journal of Cleaner Production 18(12): 1125-1133) (Thollander and Palm (2012) (Improving Energy Efficiency in Industrial Energy Systems - An Interdisciplinary Perspective on Barriers, Energy Audits, Energy Management, Policies, and Programs, Chapter 8 (and chapter 6), ISBN 978-1-4471-4161-7))	Accepted. Text modified and literature added.
15574	15	31	36			When the chapter says "it" did not deliver, is "it" the companies or the EM?	Accepted. Text modified.
18477	15	31				A lot of this material is likely covered in the sector chapters' policy sections. Where that is the case, it is not necessary to repeat the material again in this overarching chapter.	Accepted. This chapter mostly focus on cross sectoral issues. Coordination will be made across chapters in next draft
15573	15	31	1	32	44	A table comparing the costs and savings across programs would be interesting/informative.	Rejected. As number of observation is limited and such table is misleading.
2951	15	32	14		32	1-2 sentence summary would be sufficient	Accepted. Text shortened as appropriate
17655	15	32	14	32	44	It would be interesting to know more about the drivers of the vast differences in cost-effectiveness across countries. Lines 42-44 discuss that only very briefly and a more extensive discussion would add value to this section	Noted. Very interesting question but current literature does not allow that in-depth analysis
15576	15	32	20			Do you have information about the money saved by the companies?	Noted. It is available in the literature cited, but here the money saved by the firms are not the focus of the assessment
14886	15	32	21			reference Khan 2006 missing in literature list	Accepted

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
14887	15	32	35	32	41	example from developing countries missing	Accepted. Chinese cases are added.
18738	15	32	35			Cited source "Kimura 2010" missing from bibliography	Accepted
15577	15	32	5			When did the facilities implement the 46%?	Noted. Since 2001. as it is obvious the text is not modified.
15575	15	32	7	32	12	It was confusing what had been implemented; did the 70% include the 7% mentioned on line 10? Maybe 7% were implemented but 70% were in progress or planned?	Accepted . Text modified accordingly
12934	15	33				I suggest to discuss more carbon/energy taxes and their possible impacts; you will find a more detailed description of carbon/emissions/energy taxes and and their possible impacts in Baranzini, A., Goldemberg, J. & Speck, S. "A Future for Carbon Taxes" Ecological Economics, 32(3): 395-412, 2000.	Considered
6142	15	33	12	33	14	Preparing a table summarizing cost effectiveness of each case not only Section 15.5.2.3 but also Section 15.5.2.2, is high appreciated. Also by doing so, Section 15.5.2.2 can be shortened.	Rejected. As number of observation is limited and such table is misleading.
5006	15	33	15	33	22	Even though the cost of energy efficiency improvement is negative, such energy efficiency improvement has not yet achieved in real world. It is worth mentioning here that there are many barriers (social, political, and technical) . Identifying where such barriers exists and why, then removing such barriers by appropriate policy instruments is the key for the effective policy measures.	Accepted. Barriers are emphasized throughout the chapter.
15405	15	33	17			This is completely unsupported by text.	Accepted. Text modified accordingly
12060	15	33	25			Carbon taxes are a 'theoretically' attractive instrument: the 'theoretically' already indicates a negative evaluation, which is not supported by the following analysis in the paragraph, nor supplied with a 'practical' counter-argument. Suggest removing.	Noted text rewritten
15579	15	33	32	33	37	This is confusing. Is it the fault of the design or the implementation that these instruments are not more prevalent? Is it better to say that one reason policies that economists believe are sound have not been adopted more widely is because economists have failed to account for political challenges?	Noted text rewritten
11091	15	33	32	33	37	This is a very important point to be shared among policy makers. The argument is also applicable to emission tradings, and deserves to be included in the Executive Summary.	Noted
12935	15	33	36			The possible impact of carbon/energy taxes is one of the main arguments of the opponents of this climate policy instrument. I thus suggest adding some elements on this. For instance, the specific impact of carbon taxes on competitiveness are discussed in detail in Zhang, Z.X. & Baranzini A. "What Do We Know About Carbon Taxes? An Inquiry into their Impacts on Competitiveness and Distribution of Income" (avec Z.X. Zhang). Energy Policy, 32(4): 507-518, 2004.	Noted text rewritten
18740	15	33	37			Source "Stern and Coria 2012" missing in bibliography	Noted
15581	15	33	38	33	42	Define grey literature; the tone of this part of the paragraph seems negative or accusatory, especially the "seriously claim..." statement.	Considered
15580	15	33	38	34	4	This could be better organized and streamlined. Provide the overall message of this paragraph upfront and then offer the supporting statements.	Text rewritten
17656	15	33	4	33	5	The explanation of USD/GJ should be included earlier, i.e. on page 3, line 22, where this measure is mentioned for the first time.	Accepted. It is done at chapter 3.
2952	15	33	40			"seriously claim"? ? I assumed everything in the chapter was serious!	Text rewritten
14888	15	33	40			'seriously claim' delete 'seriously' since it is ambiguous	Done
15582	15	33	44			Couldn't find Hammar et al in references	Included
15583	15	33	46			it lacks transition to the sentence "The various nordic..."	Resolved
2953	15	33	5		14	delete this paragraph	Rejected. The reason to delete is not mentioned.
15578	15	33	5			It's great that we can say that the programs save .60 cents (US) for every GJ of energy saved; is that net? Can we say something about every program dollar spent achieves X GJ and Y dollar (or financial) savings to consumers?	Accepted there was mistake in the text and it is corrected

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
5266	15	33				SHORTEN This section is much too long especially since this chapter focuses on institutions, not economic tools. Does not another chapter deal with this issue? It could be reduced to a short section on role of institutions setting up taxes and cap and trade but evaluation of these measures as such is best left for an economic's chapter	Noted text rewritten
17657	15	33	24			Subsection could be shortened and made more concise. How can one measure the efficiency of taxes, subsidies, etc.? Then provide brief overview of results.	Noted text rewritten
12936	15	34	14	35	18	The impact of carbon/energy taxes on emissions is of course of fundamental importance and thus most recent literature should be quoted. I agree to concentrate on studies based on countries' experiences and thus with real data (opposed to simulations). Baranzini and Carattini (2012) survey the ex-post literature on the impacts of carbon taxes on emissions: see Baranzini, A. & Carattini, S.: "Taxation of Emissions of Greenhouse Gases: The environmental impacts of carbon taxes", In: Freedman B. (Ed.) Global Environmental Change: SpringerReference (www.springerreference.com).	Noted.
2954	15	34	19		35	delete this paragraph -- not news to policymakers	Text rewritten
15585	15	34	24			What was the value of the Holland tax? It would be helpful to include a table comparing the taxes and values	Considered
3126	15	34	29			The UK CCL is not just levied on manufacturing plants - it applies to all non-residential energy users (i.e. includes offices, supermarkets, public buildings etc).	Noted
15586	15	34	47	34	48	What about the C storage technology? Was it successful?	Considered
15584	15	34	5	34	23	These two paragraphs are confusing and the wording could be improved. Were all the numbers in the studies prior to line 5 not empirical? Are the studies described in line 14 empirical or not? And are they more or less rigorous than the studies mentioned on line 5?	Rewritten
15587	15	35	10	35	18	This is confusing. Can you explain the differences in policy groups more clearly so that the reader understands the action called for?	Considered
11092	15	35	10	35	18	This paragraph is informative and deserves attention, but is it appropriate to insert this in 15.5.3? According to page 16 line 23, energy prices in China are differentiated based on energy efficiency rather than carbon content. Would it be more appropriately included in 15.5.3.2?	Considered
12173	15	35	25	35	26	sentence requires an indication of the geographical scope it relates to.	Noted
11093	15	35	37	35	39	I like this sence of humour.	Noted
11094	15	35	42	35	43	Please never delete US or USA here!	Noted
15588	15	35	43			Why would they have had as high of taxes and prices as the UK?	Considered. Question is interesting but somewhat beside teh point here. There is not room to explain
4269	15	35				There could also be discussion of fat taxes which have been implemented in a number of countries such as Hungary and Denmark and can reduce consumption of animal source saturated fat and thus livestock related emissions	Considered
12174	15	35	19			given the space given to fuel taxes in this section compared to other proxies for carbon, you might consider putting fuel tax in the heading	Considered, text rewritten
15590	15	36	10			What were the other criteria?	Text rewritten
5907	15	36	10	36	16	Please check the article again. The authors name is Bureau (Benjamin is the christian name) and the results showed - inter alia - that impacts on households differed between type of revenue recycling (some types border on "comparing apples with oranges") and that in a substantial number of cases a welfare transfer from rural to urban areas takes place. It does thus not fully and exclusively support the statement made in the draft.	Noted, thank you
11095	15	36	25	36	29	This point is too important to be neglected in the Executive Summary.	Noted, thank you

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
7426	15	36	31	36	43	Note in relation to reduction of subsidies: 1) renewable subsidies are equivalent to fossil fuel taxation, 2) G20 called for the reduction of inefficient fossil fuel subsidies, leaving to countries to decide what subsidy is efficient or inefficient, 3) definition of what portion of the price constitute a subsidy is not standard, particularly when comparing energy producers vs energy importers, and the IEA calculations are inferred from specific interpretation of a subsidy, 4) The extent to which fuel subsidies contribute to development and welfare in developing countries.	Noted
15591	15	36	32			On fossil subsidies, give examples;" In 2008 fossil fuel subsidies such as.."	Noted
3601	15	36	4	36	9	The discussion on whether consumers correctly internalize the long-run savings from more fuel efficient cars could include a reference to National Research Council (2002. Effectiveness and Impact of Corporate Average Fuel Economy (CAFE) Standards. National Academy Press, Washington, DC) which shows that consumer consider only the first 3 years of fuel savings when considering the value of higher fuel economy, which understates the true economic value of fuel savings by about 60%.	Noted, thank you
15589	15	36	6	36	9	Confusing text beginning with "To empirically...". Perhaps better written as: It is difficult to empirically verify how taxes compare to standards, such as the CAFÉ standard, because of reasons already mentioned. Austin and Dinan... , however, used an empirically based simulation model to find that the tax would be.."	Noted, thank you
18741	15	36	7			"CAFÉ standards" should be explained(and to my knowledge are written without the accent"é", which comes from the real French café- perhaps autocorrect functionality	Noted, thank you
6143	15	36	30	37	9	Usually when we take up subsidy as one of policies and measures, it means subsidy for the reduction of pollution. In this sense, subsidy works in the same way as tax does, though this may be against PPP of OECD 1972. What is taken up in Section 15.5.3.3 is a kind of so-called EHS (Environmentally Harmful Subsidy, more strictly saying, Environmentally Harmful Energy Subsidies). This point should be clearly stated at the outset of this section. Second point is that, though G20 or OECD Ministerial Conference support removal of EHS, this is very hard to materialize. The real reason is that those EMSs have their own purposes (eradication of poverty, securing employment, national security). Unless benefit of removal of EMSs exceeds social cost (unemployment etc.) it may not be justified. This issue is now under discussion at the OECD Joint Working Party of Trade and Environment and it will be available before SOD. Suggest to refer to the document and make necessary revision accordingly.	Noted, thank you
18478	15	37				Sections 15.5.3.4 and 15.5.3.5 cover topics that are covered in Chapter 8's (Transport's) discussion of policies (See section 8.10 pages 59-65). It is not necessary to repeat the material again in this overarching chapter.	Have read ch 8 and tried to avoid unnecessary overlap but include cross refs.
8356	15	37	10			I suggest that the title of 15.5.3.4 is rewritten as "Aviation and Maritime transport taxation".	Suggestions noted and considered when rewriting
5007	15	37	10	37	28	Since Aviation and Maritime transport are mostly cross national activities, those issues should be handled in Chapter 13, rather than Chapter 15.	Suggestions noted and considered when rewriting
14306	15	37	22	37	23	This should be updated - aviation is now included in the EU ETS (and has been since January 2012).	Noted, thank you
3127	15	37	22			Aviation entered the EU ETS in 2012.	Noted
17658	15	37	22	37	23	The EU includes aviation sector already.	Noted
18743	15	37	23			There is, by now, fairly ample peer-reviewed literature on the inclusion of international aviation in the EU ETS starting in 2012 that might be cited. Some relevant authors include Scott/Rajamani, Bartels, Kulovesi and others.	Noted
7427	15	37	24	37	28	Note the complications related aviation and maritime emissions taxation with respect to WTO and the UNFCCC principle of common but differentiated responsibilities.	Noted

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15122	15	37	24	37	28	Similar ICAO work (carbon levy of 25\$ per ton of CO2) shows much smaller impact on RTK and fuel use: -1.7% and -1.6% respectively much lower than the -5% to -10% range indicated in this paper.	Noted and included thank you
6717	15	37	28			at least 5-10 percent "compared to what"?	Noted, text rewritten
3128	15	37	32	36		London example - over which time period did those reductions happen? The source quoted is from 2006 - what's happened since? It says the charge is 'stiff' - would be better to say how much it is (i.e. currently £10 per day), so you can compare this with the Stockholm example.	Done
6145	15	37	39	37	40	The text describes as "why taxes cannot be used or cannot be set sufficiently high to match the Pigouvian level (i.e. to correspond to marginal damages)". This is very misleading. If you say so, you must know exact tax level where marginal abatement cost equalizes marginal damage (marginal benefit). If you take Nordhaus calculation for example, optimal tax rate (Pigouvian tax rate) is not so high. To avoid this kind of discussion, it is better just to say "why taxes cannot be used of cannot be set sufficiently high to achieve the intended result".	Noted.
6144	15	37	10	37	28	Is this section necessary? Policies for air and maritime transportation are enthusiastically discussed at ICAO and IMO and are touched upon other chapter of AR5. In addition, though the title says aviation and maritime transport, nothing has been described on maritime transport here.	Text rewritten
7131	15	37	11	37	28	When assessing the performance of policies related with aviation and maritime transport, it is necessary to take a look at the international debate in which many countries oppose the EU decision and requires aviation and maritime transport emission to be dealt with in the multilateral framework, consistent with UNFCCC. If it is adopted at national (or regional level), which means unilateral from an international perspective, that have counterproductive effects, as shown the reaction to the inclusion of the aviation sector in the EU ETS. So, when considering national and sub-national Policies and Institutions, it is necessary to put this analysis also in the international context.	Noted text rewritten
14889	15	38	11	38	15	'deviates more from the cost difference' In which direction were the deviations? Does it mean the set tariffs were too low or too high	Text rewritten
14890	15	38	11	38	15	FIT will encourage more supply of electricity (from both brown and green producers) So under FIT more electricity from dirty brown sources is generated than under a TGC? Will there be more electricity generation in total? But why is then the electricity demand higher when costs= prices will be higher?	Text moved and rewritten
14891	15	38	11	38	15	social welfare higher' How this? External costs incorporated?	Removed
6146	15	38	11	38	11	Cannot find Tamas et al. (2010) in the reference section.	Will add
12175	15	38	28	38	38	This paragraph contains a hotchpotch of issues that lack an introduction and of which the link with subsidies, FIT and Certificates is not explained: it jumps from transaction costs to awareness, TWC, low hanging fruit, ambitious saving targets and additionality.	Rewritten
3129	15	38	39	42		Developing country example is vague and doesn't really fit under the heading of 'Subsidies, Fees and tariffs, Certificates' as it doesn't mention any of these	Text removed
12176	15	38	39	38	42	where is the link with subsidies, FIT and Certificates?	Text rewritten
12937	15	38	43	39	5	Not clear to me why this section is inserted here. Moreover, carbon leakage needs to be associated to climate policies in general, not only specifically to carbon taxes.	Agree, section shortened and rewritten
12177	15	38	44	38	46	a bit more introduction to topic required. Also, changing 'committed country' to 'country with emission reduction commissions' may make sentence more clear.	Done
7428	15	38	43	39	5	Review and reference the recent literature, particularly the special Energy Economics issue reporting models comparison exercise on border adjustment.	Thank you

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
7132	15	38	43	39	5	As with aviation and maritime transport, border adjustment measures, have to be considered in its impact beyond national borders. It is not a matter of doing a political analysis of that issue, but border tax adjustments cannot be seen in a vacuum, while many consider it as a potential threatens to the international framework of climate change negotiations. There is also discussions under the Convention, about if such measures are in contravention of this international legally binding instrument, in particular of Article 3.5. There are also divided opinions on whether WTO law permits border tax adjustments for taxable inputs that are not physically incorporated into the final traded product.	Noted
3130	15	39	35			Australian scheme will now be linked to EU ETS and no longer will have a carbon price floor see http://www.climatechange.gov.au/en/minister/greg-combet/2012/media-releases/August/JMR-20120828.aspx	Noted
17659	15	39	38	39	39	Mention the plan to link Australian scheme and EU ETS.	Noted
18746	15	39	39			As a result of negotiations between the EU and Australia, the latter decided to repeal the price ceiling stipulation in order to facilitate linking between the EU ETS and the Australian CPM. Unfortunately this has so far only been documented in the press/news services (approx. August 2012)	Noted
12938	15	39	6			Section 15.5.4 (new approaches to emissions trading): I am surprised that in this section there is no space for a discussion about EU ETS and, more important, I would have appreciated an assessment of carbon markets under the Kyoto Protocol's flexibility mechanisms.	Noted, EU ETS discussed somewhere else
15592	15	39	6	39	7	Add Northeast and MidAtlantic U.S. to the title	Section rewritten, so no longer relevant.
15732	15	39				I wouldn't agree that the "new approaches" are only approaches that include price management. Australia may give up its price floor up again. What is rally new is the design of existing or planned ETS in Asia (Tokyo, Skorea, China...) that these schemes not focus on the traditional sectors of power and heavy industry but may involve entire cities. These systems include smaller facilities, such as buildings, and include indirect emissions from energy consumption. The entire chapter doesnt mention Asian schemes at all. The Tokyo and Saitama schemes are up and running...	Noted
18479	15	39				The title of this section would be better as "Tradable Permits" to reflect the structure in 15.3. The detailed case studies presented here could be reduced to provide a simple summary of the innovative design features that were characteristic in the different countries, and then to provide a clear evaluation in terms of the criteria outlined in 15.3.1.	Noted, section rewritten
6711	15	39	6	41	4	What is the criteria to choose the country/sub-country? "Northeast and Mid-Atlantic U.S. " is not included in the title, but it is presented in 15.5.4.5.	Noted, section rewritten
6147	15	39	6	44	33	This section can be shortened and improved if, same as Section 15.5.2.2-15.5.2.3, those actual cases can be gathered in a table so that readers can find pros and cons of each scheme at a glance. As a whole this section is a little bit redundant. There is a room for improvement, for example, by omiting certain schemes that is not so important as well as by logically condensing 15.5.4.10 SO2 trading scheme under CAA).	Noted, section rewritten
15593	15	40	13			If allowances will initially be given out for free, what will happen later?	Noted.
15733	15	40	28	40	29	International emissions units can be used: can be used unlimited!!!	Noted.
9265	15	40	23	40	36	Australia has recently announced it will link with Europe, with no floor price, so NZ's policy might change. NZ's use of global markets means emitters currently enjoy low prices (~\$5), but if there is a change of government then a requirement to buy only local credits (eg \$25) might apply. The international market means governments have little control over local credits and hence struggle to use credit prices as a tool to reduce emissions.	Noted

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15006	15	40	37			This section should note that emissions have fallen significantly in the RGGI region, although it is difficult to ascertain how much of this is due to the RGGI program. While the price is considered non-binding, it may contribute to a decision context that supports shifts toward lower-carbon electricity generation and energy efficiency.	Noted.
2956	15	41		44		This lengthy review of non-GHG trading systems is relevant but tangential. I would suggest summarizing in at most one paragraph.	Done
6771	15	41	11		18	Although the advantage that emissions trading promotes equality of marginal abatement costs across firms, and a large cost saving as described, it is only theoretical view. In fact, it is very difficult to allocate initial cap fairly, according to the reviw of Wakabayashi [1]. [1] Masayo Wakabayasi and Tadashi Sugiyama (A Review on Effectiveness of Emissions Trading Schemes: Empirical Evidences of Their Implementation)	Noted.
10039	15	41	11	41	15	This part should be deleted completely. The introduction of tradable allowance programs for SOx/NOx in the US is based on different background. Conditions of GHG case are different from those of SOx/NOx case, as described in (Wakabayashi, 2007, page40, only Japanese). These literature is listed in the No67 line of this table.	Noted, rewritten
2955	15	41	19		22	this is too glib -- concentration of CO2 sources might also create hot spots of co-pollutants. This was the basis of a lawsuit in California.	Noted
12939	15	41	23	44	33	This material relates to relatively old Emission trading programmes in the USA, which are not necessarily related to climate policy. I suggest merging sections 15.5.4.7 to 15.5.4.10 in one (short) section only and just describe main results, which could be relevant to emissions trading programmes for climate policy. Otherwise, I suggest to delete all 15.5.4.7 to 15.5.4.10.	Noted, rewritten
5908	15	41	23	45	11	These examples are given at greater length than necessary. Please shorten the text.	Done
18480	15	41	29	44	33	Sections 15.5.4.8 through 15.5.4.10 could be condensed substantially to save space. It would be useful to the reader to try to pull the main lessons learned from other tradable permits schemes (i.e. those that have not targeted cc mitigation) into one section that is a maximum of a few paragraphs.	Done
5008	15	41	29	44	33	Description about lead trading program and SO2 trading program are too much. Those example cases should be either eliminated or condensed to one or two paragraphs at most.	Done
3131	15	41	44			almost 4 pages on US trading programmes that are not about climate change - too much unnecessary detail. Why not analyse the EU ETS instead, after all it is the first large climate trading scheme in the world and has been operating since 2005. Plenty of academic work has been done on it.	Done
6712	15	41	5	44	33	The title is of 15.5.4 is "new approaches", but contents from 15.5.4.7 to 15.5.4.10 are not new. They are schemes of reducing air pollutions. It is better to shorten these subsections, especially, 15.5.4.10 (SO2 trading program) and describe the link to CO2 reduction policies.	Noted, rewritten
2310	15	41	1	41	4	This is speculation that emissions leakage might occur in RGGI, but now official reports have been published looking at how much leakage has occurred. See "CO2 Emissions from Electricity Generation and Imports in the Regional Greenhouse Gas Initiative: 2010 Monitoring Report" issued by RGGI on August 6th of this year. It found "The monitoring results show there has been no increase in CO2 emissions from non-RGGI electric generation during the first two years of RGGI program operation, 2009 and 2010, compared to an annual average during 2006 to 2008." (p.6) The report can be downloaded from: http://www.rggi.org/docs/Market/Elec_Monitoring_Report_12_07_30_Final.pdf .	Noted
17660	15	41	29			The source heavily relies on only one source (Ellerman 2003), however, this source is so far not included in the list of references.	Noted.
5267	15	42	31	44	33	TAKE SECTION OUT on acid rain - not needed	Done
12940	15	44	34	45	11	Laboratory experiments: I am not clear why this section is placed here and what is its aim	Considered

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
11100	15	44	34	44	11	Laboratory experiment is only a part of supporting studies, and it is not fair or misleading just mention one of them. These paragraphs should be shortened and be incorporated in a revised and more science-based report, as mentioned in No. 15 and 23.	Noted.
12941	15	45				Section 15.5.4: "Conclusions" are missing	Accepted. Text added.
12942	15	45	12			Section 15.5.5 (Voluntary agreements). This section needs to add references to the huge literature in this field. For instance, definition of VAs and several contributions surveying impacts on the environment, competitiveness etc., as well as various case studies can be found in the books by Baranzini, A. & Thalmann, P.: "Voluntary Approaches in Climate Policy" Edward Elgar, Cheltenham (UK), 2004; and OECD: Voluntary Approaches for Environmental Policy: Effectiveness, efficiency and usage in policy mixes". Paris: OECD, 2003 and case-studies by OECD.	Accepted. Text modified and literature added.
8010	15	45	12	47	33	Fully support. Because the descriptions are based on the scientific facts, although usually only negative aspects of voluntary action plan are highlighted.	Accepted.
5009	15	45	12	47	33	Since Voluntary Agreements are widely exercised and well performed in various places in the world, but the details and effectiveness of them are not well recognised, comprehensive review of those paragraphs are very important and useful to enhance the understanding of "alternative" approaches. 15.5.5.1, 15.5.5.2, 15.5.5.3, 15.5.5.4 should be kept.	Accepted.
5909	15	45	13	47	20	This text can be shortened to 1 page.	Accepted, the text is shortened
13721	15	45	18	45	19	Delete "USEPA ... 2007", as this is a claim from a government institution and not peer-reviewed literature.	Accepted. Text modified.
6148	15	45	27	45	27	After "non-participants" add a new paragraph by inserting "Environmental effectiveness of voluntary agreement varies depending on several factors such as degree of communication between regulators and industries as well as institutional and cultural background. IPCC (2007) describes as 'it must be acknowledged that VAs (voluntary approaches) fit into the cultural traditions of some countries better than others. Japan, for example, has a history of co-operation between government and industry that facilitates the operation of voluntary programmes'. This point is reinforced with ample concrete examples by Yamaguchi (2012)". For references are as follows; IPCC (2007), Climate change 2007: mitigation of climate change. In: Metz B, Davidson OR, Bosch PR, Dave R, Meyer LA (eds) Contribution of working group III to the fourth assessment report of the intergovernmental panel on climate change. Cambridge University Press, Cambridge, and Yamaguchi (2012), Policies and Measures. In: Climate Change Mitigation, A Balanced Approach to Climate Change. M. Yamaguchi, (ed.), Springer, London pp. 129-159.	Accepted. Text modified and literature added.
3132	15	45	30			the discount is for Climate Change Agreements, not Climate Change Programs	Accepted. Text modified.
12063	15	45	33	45	35	The Dutch example is not exactly a complementary measure, but in fact replaced mandatory regulation. While the example of the UK constitutes a unique complementary measure most other voluntary agreements were made under the prospect of further (mandatory) government regulation in the absence of voluntary action. [further literature? e.g. Kornelis Blok]	Accepted. Text modified and wording "complementary" is deleted.
6151	15	45	12	47	33	Can not find all literatures in this section in the reference section. Please add in the reference.	Noted
2312	15	45	16	4527		An additional possibly useful reference for this section would be: Frans P. de Vries, Andries Nentjes and Neil Odam, " Voluntary Environmental Agreements: Lessons on Effectiveness, Efficiency and Spillover Potential" International Review of Environmental and Resource Economics vol. 6, Issue 2 (2012)	Accepted. Literature added.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
6772	15	46	23		25	<p>The Japanese Voluntary Action Plan by Keidanren (Japan Business Federation) is a very good example which has shown that the measure of voluntary action functions effectively, because their performance in terms of energy and carbon intensity was ranking among the best of the world. And also, Rietbergen et al. [1] analyzed the outcome of long-term voluntary agreements on industrial energy efficiency improvement in the Netherland.</p> <p>[1] Martijin G. Rietbergen, Jacco C.M. Farla, Kornelis Blok (2002) Do agreements enhance energy efficiency improvement? Analysing the actual outcome of long-term agreements on industrial energy efficiency improvement in The Netherlands Journal of Cleaner Production 10 153-163</p>	Accepted, but the suggested literature is not added as they are covered in AR4 and AR4 is referred.
6149	15	46	28	46	28	Add after Wakabayashi 2012, "Yamaguchi (2012)". For Reference; Yamaguchi (2012), Policies and Measures. In: Climate Change Mitigation, A Balanced Approach to Climate Change. M. Yamaguchi, (ed.), Springer, London pp. 129-159.	Accepted. Literature added.
15483	15	46	37	47	3	As the title of this chapter is "voluntary agreements as a "major" policy instrument in government mitigation plan", it seems a bit awkward to include the IW target for appliances here, as this is an action aiming only for one object, rather than industry as a whole, or at least a section. When this whole chapter needs to reduce its size by 76 pages to 60 pages, I would suggest this one may be a candidate to be shortened.	Accepted. Text modified and wording "major" is deleted. Also text is shortened.
12943	15	46	7	47	33	I am wondering why this section discusses the Japanese VAP only. There are many examples in other countries: see e.g. chapters in Baranzini and Thalmann (2004) or OECD (2003) quoted above.	Accepted. Text modified. Literature added.
6709	15	46	7			Good section. The Japanese Voluntary Action Plan (VAP) by Keidanren (Japan Business Federation) is a good example of voluntary approach for mitigation.	Accepted.
11797	15	46	7	47	20	Reasonable analysis.	Accepted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15482	15	46	7	47	20	<p>Japanese Voluntary Action Plan is highly evaluated here, but there are different view on this VAP. For example, KIKO Network evaluates VAP as ineffective scheme in reducing CO2 for the following reasons and the data of the report from Japan Environmental Society backs up.</p> <p>1)The target as a whole of VAP was not ambitious enough. Keidanren's VAP set 0% in 2010 compared to 1990 level, whereas the government's KP achievement Plan set the industry target for 2010 as -4.6%~-4.3%. This comes from the fact that targets of each industry is set by its own industry's voluntary action rather than set by top down by the government.</p> <p>2) Ensuring compliance is difficult as there is no sanction and targets are not transparent and not comparable, which makes the review difficult. This comes from the fact that each industry can choose the target character as they like, such as CO2 emissions, CO2 intensity, Energy, Energy intensity, and also choose industrial production data for intensity target. Also, there was no clear explanation of how to achieve the total reduction target when most industry association chose intensity target.</p> <p>Due to economic crisis in 2008 and earthquake in 2011, the emissions have fallen since 2008, but this reduction is not the outcome of the VAP. The effectiveness of VAP in the absence of effective policy measures such as Emission Trading scheme/carbon tax is not proven at this point, that it is not a balanced view to regard VAP as a successful mitigation policy measures.</p> <p>Therefore, when reporting on VAP, the chapter needs to mention at least about the ineffectiveness and ambiguity of "setting the targets with voluntary bottom-up approach" to maintain the the balance.</p> <p>citation: KIKO Network.2007. "Keidanren Voluntary Action Plan fact sheet", www.kikonet.org/research/archive/mokutastu/FS-kvap-j.pdf Japan Environmental Society. 2007. "report of GHG emissions evaluation committee", http://jaes.sakura.ne.jp/archives/768</p>	Accepted. Text modied and literature added.
10672	15	46	7	47	20	Good analysis.	Accepted.
15069	15	46	7	47	20	This section seems to be excessively too long and redundant, given the content in the present format which only talks about the specific case (VAT) in Japan. With consideration on the balance between the sections, this particular section, if needed, should be much shortened. In addition, when a general conclusion is drawn from this section, more evidence obviously need to be provided, not only for the unique specific country (Japan in this case), but also for other countries in the world, unless otherwise, such conclusion is difficult to be generalized which are less meaningful for the global readers of IPCC AR5.	Accepted. Text shorted, and mixed outcome is mentioned in conclusion.
10040	15	46	7			This section should be kept in SOD because this section shows as a successful example of "voluntary target scheme". Each industry in Japan has voluntary target and the voluntary target scheme has played a big role, as described in (Yamaguchi, 2012, page35 and 154), (Manuel, 2010, page 6 and 13), and (Yamaguchi, 2010, abstract). In addition, there is also a successful example of "voluntary target scheme" in Netherlands, as shown in (Martijin, 2002, page162). These literatures are listed in the No63 line of this table.	Accepted.
9378	15	46	7			This section provides a good example that voluntary action policy works effectively.	Accepted.
18486	15	46	9			While this is an interesting case, the focus and the detail on the policy of one country seems misplaced and interrupts the flow of the text. I might recommend condensing it to a few paragraphs and including it as a box, rather than a section in itself.	Accepted. Text shortened.
15594	15	47	21	47	33	Can be formatted more visually appealing and succinctly - like in bullets. What are the key takeaways?	Noted.
11798	15	47	22	47	33	Delete last sentence. First sentence says [environmentally effective given a proper institutinal framework], which has already implied the meaning of the last sentence.	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
6773	15	47	31		33	Although it is described that some voluntary agreements have not brought about significant environmental impacts, there is no evidence. The reference of this description should be indicated. If the reference is not clear, it should be deleted.	Noted.
10673	15	47	31	47	33	This sentence is a reiteration of line 22 and 23. And it looks exaggerating negatively.	Noted.
7793	15	47	9		20	The same comment as above.	Accepted. Section removed.
6150	15	47	9	47	9	Add before (Tanigawa 2004), "Yamaguchi (2012) introduced one study that calculated, by applying the same methodology with which Ellerman et al. used for the evaluation of EU ETS Phase 1, the CO2 emissions reduction effect of Keidanren's Voluntary Action Plan was 34.6 Mt/CO2 or 5.6% from counterfactual BAU during 1998-2008. 1998 was the starting year of the Action Plan". For Reference; Yamaguchi (2012), Policies and Measures. In: Climate Change Mitigation, A Balanced Approach to Climate Change. M. Yamaguchi, (ed.), Springer, London pp. 129-159.	Noted.
18487	15	47				In Chapter 11 (section 11.10 pages 64-71) there is already an extensive discussion of REDD policies. There is no need to repeat this discussion in an overarching policy chapter. It also begs the question why this one sector's policies are being singled out above the others.	Accepted. Section removed.
15004	15	47	35			This section should be integrated with chapters 11, 13, 14, and 16. See comment on chapter 11, suggesting establishment of a text box in one of these chapters, detailing history of REDD+.	Section removed.
12944	15	48	22	48	28	Please better explain the measure of "land-yield elasticity" and the policy implications of the numbers quoted herein	Section removed.
13614	15	49	45		46	Just to point back to comment 20 that low carbon technologies are unique in a number of ways vis a vis other technologies and so would suggest that this distinction be made clearer	Noted.
18488	15	49				The section is well written with clear conclusions. There seems to be some bias toward US examples and the energy sector. It may be useful to pull more from e.g. buildings or industry as well, ultimately to answer the question "Is technology policy equally important for all sectors? If not, for which is it most important and best suited?"	Accepted. The SOD contains additional non-U.S. and non-energy material.
3185	15	49	1			Section 15.6 is heavy on some factors (e.g., IP) and light on others that are key to actual investment and deployment of new technologies. Those include risk management and allocation policies (e.g., PPAs, loan guarantees, soft budgets, etc). I made a similar comment on chapter 13, which I reproduce here: " sections 13.9.2 and 13.9.3. For my taste these sections are overly focused on IP and not enough on other fundamentals such as protection of property, sanctity of contracts, etc. There's a ton of practical (and to some degree academic—such as in the int' finance, int'l investment law and some of the international political economy literatures) experience with how these kinds of factors actually drive investment outcomes and diffusion of technology. Somewhere WG3 should deal with that—if not here then (better) in the industry chapter (chapter 10, which is devoid of most real world industrial concerns) or the finance chapter (chapter 16, which is a mess). "	Taken into account. Different commenters have different views on the appropriate balance among different factors. SOD contains more discussion of behavioral and institutional issues than the FOD.
3304	15	49	32	58	36	Strong section. Keep it.	Noted. Thanks.
6152	15	50				It is desirable if a short explanation of why RD&D in 2009 increased so rapidly is added.	Noted. The figure has been revised and this section rewritten.
17661	15	50	4	50	17	The paragraph describing Fig. 15.1 is not in line with the facts shown in the graph. For example, the figure only shows expenditures up to 2009 while the text also refers to the year 2010. In addition, the description of the graph states that the "peak investment rate was in 1980" while figure 15.1 implies that this was actually the case in 2009.	Accepted. The Figure has been updated and the accompanying text rewritten.
18489	15	50	3	50	17	It would also be useful to know the R&D structures outside of OECD countries. E.g. is there any R&D expenditure in developing countries? How does the situation differ there?	Taken into account. There is limited literature on R&D outside the OECD. We have included brief mention of available literature.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
5011	15	51	12	51	22	Public support for energy technologies R&D is very important and actually brought many important outcomes. See the following paper: "Energy Innovation at the Department of Deffence", Daniel Sareviz et al., Consortium for Science, Policy, and Outcomes at Arizona State University, March 2012	Noted.
13615	15	52				Same as above (to highlight comment 20) and also to repeat comment 21 (that in addition to 'market failures' alternative approaches take a more systematic view	Unable to understand. There is no figure 15.6.4. The comment does not seem to refer to the figure that does appear on page 52.
15461	15	52	1	52	13	It may be a good idea to briefly touch upon the ARPA-E project (http://arpa-e.energy.gov) which was driven by the American Recovery and Reinvestment Act. Although DARPA is alluded in the next page, the ARPA-E is directly inspired by the past successes of DARPA. Although the program has been short, it has already spurred \$100 million in private investment in its first two years (http://www.sustainablebusiness.com/index.cfm/go/news.display/id/22856). See also: http://theenergycollective.com/cliftonyin/84921/arun-majumdar-made-arpa-e-energy-innovation-leader and http://www.theatlantic.com/technology/archive/2012/09/amid-partisan-bickering-everyone-agrees-arpa-e-is-a-fascinating-experiment/261905/	Noted. Space limitations, and the need to cover experiences world-wide, preclude a specific discussion of ARPA-E.
5910	15	52	1	52	6	Another possibility is that people who are not qualified enter the respective job market and negatively influence research quality. This, in turn, turns up pressure on scientific quality control like review processes and consumes time that could be spend doing research ...	Accepted. At a macro level, the consequences for the research process working through this mechanism are the same as a more general increase in costs.
12066	15	52	15			NIH' as acronym is not explained in the text	Editorial – copyedit to be completed prior to publication
13617	15	53	3		14	suggest highlighting the role that the military has played (internet, GPS) (DARPA is referenced but think this distinction is useful). E.g. I am trying to track down studies that I have seen but as the deadline to getting these comments is imminent I can't seem to find it, but there are some that suggest that the military is seriously looking at green technologies as a way to reduce exposure (supply chains in getting fuel / needed energy to their troops) not only costs but also to reduce casualties	Noted. Space limitations, and the need to cover experiences world-wide, preclude a specific discussion of the military role.
5012	15	53	3	53	14	Public support for energy technologies R&D is very important and actually brought many important outcomes. See the following paper: "Energy Innovation at the Department of Deffence", Daniel Sareviz et al., Consortium for Science, Policy, and Outcomes at Arizona State University, March 2012	Noted.
6774	15	53	34		35	The description that FIT has encouraged "development of renewable technologies" should be corrected to "development of renewable capacity", because FIT has encouraged only renewable capacity as the German case shows in Figure 15.2. □	Taken into account. The cited text has been reworded.
11799	15	53	35	53	37	Delete this sentence. Relationship between [huge expansion] and [cost reductions] is unclear.	Taken into account. The cited text has been reworded.
6775	15	53	35		37	Figure 15.3 only suggests that the huge expansion in development appears to have forsterd "economies of scale". In figure 15.3, there is no data that suggests "learning-by-doing" or "incentive for R&D".	Taken into account. The cited text has been reworded.
11800	15	54				This figure isn't needed. Refer to No.85.	Accepted. The figure has been deleted.
12945	15	54	7	54	15	I suggest moving those 2 paragraphs above, when first discussing FIT	Taken into account. The cited text has been reworded.
13618	15	54	7	55	3	suggest noting that often times these policy levers operate across purposes (e.g. a FIT may have an industrial and innovation goal also at play in addition to reducing GHG emissions)	Taken into account. Interaction of policy goals is discussed in the chapter.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
5013	15	54	7	54	15	There are many negative/unexpected impact brought by FIT after massive deployment of the policy. Most evidence negative of FIT is that it looks in the existing costly technologies and, as the result, high electricity cost by surcharges for long period, even though new technologies may become available and cost may come down in the mean time. See the following book: "The Green Mirage", John Constable, CIVITAS, London, July 2011	Taken into account. There are diverse studies of FIT that come to different conclusions. We have tried to represent this literature in the chapter.
18681	15	55				IP is discussed on page 55, should be aligned with the same theme in c 13 and perhaps removed from c 15. Refers also to c 16. Messages not aligned?	Accepted in part. The reference to Chapter 16 was an error; the correct cross-reference to Chapter 13 now appears. Chapter 13 focuses on IP policy as an international issue; Chapter 15 focuses on IP policy as a national policy issue.
4006	15	55	28	56	9	Although I am convinced that strong IP protection supports technological development at least in developed countries and also in developing countries, the discussion here may, as an example, refer to open source software, which is a typical example that the lack of patent protection and the lack of copyright protection (by license agreement of the creators of the software) may produce positive effects on the development of such software. However, I doubt that in fields of cost intensive development of technologies such as in the pharmaceutical sector and also the climate sector (solar industry etc.) IP protection is necessary to allow companies securing their investments and giving them a chance to get a payback on their investments.	Noted. Different individuals have very different views regarding the effects of IP policy. The conclusions in the chapter regarding the potential consequences of IP protection are supported by the published theoretical and empirical literature.
12023	15	56	38	57	1	This is an odd statement which is misinterpreted that weak IP protection facilitates indigenous technology development. IP protection is important for both domestic technology development and technology transfer.	Noted. Different individuals have very different views regarding the effects of IP policy. The conclusions in the chapter regarding the potential consequences of IP protection are supported by the published theoretical and empirical literature.
13612	15	56	9		18	I would like to again bring to your attention the work of climate-policy-innovation.org as there are a number of research papers in place to do with climate policy innovation / diffusion (feel free to contact Andy Jordan Andy Jordan (ENV) [A.Jordan@uea.ac.uk] and Dave Huitema Huitema, D. [dave.huitema@vu.nl] for further information about their status (e.g. Auld and I are working on one due imminently)	Noted.
6153	15	57	24	57	36	This paragraph describes situation only in the USA. We need another literature whether the same thing may happen in other part of the world including developing countries. If not, it is necessary to add some caution such as "it is uncertain whether same effect may happen in other part of the world".	Accepted. The SOD contains additional non-U.S. material.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15273	15	57	37	57	39	<p>Basically, it would be the case that flexible environmental regulations are more effective at inducing technological change, compared with direct regulations which specify a particular technology to achieve regulatory goals. There is a caveat, however, that flexible regulations tend to encourage relatively simple, straightforward technological change, such as end-of-pipe technologies, which will discourage radical, clean innovations, which could be better from a long-term perspective. For example, Yarime (2007) examined the effects of environmental regulation on technological change in the chlor-alkali industry in Europe and Japan. when emission standards introduced were not very stringent, the cost of pollution abatement with end-of-pipe technologies was relatively small, which encouraged companies to focus on this type of technology, rather than clean technologies, as illustrated in the case of Europe. Because the end-of-pipe technologies were effective in reducing emissions to a certain extent, the producers emitting mercury had a strong incentive to continue to use the existing, pollution-laden mercury process, which has functioned to prolong the lifetime of the technologically obsolescent process, leading to technological lock-in. In contrast, stringent regulations worked effectively in creating strong and secure demand for clean technologies such as the ion-exchange membrane process, shifting production companies away from end-of-pipe technologies that would otherwise sustain the trajectory of the pollution-laden mercury process. Such regulations, however, implemented in a very short time period, as was the case in Japan, resulted in inefficient use of resources, as firms were required to make large investments without a clear understanding of emerging technological options. In other words, on the one hand, environmental regulations should be designed to encourage research and development on clean technologies having the possibility of achieving economic and environmental objectives at the same time, rather than end-of-pipe technologies, which only lead to incurring additional costs, except perhaps in cases when immediate actions for eliminating toxic substances are necessary. On the other hand, it is desirable to avoid inducing inappropriate technological choices prematurely in the presence of the uncertainty, diversity, and rigidity inherent in the process of technological change. Therefore, an explicit mandate to phase out the existing pollution-laden technology with a sufficiently long time frame involving a certain degree of flexibility would allow more potential for promoting green innovation, which necessarily requires dedicated efforts on research and development and experimentation. Yarime, Masaru, "Promoting Green Innovation or Prolonging the Existing Technology: Regulation and Technological Change in the Chlor-Alkali Industry in Japan and Europe," <i>Journal of Industrial Ecology</i>, 11 (4), 117-139 (2007).</p>	Accepted. The cited results are now mentioned in the chapter.
15272	15	57	5	57	6	<p>For surveys on empirical literature assessing the effects of policy measures on technological change, the following article would also be very useful, with more systemic and integrated views on technological change. del Rio, Pablo, Javier Carrillo-Hermosilla, and Totti Konnola (2010). "Policy Strategies to Promote Eco-Innovation: An Integrated Framework." <i>Journal of Industrial Ecology</i>, 14 (4), 541-557.</p>	Noted. The cited paper is now included in the surveyed literature.
2311	15	57	4	58	9	<p>An additional reference for this section that might be helpful is: Allen S. Bellas and Ian Lange, "Evidence of Innovation and Diffusion Under Tradable Permit Programs' <i>International Review of Environmental and Resource Economics</i> volume 5. Issue 1 (2011)</p>	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
18683	15	58	33			<p>Page 58, line 33 says: “ 4. There is the potential for intellectual property enforcement to impede the diffusion of new GHG technologies, thereby inhibiting both GHG reduction and further improvement of the technologies”</p> <p>Highly questionable as a statement!</p>	Rejected. Different individuals have very different views regarding the effects of IP policy. The conclusions in the chapter regarding the potential consequences of IP protection are supported by the published theoretical and empirical literature.
12024	15	58	33	58	35	IP protection is necessary for facilitate technology transfer and diffusion in a sustainable way. To much defensive IP management may slow the diffusion but no IP protection intimidates technology holder to transfer its technologies. I disagree with this conclusion as it does not consider sustainability.	Noted. Different individuals have very different views regarding the effects of IP policy. The conclusions in the chapter regarding the potential consequences of IP protection are supported by the published theoretical and empirical literature.
5014	15	58	33	58	35	The argument here is not necessarily supported by facts. In fact, from technology owner view points, technology transfer/licence is incentivatised with patents, thus promoted. Without patent protection, technology owners may keep such technologies as trade secrets and hold within the company.	Noted. Different individuals have very different views regarding the effects of IP policy. The conclusions in the chapter regarding the potential consequences of IP protection are supported by the published theoretical and empirical literature.
15595	15	58	41			Is this line meaning//planning to say that social and economic development are big drivers of climate change? I disagree in the sense that they do not have to be and one can have development while minimizing climate impacts if done thoughtfully.	Noted.
15734	15	58		58		Synergies and tradeoffs among policies: among climate policies? Energy policies?	The title is a mandate from IPCC plenary. In this section, we focus on synergies and tradeoffs among climate relevent policies.
18490	15	58				The first three sections of 15.7 (15.7.1 - 15.7.3) have a very useful focus on the link between CC mitigation policies and SD policies, highlighting the developing country perspective. However, much of the text is on co-benefits and other topics covered in Chapter 4. It might be most useful to condense these three sub-sections into one, highlighting only what has not already been covered in other chapters.	Considered. We have reorganized 7.1-7.3 to a new section which focus on the interaction between policy objectives
18491	15	58				Again, while the section has a useful link to development policies, it misses a link to policies in any other subject areas, e.g. agriculture, to inform the reader where synergies and trade-offs exist with other topic areas, other branches of government.	Considered
15596	15	58	38	62	48	This section coul benefit from a tighter structure or outline, especially 15.7.1, 15.7.2and 15.7.3. It seems a bit disjointed at times. The following sections were very well written and could be models - 15.7.5.1, 15.7.5.2	Considered. We have reorganized 7.1-7.3 to a new section which focus on the interaction between policy objectives

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
18005	15	58	45			Although the section relates to SD, SD concepts and SD goals, I have found no cross-reference to Chapter 4 although Chapter 4 is supposed to provide the framing for any SD discussion in the WGIII AR5. For this Section, this is particularly relevant, since SD and the related concepts are not sufficiently explicated. The same applies to the discussion of co-benefits/co-costs and the respective framing in chapters 3 and 4 (which has been nascent in the FOD). Please liaise with the relevant chapters in the cross-cutting meeting to determine a viable labor division and synthesis of results with respect to the co-benefits/co-cost assessment and the relation to SD across chapters.	Considered
11102	15	58	33	58		This conclusion is wrong, or, at least, one sided. The IPCC report should be science-based and be independent from politicized debates under the UNFCCC.	Rejected. Different individuals have very different views regarding the effects of IP policy. The conclusions in the chapter regarding the potential consequences of IP protection are supported by the published theoretical and empirical literature.
6156	15	59				As a measures to mainstreaming mitigation for trade and investment, in addition to Energy subsidy reform in page 60, add "removal or reduction of import duties for environmentally friendly goods and services". There are lots of papers from OECD Joint Working Party of Trade and Environment.	Considered. This table has been deleted in SOD
6154	15	59	11	59	13	Better to cite United Nation's MDGs (Millenium Development Goals) and/or "The Future We Want " adopted at the Rio + 20 Conference this year (A/CONF.216/L.1).	Considered. This has been added
5268	15	59	13			ADD: But some negative effects can arise: efforts in France to promote diesel in the past have led to increased NOX pollution problems in several cities.	Need reference to this point
15598	15	59	14			Title is wordy/confusing; Perhaps "Capturing (or understanding) Synergies between Climate and NonClimate Policies"? This section could start with a description of the synergies to set the stage for this content which would reinforce the key points.	Considered. We have reorganized 7.1-7.3 to a new section which focus on the interaction between policy objectives
7430	15	59	16	59	21	Note that there is also a tradeoff between the security of demand for the fossil energy producers and the needed investment to meet actual global demand from these sources. A more integrative and responsible strategy to energy security should allow for all sources of energy in an equal footing suitably corrected for their impacts on GHG emissions.	Need reference to this point
6155	15	59	21	59	21	Add "Toichi (2012)" after mitigation. For reference; Toichi (2012), Balance between energy security and mitigation responses: In: Climate Change Mitigation, A Balanced Approach to Climate Change. M. Yamaguchi, (ed.), Springer, London pp. 63-87.	Considered. This has been added.
9271	15	59	29	59	29	Spelling mistake "... main raise ..." should probably be "... may raise ..."	Considered. This has been corrected
6715	15	59	29			It may be "main" should be "may"? "CCS main raise concerns about...". "Main"-> "may"?	Considered. This has been corrected
15599	15	59	30			Why does this raise concerns about energy security? Explain.	CCS may consume more energy then tighten the energy supply

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
5269	15	59	40			<p>Proposal to add a potential obstacle column: To ENERGY SECURITY add following obstacle column: May lead to</p> <ul style="list-style-type: none"> - increased coal use - exploration of oil in ecologically sensitive areas -schale gas <p>To AIR QUALITY, add following obstacle column: Improving traffic flows decreases pollution in the short term but leads to increased car traffic afterwards; Funding help to replace old but still operational cars reduces pollution but has overall greater ecological footprint; Efforts at increasing diesel motor use in France (less GHG emissions) lead to increased NOx pollution</p>	Considered. This table has been deleted in SOD
2318	15	59	49			<p>The table, should be changed or adequate, The first column should contain the basic target , it is , the mitigation target and the second column may represent the policy options and the last one the synergies. In addition, is a suggested take into account other more synergies. There are more synergies impacts than those that are on the table.</p>	Considered. This table has been deleted in SOD
15597	15	59	5	59	6	<p>side impact on climate change" is not very clear. Also, instead of "can widen policy goals..." how about "can achieve multiple policy goals."</p>	We have delted this subtitle in revised text. But widen means to widen the boundary of policy objetives, while achieve multiple policy goals means within existing policy boundaries.
15128	15	59	2	59	2	poverty eradication	Considered. We have added pover eradication in SOD text
15129	15	59	5	59	5	many development policies indeed have positive side-impact on climate change	Considered. We have put this into revised SOD text
4270	15	59	12			<p>I couldn't see a discussion of how co-benefits can be incorporated within policy instruments to reduce GHG emissions. Could there be a specific section on this point?</p>	The co-benefit discussion will be addressed mainly by other chapter. This discussion may be more appropriate in sectoral chapters.
18007	15	59	28	59	32	<p>Please provide a cross-reference to and liaise with Chapter 7 to bring the different discussions of CCS impacts across chapters (5, 6, 7, and 11) together.</p>	Considered. However, CCS is only used as an exmple here to illustrated tradeoff among policy objectives.
2317	15	59	33	59	35	<p>The use of terms like Green Production, Green Investments and others, should be modified. The AR5 should not use terms and categories that have not a worldwide recognition and a clear understanding for all. I suggest the use of Sustainable Production and Consumption, Investments for Sustainable Development as was recognized in Rio + 20, or, if the author prefers, maintain the Green term, then, must be given a wide explanation for the general understanding on what means all those terms, may be used a references or similar.</p>	Considered. We change to sustainable production and consumption in revised SOD

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
9311	15	59	14	59	38	Toward a sustainable society, the industry shall deal with recycling policies to conserve natural resources but pre-treatment of wastes in the plant requires further additional energy to dry and cut them. Therefore, it is important to recognize that the industry has to challenge incompatible policy/ies as well as climate policy. In order for the industry to diffuse such co-processing technologies, governmental support in developing country is required for a primary driver of the level of local environmental awareness or waste legislation to collect fractionated wastes from industries and public. (http://www.jcassoc.or.jp/cement/2eng/eh1.html and http://www.jcassoc.or.jp/cement/2eng/eh3.html)	This institutional and governance discussion will be mainly addressed in section 15.2
11077	15	6	1	7	13	The Executive Summary misses one of the main points of this chapter, i.e. "Subsidy Reduction" mentioned on line 36 of page 36.	Noted. Will be rewritten.
7423	15	6	10	6	18	Should mention that the type of policy does matter when assessing efficiency and cost implications including spillover impacts.	Accepted. Will be rewritten.
7704	15	6	13	6	18	This (and some of your other statements in the exec summ) are not supported by the fuller discussion, in this case in section 15.5.5. In reading that section, there is little evidence you report to support this conclusions. Furthermore, many of the references you cite in the text are missing from your reference list.	Accepted. The conclusions will be weakened.
13224	15	6	21	6	39	The discussion of carbon taxes and emissions trading is entirely disjoint, when it should be strongly connected. Both instruments put a price on emissions, and thereby a market incentive to reduce emissions. Whether this price signal is implemented by way of a tax (or tax-like instrument) or through tradable permits has important implications for the actual policy design, but it is secondary in principle. The question that needs to be answered is "what are the experiences with carbon pricing - does a carbon price (through tax or trading) provide effective incentives for mitigation?". The discussion here and in the body of the chapter should be recast in this light.	Partially accepted. We will use the term economic instruments to bring out the commonality, but it is useful for policy-makers to be made aware of differences as well as commonalities. As Lines 35-37 point out, there are important pertinent differences, especially in a world with very imperfect policy coordination.
3598	15	6	21	6	22	The claim that there is robust evidence that carbon taxes are effective in reducing emissions does not seem justified by the discussion in section 15.5.3.1, where it is stated for instance that "there is, however, less rigorous published work that is empirical ... on the effect of these taxes". See also comments further down on this specific section.	Text rewritten, new published evidence reported
13215	15	6	21	6	21	Add the sentence taken from page 26, line 11/12 : "Overall, taxes on greenhouse gases are a preferred instrument for economists", or a sentence conveying the same message, possibly expliciting the reasons for this preference	Noted will do
7424	15	6	22	6	23	It is rather strong statement to say that fuel taxation is a cost-effective way for reducing emissions. To the extent that fuels have different carbon contents, the true Pigovian instrument would a tax on emissions and not the fuels consumed regardless of the progressivity or regressivity of the tax.	Text rewritten, I agree but only partially and fuel taxes should be in proportion to carbon (as the carbon taxes on fuel are in Sweden)
7425	15	6	23	6	26	Reconcile this statement with that of page 7, lines32-34. There seems to me some contradiction.	No contradiction, will try to make this clearer
7705	15	6	23	6	29	These conclusions are just not supported by the text. Most of the evidence you cite in the text regarding incidence is that taxes are regressive, which is the common finding. You report the opposite here. I also did not find support that people are happy to have their fuel taxes raised.	No, taxes on transportfuels are progressive in most countries. (Note that "most countries" here refers mainly to the poor countries. The US is not a majority of countries. The text says nothing about happiness.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
17652	15	6	23	6	25	This sentence as well as the sentence starting on p. 7, line 32 state that there is robust evidence that carbon taxation is progressive in developing countries. Neither sentence gives a reference though. On page 36 this argument is mentioned again and one reference is provided (Stern 2012). However, if there is robust evidence there should be more than one study cited.	More studies will be cited
5901	15	6	23	6	25	This is either not in line with economic theory (poor households will have to pay a higher share of their income just to maintain their level of welfare, e. g. transportation) or a sign that poor households forego these expenses and thus also might be restricted in their possibilities and trade e. g. transportation for other amenities / necessities. Please add a link to the relevant section here and / or add sustaining information here.	Rewritten, will be done.
3599	15	6	29	6	31	The claim that hypothecated instruments can make higher fee levels possible is not backed up by any references in section 5.3 (as indicated it will be). I have, however, added some suggested references for this further down.	Included
13225	15	6	32	6	39	The verdict on emissions trading is unduly negative. Several obstacles to its effectiveness are highlighted prominently and given more space than any positive aspects - which is in complete contrast to the preceding paragraph on emissions taxes which mentions no caveats (many could be mentioned). The discussion of taxes and emissions trading needs to be put on equal footing. I also note here that there is very little substantive discussion of emissions trading in the body of the chapter. This is clearly an omission in the context of this chapter. Perhaps permit trading is covered in more detail elsewhere, but this chapter really needs to discuss it in-depth, given that many other instruments are discussed in detail.	Rewritten, will be done.
13707	15	6	32	6	32	Insert "project-based offsets" behind "emissions trading systems".	Rewritten
11078	15	6	32	6	34	Delete the whole sentence from "Economic theory suggests..." to "... medium evidence] If theory is to be mentioned in the Executive Summary, it should be mentioned in all the paragraph of other policy instruments. "Theoretically" speaking, theories always suggest positive effects of a chosen policy instrument. Otherwise, no government would have chosen it. Mentioning theories is redundant here.	Will do
13226	15	6	34	6	35	Emissions trading "rare and not stringent": the number of schemes in existing is a poor measure of their prevalence, and it is unclear on what the statement of "not stringent" is based on. The EU ETS probably has a much wider coverage of emissions than all the carbon taxes mentioned combined. It has resulted in an average carbon price that has clearly been sufficient to drive some extent of change in industrial practice and investment. Several other countries have implemented ETS or are in the process of doing so.	Rewritten
13701	15	6	34	6	34	Replace "medium evidence" by "robust evidence", as there is substantial evidence that emission trading systems have harnessed least-cost reductions, as long as they have not been overallocated.	Considered
13702	15	6	34	6	35	Replace "they are so far... high agreement" by "They have spread significantly since 2005, but allocation has initially been relatively loose. have only been implemented in the last decade. Where combined with stringent caps, they have achieved significant emission reductions; participation has been substantially higher than anticipated [robust evidence, high agreement]. " Reason: With the EU, Australia, New Zealand, several US and Japanese subnational jurisdictions having mandatory emissions trading systems, mandatory ETS cover a majority of industrialized countries. Those systems with scarcity have generated surprisingly high prices and mobilized significant emission reductions.	Rewritten
11079	15	6	34	6	39	Shorten and rewrite after revising 15.5.4 completely following the style of 15.5.3.	Done
13227	15	6	35	6	37	ETS "cancel the effect of other policies or become redundant": the very same statement applied many other policy mechanisms, under specific conditions. This caveat would be better made with regard to mitigation policy measures more generally, rather than only with regard to ETS.	Do not agree. Will explain better

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
13703	15	6	35	6	37	Delete sentence "When ... robust evidence" as it mixes many different issues and redundancy can be argued the other way round (if an ETS exists, other policies may become redundant).	Rewritten
11796	15	6	37	6	44	Descriptions should be met with 15.5.5.4 considering No.89.	Considered
13228	15	6	37	6	38	Grandfathering of permits may create perverse incentives to increase emissions: it theoretically can do that, but no major emissions trading scheme in existence has resulted in such perverse incentives. This is something of a red herring practice. I suggest re-thinking whether it deserves highlighting in a summary.	Considered
14878	15	6	37	6	39	The high costs of grandfathering to final customers needs to be mentioned here as well when stressing the avntage of increasing acceptance i.e. buying acceptance comes at a cost (see eg IEA2010g p8 cited in FOD Chapter 7 p70)	Agree, will consider including ref
13704	15	6	39	6	39	Add after "medium evidence": "Increasingly, grandfathering has been replaced by auctioning".	Will consider
7706	15	6	40	6	46	The discussion of voluntary actions/agreements in the text is that there is little evidence that they are effective, except in Japan. That is inconsistent with what is said here.	Noted.
13705	15	6	40	6	40	Replace "medium" by "limited", and "given" by ", and this requires"	Accepted, mixed outcome is mentioned.
13706	15	6	45	6	45	Replace "some" by "in the majority of". Reason: Outside Japan, voluntary agreements have been rather ineffective. See e.g. evaluation by Baranzini, A.; Thalmann, P. (2004): Voluntary approaches in climate policy, Edward Elgar, Cheltenham; Rezessy, S.; Bertoldi, P. (2011): Voluntary agreements in the field of energy efficiency and emission reduction: Review and analysis of experiences in the European Union, in: Energy Policy, 39, p. 7121-7129	Accepted. Literature added. Mixed outcome is mentioned.
18714	15	6			7	Executive Summary generally would benefit from editing/rewriting to have a more streamlined narrative; currently it is a somewhat repetitive list of central takeaway messages from individual subsections, and thus difficult to read and understand in isolation of the main text	Noted. Will be rewritten.
18464	15	6				It is very difficult for the reader to pull clear messages from the Executive Summary. There are two overarching reasons for this: 1) the presentation of messages is scattered. The building blocks are there (from the assessment in Section 15.5), but there is no structured synthesis that allows a reader easy access. This could be in the form of e.g. a table that highlights policy instruments (vertically) and assessment criteria (horizontally), marking which policies have been considered cost effective, environmentally effective, etc. in the meat of the table. 2) The uncertainty language integrated into the sentences interrupts the flow. It would be much more useful to keep sentences crisp, and to use uncertainty language in brackets at the end of the section, as is the typical IPCC standard.	Noted. Will be rewritten.
18465	15	6				There are a number of messages missing that a reader would expect. These include: - A synthesis of sector chapter policies relevant at the national level (missing from the entire chapter) - The interplay across different policy levels (national, sub-national, city, etc) - A mention of where synergies may arise with policies targeting other subject areas (missing from the entire chapter) - Regional differentiation to the extent possible in a summary	Noted. Will be rewritten.
18466	15	6	6	6	7	The introduction promises lessons from a variety of institutional and governance structures from 15.2 (see p. 7 lines 18 and 19)- what are those lessons and why haven't they been included here?	Noted. Will be rewritten.
15600	15	60	1	60	20	It seems that this could be tightened to discuss how these different levels of government need to (1) include climate considerations into existing planning (2) create climate-focused planning efforts that explains the non-climate synergies or (3) promote the synergistic benefits of climate mitigation to increae support for action. It seems a bit confusing as written.	This institution and governance discussion will be addressed in 15.2

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
5270	15	60	15			ADD: Institutional culture and structure also raise obstacles: a city's mobility department may not work with the road and infrastructure service or with the urban/land planning one. In France, the urban planning services in cities did not work with building construction actors until 2004. The division of urban services by sectors and areas of judicial and administrative competence is a primary and complex institutional obstacle to mainstreaming.	This institutional obstacles have been mentioned in line 6-7
18754	15	60	34	60	35	"As discussed in the previous section, there are important market failures ...": there are so many subsections in the previous section, further specification is needed.	Noted.
5272	15	61	16	61	28	paragraph repetitive with previous sections	Section has been thoroughly redrafted
5015	15	61	19			Carbon tax may help spur innovation, but cap & trade may not necessarily. Once carbon market is established and massive credits are traded, existence and growth of the market itself will become a big concern among traders/market players. Development of cheap clean energy technology will destroy carbon market because it will remove the necessity for carbon pricing as a disincentive for fossil fuels.	Noted.
7431	15	61	29	61	47	The second best theory in economics explains that adding one distortion in the presence of multiple distortions does not necessarily improve global welfare. In this case taxing oil increases welfare by reducing emissions but also decreases the welfare by decreasing revenues and consumption of nations depending on the production and exports of oil.	Section has been redrafted to clarify
5273	15	61	29	61	40	take out? description of economic tools paragraph probably dealt with in other chapters	Noted.
18755	15	61	3			"in terms of cost-effectiveness": this is symptomatic of the disciplinary bias/excessive focus on economics: when multiple instruments interact, the consequences are manifold and not only relevant in (economic) terms of cost-effectiveness. More often than not, complete failure of a policy instrument (rather than just diminished cost-effectiveness) will follow from outright conflicts between instruments at the legal level, e.g. when one policy has to be cassated because it is found to be legally inconsistent with prior (higher ranking, or long-established and hence vested) instruments. The complete absence of jurisprudential discussion is a significant weakness here and elsewhere. For an overview of instrument interaction from a legal perspective, see Mehling, Michael (2007), "Implementation of the Kyoto Protocol in Germany: Designing an Integrated Management Scheme for Greenhouse Gases." In Tackling Climate Change: An Appraisal of the Kyoto Protocol and Options for the Future, edited by Wybe Douma, Leonardo Massai, and Massimiliano Montini. 111-134. The Hague: T.M.C. Asser Press, 2007.	Noted. Some discussion of this in revised 15.8.
6157	15	61	6	61	9	The implication of this paragraph is very important. In this sense it would be better if we can have another literature other than Tinbergen (1952) as, even if Tinbergen is so well-established, this is rather old one.	Noted. Tinbergen (1952) is often considered the key reference.
5271	15	61	9			ADD: Political science and the sociology of organisation tell us that public policy is only as effective as internal competence, responsibility - and public acceptance - go, unless legal obligations and constraints are used.	Noted.
15736	15	61		61		You seem to consider only the interactions between energy policies. Beneficial or problematic interactions however also occur eg between energy policies and biodiversity or water policies. These interactions may significantly influence the performance of energy policies... What about interactions between climate mitigation and adaptation policies?	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15548	15	61	1			Schmidt and Marschinski (2009) note that new technologies (e.g. mobile telephones) have often reached a stage where economies of scale in production, and the incentive of rising returns to R&D as output rises, have started to reduce costs fast enough to permit very rapid diffusion throughout the economy. Using a model of energy generation in which R&D responds positively to rising returns and there are several market failures, they find that multiple equilibria are possible, and policy instruments have to be used to push the world economy towards an equilibrium with high renewable energy use. The optimal policy mix entails a tax on fossil energy, a R&D subsidy, an investment subsidy and a fee for employing initial public knowledge equal to the patent fee charged for private knowledge. Acemoglu et al. (2012) examine technical change that responds to the relative incentives across industry sectors, in a growth model with environmental constraints and limited resources. Technical change has to be encouraged in 'green' sectors rather than sectors producing greenhouse gas emissions. They show that profit taxes or other instruments are required in addition to a carbon tax, such as taxes on fossil-fuel energy production and innovation. But if renewables and fossil fuels are sufficiently substitutable as inputs to production, fossil-fuel energy production and innovation only has to be taxed temporarily, until the increased incentive for R&D in renewables has reduced their production costs enough to switch the economy on to a low-emissions growth path. Acemoglu, Daron, Philippe Aghion, Leonardo Bursztyn, and David Hemous. 2012. "The Environment and Directed Technical Change." American Economic Review, 102(1), pages 131–66. Schmidt, R.C. and R. Marschinski (2009). "A Model of Technological Breakthrough in the Renewable Energy Sector." Ecological Economics 69 (2), pages 435-444.	Noted. This applies to 15.6.
12025	15	62	11	62	19	In reality, there exists variations for a set of products. While marginal abatement costs are not necessarily attributed to each product line. Product standards work as clear signals for the market and facilitate competition. The argument here is too theoretical which works only in a situation that only one non variable good is produced by (a) company(ies).	Noted.
6158	15	62	32	62	32	Add after "Overall emissions fall", "However, in this case cost effectiveness is diluted as MAC is not be equalized amongst players".	Noted.
5274	15	62	33	62	43	too economic oriented ! take out and replace with on line 43: One issue in an institution is the 'cost' of learning or having to learn to deal with new issues. Hence, for example, in France local administration have to learn to transform their daily operations into climate friendly objectives and methods while they are also imposed by the central government to develop adaptation strategies without even knowing what type of effects or depth of effects nor when CC will have on their territory. Having to deal with both at the same time appears very difficult.	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
15549	15	62				<p>In principle, both carbon pricing and support for renewable energy reduce the cost gap between renewable and conventional electricity generation. But if both are applied simultaneously, their impacts may not be the same as the sum of each implemented separately (De Miera et al., 2008; De Jonghe et al., 2009). The interactions of technology-specific policies – including renewable portfolio standards and feed-in tariffs – with market mechanisms such as a carbon tax, if not properly anticipated by policy-makers, can undermine the efficacy of each individual policy tool, and the suite of climate policies overall (Sorrel and Sijm, 2003; Rathmann, 2007).</p> <p>If quantity-based tools (such as quota-based instruments) are used to pursue both climate-change mitigation and renewables objectives, it is possible that the permit price for one scheme will fall to zero (Unger and Ahlgren, 2005; De Jonghe et al., 2009). Conversely, if one price-based and one quantity-based measure are used (e.g. a carbon tax and a renewable portfolio standard), the fixed price imposed by one measure could influence the market price of the quantity-based measure in undesirable ways. Hence coordination of policy instruments and an appreciation of how they will interact are crucial, both at the initial stages of policy formation and later, when circumstances change and uncertainties diminish (or increase) (De Jonghe et al., 2009; Rathmann, 2007; Blyth et al., 2009; Verbruggen and Lauber, 2009).</p> <p>One way in which renewables policies may affect the carbon objective is through their indirect impact on the carbon price. By substituting electricity generation away from fossil fuels, renewable mandates reduce the electric sector's overall CO2 emissions. If there is an existing cap on emissions, this reduces the sectoral demand for allowances, and along with it the carbon price. A lower carbon price means that electricity producers' costs decrease, the marginal cost curve shifts, and wholesale electricity prices decrease (Rathmann, 2007; De Jonghe et al., 2009; Stankeviciute and Criqui, 2008). That contributes to a 'rebound' effect, tending to increase energy demand. If the potential impact of renewables policies on emissions is not considered at the time that the emissions cap is set, their impact is likely to be entirely offset by this and other induced increases in demand. Introducing financial support for renewables in addition to a carbon price signal, without adjusting the overall cap on emissions, will tend to lower the carbon price, because it reduces the level of abatement required from emissions sources within the trading scheme. The supply of allowances is fixed by the cap and the price of allowances will fall to bring the demand for allowances back into balance with the supply; the renewables support will just have redistributed the sources of emissions. Policy can therefore fall into a trap in which carbon markets appear more and more insufficient on their own, apparently justifying more and more direct, technology-specific, support (Blyth et al., 2009). The weakened carbon price signal can then point path-dependent technological development and investment away from low-carbon technologies.</p> <p>In principle, both carbon pricing and support for renewable energy reduce the cost gap between renewable and conventional electricity generation. But if both are applied simultaneously, their impacts may not be the same as the sum of each implemented separately (De Miera et al., 2008; De Jonghe et al., 2009). The interactions of technology-specific policies – including renewable portfolio standards and feed-in tariffs – with market mechanisms such as a carbon tax, if not properly anticipated by policy-makers, can undermine the efficacy of each individual policy tool, and the suite of climate policies overall (Sorrel and Sijm, 2003; Rathmann, 2007).</p>	Noted.
15735	15	62		62		<p>Policies at the same jurisdictional level also can yield problematic interactions: also at different jurisdictional levels. Eg an EU policy can interact with a national policy...</p>	Accepted - this is now covered in SOD
17662	15	62	1			<p>This subsection should be based on a larger set of references. An example could be: Fankhauser, Samuel and Hepburn, Cameron and Park, Jisung (2011) Combining multiple climate policy instruments: how not to do it. Centre for Climate Change Economics and Policy and Grantham Research Institute on Climate Change and the Environment working papers, 38. Centre for Climate Change Economics and Policy and Grantham Research Institute on Climate Change and the Environment, London, UK</p>	Accepted. Section modified and some references added.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
5016	15	63	1	63	49	CO2 mitigation action may not be taken without global scale regulation, but energy savings will be a different issue, because energy savings will bring economical and national security benefit even if the action is independent from other countries. Therefore, mitigation should focus on energy savings (efficiency improvement). This is no regret strategy. This argument is further explained in the following paper: "The Hartwell Paper, A new direction for climate policy after the crash of 2009", Gwyn Prins et al., Institute for Science, Innovation and Society, University of Oxford and Mackinder Program for the Study of Long Wave Events, London School of Economics, (May 2010)	No longer applies to revised 15.8
18757	15	63	24			the benefits of "less hierarchical and collaborative forms of governance" are cited; but earlier on the page, Ostrom is quoted invoking the importance of trust in agreed-upon action. Omitted is any discussion of the value and importance of formal arrangements and law precisely in fostering such trust and channeling expectations with a higher degree of reliability (due to formal procedures and threat of penalties for non-compliance). It is almost counterintuitive to suggest that informal governance is better able to instil trust when the very justification of law (e.g. a formal contract rather than an informal "gentlemen's agreement") is that it is more predictable and creates greater stability; and when often enough, legally vested rights and procedures are needed to ensure that the less economically or politically powerful stakeholders are engaged and involved through public participation, access to information and other LEGAL rules. Different positions have admittedly been taken on this question, but in this case an entire discipline's relevance is simply blended out and thereby essentially marginalized.	No longer applies to revised 15.8
6776	15	63	30		37	Although it is described that multiple benefits are created by diverse actions such as cost savings and the creation of green jobs, in fact it is very difficult to create multiple benefits. According to Tol (2012) [1], it is wishful thinking that green energy will solve the problems of sluggish growth, high unemployment, peak oil, energy security and climate change. [1] Tol, Richard (2012) Green Growth: Killing Five Birds with One Stone? In Intereconomics. Volume 47, Number 3, 151-154. Springer Berlin / Heidelberg	Noted.
18492	15	63				The quality and structure of the subsections in 15.8 varies widely, beginning with a very strong discussion of local and municipal level policies. The discussion of state and prefectural level policies (15.8.2.2 and 15.8.3) could use substantial effort to bring it up to a comparable quality.	Noted. 15.8 has been entirely rewritten. Much of it has been moved to 15.2. what remains is more tightly focused.
8357	15	64	1	66	8	How about adding table which shows regional, national and local/state mitigation target. For example, EU/UK/London, USA/California/LA etc.	Noted.
18493	15	64	6			Please compare text with that in Chapter 12 (Section 12.6 pages 36-43). The topic is the same - consistency would need to be assured, and duplications minimized.	Noted.
3133	15	65				there is no reference to the figure and the C40 in the text - need to explain what the C40 are	Noted.
5911	15	65				Figure is not referenced in the text, can be deleted.	Noted.
15601	15	65	21	65	26	Data about state actions can be updated by checking out: http://www.c2es.org/us-states-regions/policy-maps	Noted.
18758	15	65	27	65	30	RGGI is no longer an effort to develop a carbon market, it is an existing market that has seen active trading since January 2009; moreover, since 2011, it no longer consists of 10 states given the departure of New Jersey. Here, reliance on older sources resulted in a factual inaccuracy, but the cited website (www.rggi.org) contains sufficient material to update the above statements.	No longer applies to revised 15.8
3134	15	65	31			surely Tokyo example is municipal, so should be in previous section. Could use other examples here, e.g. German Laender (states) - most of which have climate change targets and policies (see [in German] http://www.umweltdaten.de/publikationen/fpdf-l/4146.pdf)	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
13723	15	65	31	66	5	Move text on Tokyo emissions trading system into section 15.5.4	Noted.
5275	15	65	4			add: It is also a matter of recognising and addressing the ways in which CC impacts the understanding and the cultures of the processes of urban development and infrastructural provision in the urban context.	Noted.
2313	15	65	28	65	30	Actually the actual reduction in RGGI emissions has been pretty dramatic. According to official data "CO2 emissions in the RGGI region have declined from approximately 184.4 million tons in 2005 to 123.7 million tons in 2009, or 33 percent." see "Relative Effects of Various Factors on RGGI Electricity Sector CO2 Emissions:2009 Compared to 2005 Draft White Paper – 11/2/10" available at: www.rggi.org/docs/Retrospective_Analysis_Draft_White_Paper.pdf	No longer applies to revised 15.8
2960	15	66	48			I don't understand what their reference to "24 businesses" means. Is the idea to be able to make more use of baseline power through night operations? Or what?	No longer applies to revised 15.8
18759	15	66	7	66	8	Since the political shift after the midterm elections of 2010 at state and local level, the states mentioned (Arizona, New Mexico, Oregon and Washington) have all abandoned plans to develop emissions trading/cap-and-trade systems.	Noted.
5276	15	67	44			ADD: Several non financial factors play a role in this: perceived political gain and losses, image, and objectives; local definitions and perceptions of quality of life; taking into account poorer people, competition between innovative cities....	Noted.
3135	15	67				too many US examples (except the brief mention of Sao Paulo at the end)	Noted.
13235	15	68	13	69	25	The discussion of overlapping policies at national and sub-national level (in particular with a national cap-and-trade scheme) should acknowledge that subnational policies have the effect of shifting the composition of overall abatement under the national cap between regions and sectors, and in many cases this is the desired effect. The same goes for sectoral policies (eg renewable energy targets). The overall cap and permit trading price is simply the residual policy action after subordinated policies take their effect. Indeed, this is less efficient than the theoretical ideal of having only a cap and trade scheme; but in reality there will always be specific policies that have an impact on emissions levels.	Accepted; text modified
2961	15	68	20		42	It seems to me that leakage deserves more discussion than this. It's a significant issue for policymakers. A good starting point would be Joshua Elliott et al., Unilateral Carbon Taxes, Border Tax Adjustments and Carbon Leakage (2012), available at http://ssrn.com/abstract=2072696 .	Accepted. Leakage is now covered in other chapters, including chapters 3 and 5
5018	15	68	13	69	25	The leakage issue is a fundamental flaw in the current mitigation policies, which only focus on process emission (carbon production) and pay no or little attention to carbon consumption. Policy coordination and creative accounting methodology are needed not only among nations but also between local and central governments. The issue is elaborated in the following paper: "Climate-change policy: why has so little been achieved?", Dieter Helm, Oxford Review of Economic Policy, Volume 24, Number 2, 2008, pp.211-238.	Noted.
3136	15	69	27			the Convention' - first mention needs to spell out that this is the UNFCCC, then can refer to 'the Convention' subsequently.	Noted. The reference to the UNFCCC and the Convention is no longer included in the revised version of this Section 15.9
5277	15	69	6			ADD: In France, some adaptation packages in the territorial climate and energy plans serve this purpose of experimentations to see if they are replicable on other territories with different natural and socio economic and political conditions	Noted.
4998	15	7	15	8	25	This introduction should be much more concise and simple to be less than two paragraphs.	Noted.
12930	15	7	27	8	19	This material can be dramatically shortened: I suggest that it is not necessary to summarise results here: a very short presentation of the chapter content is enough.	Noted. Will be rewritten.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
12044	15	7	27	7	44	The paragraphs seem to already include main findings (repetitive to the executive summary) instead of providing the background of the analysis and guidance on the logic of the document. Also for the sake of shortening the document it would be advisable to concentrate on providing the framing for the analysis and rationale for the structure of the chapter. Text between lines 27 and 44 could be deleted.	Noted. Will be rewritten.
6133	15	7	28	7	29	The text describes as "standards for appliances and buildings to promote energy efficiency". How about adding "automobile" between appliances and buildings. It is proved that introduction of fuel standard for automobile is effective (refer to lines 2-3 of page 30 of this chapter).	Noted. Will be rewritten.
13755	15	7	32	8	22	This material presents a summary, not introduction. Please merge with summary.	Noted. Will be rewritten.
13229	15	7	32	7	36	Tradeable permits "main advantage cost-effectiveness": the same goes for emissions taxes. In addition, a key advantage of tradable permits in practice is that they allow an emissions price to be formed in markets, which is the strong preference of many governments and many industry stakeholders.	Noted.
13708	15	7	35	7	36	Replace by "Emissions trading and project-based offset systems have spread rapidly since the mid-2000s and triggered cost effective reductions. However, allocation of allowances is prone to political influences that can lead to negative redistributionary impacts".	Noted.
6134	15	7	35	7	35	what does "increasing in frequency" mean?	Noted.
13709	15	7	37	7	44	Replace by "Voluntary agreements require a credible threat of regulation in order to be environmentally effective. A governmental review or consultation process during implementation, as well as accompanying measures such as subsidies for energy audits and equipment can improve their performance. Under these conditions they provide high flexibility and are politically feasible."	Accepted. Regulatory threats are mentioned.
7792	15	7	37		44	Support the descriptions on the achievements through Voluntary Action Plan in Japan cited as (Tanigawa, 2004) and (Sugino and Arimura 2011). In addition to these documents, Yamaguchi M. (2012) also proved that voluntary approaches "may work well" in various business cultures and traditions. Besides, Chen and Hu (2012) proved that voluntary GHG programs in Taiwan achieved "actual CO2 reductions highly exceed target goals, e.g., 33% more than the target value of 4.02 Mt during the 5 year span for the six industrial sectors". (Chapter 7 of "Climate Change Mitigation – A Balanced Approach to Climate Change-" Mitsutsune Yamaguchi, et al., Springer (2012)) (“Voluntary GHG reduction of industrial sectors in Taiwan” Liang-Tung Chen and Allen H. Hu Chemosphere 88 (2012))	Accepted. Literature added. in section 15.5.5
15561	15	7	38			Voluntary agreements have (the potential to?) be...	Accepted. Text modified in section 15.5.5
6135	15	7	38	7	38	It is empirically true that a voluntary agreement can be environmentally effective in several regions. However, evidence is needed to prove it have been cost effective. MAC will never be equalized.	Noted. Literature suggest mostly low to negative costs opporunities were addressed by VA, as such costs are not high.
12022	15	7	39	44		With regard to VA, fear of lost reputation works very significantly as well.	Accepted. Text modified accordingly in section 15.5.5

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
10038	15	7	41	7	44	This part should be deleted completely because there are successful examples of "voluntary target scheme" in the world. Each industry in Japan has voluntary target and the voluntary target scheme has played a big role, as described in (Yamaguchi, 2012, page35 and 154), (Manuel, 2010, page 6 and 13), and (Yamaguchi, 2010, abstract). In addition, there is also a successful example of "voluntary target scheme" in Netherlands, as shown in (Martijin, 2002, page162). These literatures are listed in the No63 line of this table.	Accepted. Text modified accordingly
18467	15	7				The introduction comprises a lot of the same text as the Executive Summary. It would be more useful (and would save space) to shift the results of Ch 15 that currently appear in the intro to the Executive Summary (or simply to remove the duplicated text), and focus the introduction only on drawing a map of the chapter for the reader including e.g. an explanation of how sections 15.5 and 15.6 fit together. (There's already great text on this on p. 49 at the beginning of 15.6.1 - you could use that!)	Accepted.
18715	15	7	16	7	17	Broad wording "the diversity of institutional and governance structures that have been created across the world" suggests it might include governance levels other than the domestic (national and subnational); specification may be needed ("the diversity of national and subnational ... structures")	Accepted.
18494	15	70		71		There is not a single reference in 15.9. Section should be rewritten to clearly focus on the peer-reviewed literature on the national considerations for capacity building.	The revised version has now been based on peer reviewed materials and more references to developing countries.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
9918	15	70	5			<p>An analysis of 104 empirical studies of innovation to change showed the following barriers, that could refine and structure the discussion of barriers:</p> <p>Issues of resourcing (76%), for instance, “not enough resources” (Post and Altman 1994), “lack of adequate resources such as time and staff” (Adams and McNicholas 2007), limited or no budgeting (e.g. Harris 2000 and Anumba et al. 2006), access to capital and lack of time (Rohdin and Thollander 2006).</p> <p>Issues of capabilities (75%), for instance, “low technology literacy” (Stewart, Mohamed and Marosszeky 2004), “ill-equipped in terms of training and expertise” (Whitaker 1987), “employees are not trained” (Tamimi and Sebastianelli 1998), “lack of understanding” (Waldron 2005), “lack of technical skills” (Rohdin and Thollander 2006), “lack of skill, knowledge and expertise” (Kirkland and Thompson 1999), etc.</p> <p>Issues of communication (64%), for instance, “communication barriers” (Heide, Grønhaug and Johannessen 2002), “communication overload and distortion” (Allen 2002), “lack of communication within the team” (Attaran and Nguyen 1999), “lack of communication among those sharing responsibility for different aspects” (Kunda and Brooks 2000), “poor communication practices that damaged employee commitment to projects” (Jacobs et al. 2006), “tension among departments arising from the incompatibility of actual or desired responses” (Aggarwal 2003), etc.</p> <p>Issues of organizational structure (62%), for instance, bureaucracy (e.g. Molinsky 1999; Borins 2000; Abdul-Hadi, Al-Sudairi and Alqahtani 2005), “salary structure” (Al-Qirim 2007), “complexity, centralization, and formalization” (e.g. Allen 2002), “rigid organizational boundaries” (Butler 2006), “departmental fortresses” (Cicmil 1999), and organizational structure (e.g. Scarbrough and Lannon 1988; McGaughey and Snyder 1994; Yauch and Steudel 2002).</p> <p>Abdul-Hadi, N., Al-Sudairi, A. und Alqahtani, S. (2005): Prioritizing barriers to successful business process re-engineering (BPR) efforts in Saudi Arabian construction industry, In: Construction Management & Economics, Vol. 23, Nr. 3, S. 305-315.</p> <p>Adams, C.A. und McNicholas, P. (2007): Making a difference: Sustainability reporting, accountability and organisational change, In: Accounting, Auditing and Accountability Journal, Vol. 20, Nr. 3, S. 382-402.</p> <p>Aggarwal, N. (2003): Organizational Barriers to Market Orientation, In: Journal of Management Research, Vol. 3, Nr. 2, S. 87-97.</p> <p>Allen, R.Y.W. (2002): Assessing the impediments to organizational change: A view of community policing, In: Journal of Criminal Justice, Vol. 30, Nr. 6, S. 511-517.</p> <p>Al-Qirim, N. (2007): The adoption and diffusion of E-commerce in developing countries: The case of an NGO in Jordan, In: Information Technology for Development, Vol. 13, Nr. 2, S. 107-131.</p> <p>Anumba, C.E.H., et al. (2006): Understanding structural and cultural impediments to ICT system integration: A GIS-based case study, In: Engineering Construction & Architectural Management, Vol. 13, Nr. 6, S. 616-633.</p> <p>Attaran, M. und Nguyen, T.T. (1999): Design and implementation of self-directed process teams, In: Management Decision, Vol. 37, Nr. 7, S. 553-561.</p> <p>Borins, S. (2000): What Border? Public Management Innovation in the United States and Canada, In: Journal of Policy Analysis and Management, Vol. 19, Nr. 1, S. 46-74.</p> <p>Butler, J.C. (2006): Ten Lessons Learned: Data Warehouse Development Project, California Department of Fish and Game. In: CrossTalk: The Journal of Defense Software Engineering, Vol. 19, Nr. 10, S. 16-20.</p>	The comments on the barriers are noted and appreciated. As a result of the Las discussions at Vigo, barriers are no longer prominent in the revised draft.
5278	15	70	5			<p>ADD: to the institutional barriers? add: sectoral approach by services, lack of competence, low priority given to CC, lack of translation of knowledge into practices/policies, lack of policy enforcement, political ideology,</p>	There are indeed numerous barriers. The comments on the barriers are noted and appreciated. As a result of the LAs discussions at Vigo, barriers are no longer prominent in the revised draft.
6159	15	71	29	71	29	After Aaheim et al. 2009, "Section 1.4.5 of this report".	Done
6160	15	71	30	71	30	It seems like the term policies mean policies for adaptation. If so please make it clear. If not also meke it clear.	Done

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
6713	15	71	9			"Food policies" is important, but it is one of many other important climate policies. It is not adequate to pick up only "food policies" here.	Comment is noted. This is a typo error, should have been "good" policies rather than "food" policies.
5280	15	72	12			ADD: it also means, for policy makers a new policy culture that take into account probable and uncertain local and long term/future impacts of CC and integrate this into an ecosocial system vulnerability analysis ...	Good comment, but it would be difficult to support an appropriate claim with the relevant literature.
5279	15	72	36			ADD: France has decided to legally oblige communities of 50 000 and over to integrate adaptation as well as clean energy objectives in all planning documents while leaving 'free' the methods by which these will be attained, following a territorially based analysis of both GHG emission quantity and sources and adaptation strategy (following a natural vulnerability analysis). This vulnerability includes in some of the most experimental territories an analysis of the social, institutional and economic activities and vulnerabilities. But adaptation raises a key issue for policy making: profoundly anchored in specific territories, it remains difficult to develop nation wide adaptation strategies that go beyond simple statement of general objectives...	Good comment, but it would be difficult to support an appropriate claim with the relevant literature. Moreover, LAs were instructed not to rely on government documents; everything should come from peer-reviewed academic literature.
12208	15	73	21ff			You write that 'particularly the BASIC countries and emerging economies have set up financing schemes'. 1.) What are financing schemes? Do you e.g. refer to sources of finance, institutions, facilities or funds? (compare also Table 15.4 - here you say "sources of climate finance"; 2.) Is your statement ('particular') justified and based on counting countries? What about countries like Bangladesh, Philippines, Ethiopia, Rwanda, countries that establish an NIE under the AF etc.?	Noted. Revised to reflect comment.
5281	15	73	7			COMMENT I entirely disagree: since 2004-2005 almost all UNEP, UNDP, EU and World Bank texts on development and aid integrate CC mitigation and energy (such as in the Millennium development goals). Some national development agencies are following the lead. PNUD. Human Development Report 2007/2008. Oxford University Press, 2008. 399 p. PNUE. Assessment of Impacts and Adaptation to Climate Change Final Report of the AIACC Project. 2007, 250 p. UNEP. CCCC. Kick the habit. A guide to climate neutrality. PNUE. 2008. 202 p. UNEP. Human Development Report, 2007/2008. World Bank. Towards a strategic framework on climate change and development for the World Bank Group. Concept and issues paper consultation draft. 2008. 46 p.	Indeed, development agencies adopted documents to acknowledge the need to support mitigation and adaptation problems. Nevertheless, there is little evidence that these documents resulted in concrete steps analyzed in peer-reviewed literature
6714	15	74	2			It is better to clarify the criteria of picking up these eight funding mechanisms among others. I am afraid that the list is old. Also it is better to write the ending year if it is fixed in "Operational date". Now the start year is only mentioned. For example, Hatoyama initiative is declared at COP15 which says that "As for assistance up to 2012, under this initiative Japan will provide financial assistance to developing countries".	Noted. Already covered in Chapters 13 and 16. Section therefore revised to delete. Subject no more appropriate here. Nevertheless, note that not all the funds have ending year.
12209	15	74	8			On your statement "Most low-income...." 1. Compare comment 73/line 21ff; your statement is unclear as it is not clear what you mean by 'financing scheme' and the conclusion that these countries rely on multilateral funds e.g. Do you refer to the institutions e.g. or do you refer to the sources of finance? There is a difference between the source of funding and the institutional set-up for distributing it. 2. If you refer to financing schemes in the sense of institutions then your sentence is not correct. Every country has institutions and public financial management systems in place, which are i.a. being used to channel funds from development cooperation.	Noted but not necessarily agreeing to your point of view.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
12210	15	74	9			<p>a) You make very general statements and suggest conclusions on the state of climate change policies and implementation in developing countries which are not based on arguments and which are not based on scientific findings. ("Besides, the policies.....Such somehow renders their national climate change policies ineffective and susceptible to external risks". (what kind of external risks)</p> <p>b) You implicitly suggest that a dedicated climate change fund is a prerequisite for effectiveness. This is not a scientific finding and evaluations. Many countries are still in the process of setting up dedicated institutional arrangements and it is too premature to draw any conclusion on the quality of operations and impacts e.g.</p>	Noted and corrected.
5282	15	75				TAKE OUT figure 15.5 or formalise style	Accepted. Figure deleted
6718	15	75	11	75	14	It is often said that "More immediate priorities such as access to water, food security and energy have been the main drivers for climate change agenda." However, it is not clear how "access to water" drives climate change agenda. In Chapter 15, several water issues are discussed. They are irrigation, water-use regulation for ethanol production, ability to raise prices for water, water conservation, water quality and projects to improve water supply to cope with lower and irregular rainfall. No explanation of link "access to water" with climate policy. Please explain how "access to water" drives climate policy. Also please explain what "skill leadership" means to drive climate policy from the points of water, food security and energy.	Noted. However space allowed is too short to provide detailed explanations.
12211	15	75	15			<p>You state that national institutions dedicated to climate change are more successful if such institutions or agencies are coherent with cabinet entities...."</p> <p>Compare my comment on page 74/line 9: I think there is little scientific evidence for such a general statement which suggests that this is the best option for every country.</p>	Note however that there a lot of experiences taking place in developing countries which are not necessarily covered by scientific literature. Such good policies cannot be swept under the carpet under the guise of "not covered by scientific literature". One needs to work in the public sector to appreciate such.
12213	15	75	22			I thought the primary role and function of the IPCC is to synthesize existing scientific literature and debates. Unless the suggestions presented here reflect a scientific debate - if so pls. insert the respective literature - the task of drawing conclusions should be left to political debates.	Accepted. Suggestions deleted.
18495	15	75	22	75	41	Please be careful with policy prescriptive language (e.g. wording such as 'should', 'suggestions', 'recommendations'). Note the IPCC assesses literature and is therefore policy relevant, but not policy prescriptive.	Accepted. Suggestions deleted.
12212	15	75	75			On this point: There is a huge body of literature - besides the two you are referring to and which are missing in the list of references- on the topic of aid or development effectiveness or public financial management just to cite two relevant fields. It is not clear why you draw this and not another equally relevant/possible conclusion.	Noted. Some of the literature you are referring had already been covered in Chapter 13 and also quoted by the two references cited in their papers. One therefore needs not necessarily bring all literature quotes here.
2319	15	75	43	75	43	The data gap is a very important issue that must not be forgotten. The current statistic information did not help the analysis of the mitigation and adaptation needs and activities. For this reason the absence of this kind of data sources, and the necessity to face and solve this lack of information, should be an important outcome in all the chapters that must lead with the financial issues in the AR5. This is a very important issue that must not be forgotten.	Noted.

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
3284	15	76	1			<p>It is a good idea to have introduced more than two categories of policies.(continues)</p> <p>It may be, though, a good idea to give the author(s) more time to refine the proposed categorisation of policies asking him(her, them) to refer to many of other similar multi-faceted policy categorisation proposals.</p> <p>For example, World Business Council for Sustainable Development(WBCSD) has proposed in its publication, WBCSD(2010) "Enabling frameworks for technology diffusion", five categories of national policies:</p> <ol style="list-style-type: none"> 1) Strong signals from governments towards toward low-carbon growth, either through national targets or regulatory measures. 2) Adequate institutional and regulatory frameworks to support technology development and/or deployment 3) Adequate absorptive capacity 4) Economic and financial incentives, such as funding, financing, fiscal or tax measures and the absence of perverse subsidies or trade barriers. 5) Removal of barriers to energy efficiency. <p>It seems to me that the draft proposal only refers to 4), 5) and 2). The author(s) might have the cost-curb of McKinsey & Company in his(her, their) mind(s), which is good, but the world may be more complicated.</p>	Noted. Text modified
13622	15	76	15		18	See comment 61 above	Rejected. As comments are not given
18496	15	76	3	76	8	<p>It is unclear upon what this text is based, and why it is placed here. The output of Section 15.5 does not come up with the same conclusions, and the terminology is inconsistent with that laid out in 15.3 for evaluating policies. The figure is logistically inconsistent, and seems to make recommendations that again do not match the output of the chapter (e.g. sequential policy steps, starting with carbon pricing?)? I would recommend removing this entire 1/2 page including the figure.</p>	accepted. Text modified.
2320	15	76	1	76	6	The logics of the graphic and steps should be clarified, must be explained that, those steps are a very, very small example of options in reducing GHG emissions.	Accepted. But graph will be deleted in SOD
14308	15	77	1	77	24	<p>These are similar to the 3 legs of an effective policy framework identified by the Stern Review (carbon pricing, technology policy, and removing barriers to change (e.g. behavioural)). See http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/sternreview_index.htm</p>	Noted. Text modified using the reference.
5017	15	77	10	77	19	<p>In addition to the three measures described in this paragraph, domestic competition among players within local market will be a very important incentive/mechanism for efficiency improvement. Fuel efficiency improvement among Japanese automotive companies has been accelerated by severe competition among the companies to be the best among competitors. The role of domestic competition for technology innovation is explained in the following paper: "Success as the Source of Failure? Competition and Cooperation in Japanese Economy", Hiroyuki Tezuka, Sloan Management Review, Winter 1997 (Vol.38 No2), Cambridge, MA</p>	Accepted. This is covered in transport section (ch8)
5283	15	77	12			<p>processing information... ADD: Firms and individuals' behaviours are not only economically rational, they use multiple rationalities, only in part owing to: costs of acquiring and processing information; social and individual representations, values, beliefs and ideas about CC, its impacts and especially about an individual's capacity to act and have an effect on CC are key.</p>	Noted. But due to space limit the text has to be simple

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
5284	15	77	13			COMMENT: This phenomenon has become widely known in terms of behavioural economics since the AR4. / The links between information, rationalities, decisions and behaviours have been a major subject of study for a century in sociology why mention specifically behavioural economics?	Noted. Text deleted.
13230	15	8	11	8	12	Sub-national initiatives "backed by theoretical literature": I doubt that the theoretical literature had much influence in spawning sub-national initiatives. Rather, sub-national initiatives are usually borne out of a political will or impetus for sub-national governments to make some tangible contribution on climate change mitigation. They are often in conflict with national policies, or contribute nothing extra in aggregate, but cater to local preferences.	Noted.
10225	15	8	17	8	18	Isn't this leakage?	Noted.
2944	15	8	20	8	22	"the link is not obvious" isn't very informative. Even "complex" would be better.	Noted.
10226	15	8	21	22		There is also a huge potential for conflict/trade-offs in this sector/domain, i.e. bioenergy or food production, reforestation/afforestation or bioenergy/food, urbanization or agroforestry etc. (also relevant for p. 7, l. 11-13)	Noted.
14879	15	8	27	9	15	a graph depicting the relation between institution, governance, policy and paradigms would be helpful	Noted.
12045	15	8	4	8	19	See comment 2: these paragraphs also already include conclusions and should be moved to the conclusions section or deleted. At this point in the chapter they are not yet sufficiently supported by analysis.	Noted. This is a definition of institutions and governance and an explanation of how governance shapes policy. Will endeavour to add references.
11081	15	8	9	8	10	This is very true. Tradable permit programmes are not only problematic but also very vulnerable when policy coordination is imperfect, which is always the case in the real world.	Noted. Will be rewritten.
6136	15	8	9	8	10	Some reasons or evidence may be necessary to probe why tradeable programs are particularly problematic when policy coordination is imperfect. One example I can think of is the case where, in one hand, cap and trade policy is adopted, and on the other hand, renewable obligation or energy efficiency standard are introduced applying to the same players or sectors.	Noted.
18468	15	8				A lot of terminology is used in this section that is not clarified, e.g. legislation, plans, policies, strategies. Please clarify their differences up front. Consistent application of these terms throughout the chapter would be ideal.	Accepted
18470	15	8				This section is currently 14 pages. A lot of the messages of the section get lost in examples which are sometimes unclear how they relate to the rest of the chapter. It may be useful to significantly shorten the section (to e.g. max 6-7 pages) and focus on pulling out the key messages.	Accepted
18716	15	8	42	8	42	"how these decisions are made, and whether and" - I would add: "how these decisions are made, HOW WELL THEY WORK, and whether and"	Accepted
18717	15	9	23	9	25	"In many (though not all) high-per-capita-emission developed countries, provincial and local governments have been active in autonomously developing the policy framework for climate mitigation." My observation has been that in developed countries, the impetus also often flows from the national/centralized level: I am e.g. thinking of all major renewable energy and energy efficiency legislation as well as energy taxation and emissions trading in Germany, where the federate Länder merely implement the nationally defined objectives; or the comprehensive national climate laws in many countries; or the (albeit failed) Waxman-Markey/Lieberman-Kerry legislative initiatives in the United States, and the current fallback to EPA regulations for emissions from mobile and stationary sources; or indeed throughout Europe the inordinately influential role of the EU in adopting governance frameworks for climate policy that are then mandatory to the (national governments of the) Member States. So while the local and provincial levels are undoubtedly important, I would not contrast their role to that in developing countries so emphatically	Accepted: emphasis changed

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
12047	15	9	26	9	28	The last two sentences of the paragraph don't fit in the logic of the text before and 'drop out of the sky' without clear line of argumentation. In general the paragraph lacks references.	Accepted
12048	15	9	30	9	30	The term "proliferation" of policies seems inappropriate at this point, as it indicates a negative, unnecessary or unintended development. If the intention of the authors is to criticise the development of more and more climate policies they need to be more specific and provide argumentation for that. Same applies to the title for section 15.8.2	Accepted
15730	15	9	37	9	37	"EU Directives provide the basis for national actions in several European countries". In all! EU countries. There are almost no national actions in EU 27 that are not based on an EU policy framework...	Not applicable now - table removed
5251	15	9	48	10	2	The UK's Climate Change Act is based upon a false and dishonest prospectus. The fancy emissions reductions targets completely overlook those emissions 'embedded' in imports. They are therefore ludicrous, as will be seen from further comments below. For this reason the whole section as it relates to industrialised countries is grossly misleading and needs to be rewritten.	The chapter welcomes all comments and will ensure that all data used is references
5260	15	9	8	9	9	ADD: Young (2006) shows that an institution's identity and structure can prevent it from reaching environmental objectives (institutional misfit). Important factors playing a role are: spatial and temporal which require institutional culture to adapt to ecological time (long term) and spatial (both local and global but differentiated at the local levels) Young et Ekstrom (2009).	Added selective citations
2816	15	9		22		Catalogue of national legislation excludes notably Israel and Guyana. Climate plans for these countries are summarised in Clapp et al (2010)("Low Emission Development Strategies", OECD/IEA, http://www.oecd.org/env/climatechange/46553489.pdf), with references to source documents for both countries. see e.g. table on pgs 25-26 of Clapp et al	Not applicable now - table removed
2817	15	9	29	10	14	Criteria for evaluating success of national climate plans are proposed in Clapp et al (2010) "Low Emission Development Strategies", OECD/IEA, http://www.oecd.org/env/climatechange/46553489.pdf , which include e.g. linkages to national budget, integration with development and economic strategies (see pg 18 of Clapp et al).	Incorporated into SOD

Expert Review Comments on the IPCC WGIII AR5 First Order Draft – Chapter 15

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
5261	15	9	29			<p>ADD: Some French cities started implemented local climate plans or climate strategies in 2006. But in 2012, the national government established compulsory Territorial Climate and Energy Plans for all public administrations representing at least 50 000 people, including several innovations: 1) the plans include both mitigation and adaptation measures – but more experimental for the last) and 2) an energy component. These plans adopt the EU 20/20/20 objectives. Then, 3) the PCET supersede all other planning documents: mobility, urban planning, transports, land use, construction, non carbon mobility..., must conform to the PCET. The adaptation segment in most cities focuses on water management and urban heat. Low or non carbon energies are strongly promoted, as well as passive forms of energies such as isolation.</p> <p>Adaptation and mitigation are associated in the increased use of parks and vegetation on buildings but debates arise as, for example, the orientation of building. A north-south orientation may be good for heat in the winter but will be too hot in the summer and could increase air conditioning use (most of France is expected to consume more energy for cooling of in the summer than for heating in the winter by 2040-50).</p> <p>The legally binding aspect concerns only administrations. The plans are voluntary for other actors on the territory (industries, other firms, universities...) who are encouraged to sign a charter. No penalty (so far) has been planned for communities who do not reach their targets.</p> <p>While the different PCETs are supervised from far by the National Environment and Energy Agency (ADEME, which also developed a carbon footprint evaluation method), the Agency also funds specific, experimental and promising or ambitious PCETs. Note that little technological innovation is actually used. Rather, the emphasis is on policy innovation through new linkages between services, and efforts at mainstreaming the 20/20/20 climate objectives throughout the sectors, departments and institutions.</p> <p>Main methods are:</p> <p>Urbanism: land use aimed at decreasing co² (a polycentric approach is recommended in most PCET and some go further by adding the criteria of multifunctionality of services)</p> <p>Mobility: decreasing the status and place of cars in daily life</p> <p>Building codes: maximum co² emission standards and energy consumption by m²</p> <p>Education programmes</p> <p>Industries: assistance in reducing energy consumption</p> <p>Administrations: all areas of competences and responsibility plus own activities, buildings, engines...</p> <p>Interestingly, there are only few economic measures and tools. For example, PCET do not include cap and trade or emission exchanges.</p>	<p>Table is no longer being used. This is useful information. But it would be helpful to have peer reviewed publications for citation.</p>