



**IPCC Fourth Assessment Report, Working group III**

***Government Review of the Final Draft SPM***

**Comments Batch A, B and C combined**

**SECTION A, B and C with co-chairs responses (April 26, 2007)**

**Comments of Governments and Organisations on the WGIII SPM**

This file includes co-chairs proposals for processing. Yellow marked numbers have been agreed with CLAs of respective chapters already.

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						<b>GENERAL COMMENTS</b>	
SPM-1	A	0	0	0	0	When quoting the TAR as a frame of reference, please consider highlighting the data or claims to which is being compared to provide some scope. (Government of Canada)	Only feasible in some cases
SPM-2	A	0	0	0	0	We think that is important the inclusion of a paragraph on gaps in knowledge and future research needs as an important part of an SPM. (Government of Cuba)	Reject; see TS
SPM-3	A	0	0	0	0	We thank WG III, the WG III TSU, and the author team, for their efforts in producing this final draft SPM. We feel that overall, the document is very good. (Government of New Zealand)	Thank you
SPM-4	A	0	0	0	0	We have a concern that the document is more complex than it needs to be. While the detailed information may be useful for some specialist readers it detracts from the readability of the SPM as a whole. We would support any moves to simplify the document, in particular by moving non-essential material to footnotes or to references to the main report, and by simplifying figures. (Government of New Zealand)	Simplify where possible

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SPM-5	A	0	0	0	0	Throughout the SPM, stabilization of CO2 equivalent concentrations is now used. In some cases, CO2 eq, CO2 only, "TAR ppm" are used together. This will be very confusing for policy makers. We believe a box is needed to clearly guide policy makers from the transition from CO2 only, to CO2 eq. It needs to be made clear that the studies are now considering all gases and that TAR scenarios included only CO2...and, for example, a TAR 650ppm equates to a much higher CO2eq scenario. In Figure SPM7 in particular, a much smoother means of making the transition to thinking in terms of CO2eq needs to be made. (Government of Canada)	OK, add box and make sure units are used consistently  FOR DISCUSSION Holger to produce a box
SPM-6	A	0	0	0	0	This version of the SPM includes a large amount of valuable information. However, the language still requires much refining and greater consistency in this document, in order to avoid confusion for policymakers. (Government of Canada)	See #A4
SPM-7	A	0	0	0	0	This report I believe fails to bring to policymakers' attention the fact that most analyses suggest that cost-control measures could prove rather useful in facilitating the adoption of emission reduction targets by a greater number of countries, and by facilitating the adoption of relatively more ambitious targets than in their absence. Specific writing suggestions at the end of these comments. (International Energy Agency)	See detailed comment
SPM-8	A	0	0	0	0	There is insufficient information of how the timing of reductions might affect mitigation costs. (Government of Canada)	See detailed comment
SPM-9	A	0	0	0	0	There is a huge difference between the estimated mitigation potential in this SPM and the one released in 2001. The TAR came up with 3.6-5 Gt CO2eq/yr in 2020 while the current	Misunderstanding; will be clarified in para 4 with bullet on TAR comparison

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						<p>report provides an estimate between 16 to 30 Gt CO<sub>2</sub>eq/yr in 2030. This difference is rather huge and represents a significant advance in comparison with the TAR, and should be explained somewhere in the text. Note that at the final meeting of IPCC WGI in Paris this year some governments wished to see the IPCC's current findings well linked to the work done by the IPCC before (means the TAR, etc.). Another important thing, which I noticed, is that "Buildings" seems to become the priority sector to address in the nearest future in terms of mitigation measures and actions. As it can be seen from Table SPM 1 and Figure SPM 6 this is the sector which would secure the biggest gains at reasonable cost. If the case, it should have a serious impact on development policies in future. The IPCC should stress on that in section C.4 (optional). (UNEP)</p>	
SPM-10	A	0	0	0	0	<p>The SPM for this WG seems to have more jargon and acronyms than those of other WGs. Although a list of acronyms are provided in a glossary, all should be defined at least the first time they are used in the SPM especially since this should be a stand alone document (and perhaps the only one policy makers read). A few examples are provided in specific comments. (Government of Canada)</p>	In printed booklet specific glossary will be added; some terms can be simplified and in some cases explanations can be given
SPM-11	A	0	0	0	0	<p>The SPM discusses the cost of CO<sub>2</sub> mitigation, but there is a conspicuous lack of a corresponding estimate for the cost of not doing anything to mitigate GHG emissions. While the literature is still evolving in this area, it is important to at least qualitatively compare mitigation costs with the economic costs of not doing anything. (Government of United States of America)</p>	Para 20 SPM is on that (WG II stuff), but US wants to delete the relevant text there (see #A771); regarding that comment: text of bullet in para 20 can be improved in response to the comment
SPM-12	A	0	0	0	0	<p>The SPM contains 26 headline statements that seems to be</p>	Reject; too cumbersome to do that now

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						excessive. The authors should think about consolidation of some of them or (maybe) reorganization of the text as a whole (optional). Compare, the IPCC WGI SPM contains 12 headline statements. (UNEP)	
SPM-13	A	0	0	0	0	The report is coherent and well written, and provides a good coverage of the salient features of WGIII Report. (Government of Pakistan)	Thank you
SPM-14	A	0	0	0	0	The normal practice of IPCC SPMs should be followed and therefore all references to literature sources in and below captions to graphs should be removed , apart from references to the AR4-WG3 chapters. This includes language as 'adapted from ...' in Figure SPM.3. (European Community)	OK, remove literature references, but retain reference to section, figure)
SPM-15	A	0	0	0	0	The Ministry of Science, Technology and Environment on behalf of the Cuban Government appreciate the efforts undertaken and evidence provided by the International Group of Experts of WG III of the IPCC for this sound and accurate report on mitigation that is crucial to promote fair international efforts to address the climate change causes.  The SPM provided the writing team highlights the main issues related to the mitigation efforts. There is good news to know that an important economic potential for low term emissions reduction already exists, and that efforts towards levels not higher than 550 ppm are not prohibitive from the economic point of view for the international community. Despite this, we acknowledge with deep concern that at present, emissions from Annex 1 countries continue to rise. Cuba, as a SIDS, has the same problems and risks than other isolated countries. Impacts as sea level rises, temperature	Thank you

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						<p>and global pollution increases, and negative effects from strong natural disasters (as more intense hurricanes and hard floods and droughts), among others, are valid for our country too. For this reason are executed our established Mitigation and Adaptation Programmes.</p> <p>Our country has low levels of GHG emissions, but nevertheless realize many actions in order to reach high levels of energetic efficiency, working in different fronts: improving the efficiency of –and decentralizing- electricity generation, mainly based on fossil fuels; increasing renewable energy share; modernizing electro domestic appliances in homes; utilizing more efficient electric light bulbs; changing the kitchens from LPG and kerosene to electricity; among other measures which help to reduce the consumption of fuels and electricity, and GHG emissions too.</p> <p>(Government of Cuba)</p>	
SPM-16	A	0	0	0	0	<p>The IPCC seems to be confident of utility of nuclear power and “advanced nuclear power”. At least this is the impression coming from table SPM 1 where “nuclear” is listed among mitigation technologies available and those to be introduced. Given continuous political debate (for example the recent EU summit which discussed the future energy policy and climate change mitigation measures) and significant controversy related to the nuclear energy, the IPCC might wish to make a special reservation on the use of the term “nuclear power” in the mitigation context (optional).</p> <p>(UNEP)</p>	Reject, nuclear is treated as one of the mitigation options in the report
SPM-17	A	0	0	0	0	<p>Stabilising long-term greenhouse gas concentrations at around 450 ppmv CO2 eq. gives a 50 % chance to limit global mean temperature increases to 2 degrees Celsius compared to pre-industrial levels. In order to achieve this,</p>	This is done in chapter 3 and reflected in para 17 of the SPM

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						global greenhouse gas emissions should peak within the next 15 years and decrease by up to 50% by 2050 compared to 1990. This requires very significant worldwide changes in current emission trends. The window of opportunity to reach this ambition level is closing fast. The report therefore should present objectively the recent research (in comparison to the TAR) that addresses the mitigation pathways that can attain this 2°C target. This is crucial to give policy makers a correct estimate of the achievability of this ambition level. (European Community)	
SPM-18	A	0	0	0	0	Results and conclusions presented in this document will undoubtedly serve to broaden the range of information available to policy makers already involved in the subject and to introduce to those that will become involved in the subject from now onwards. (Government of CHILE)	Thank you
SPM-19	A	0	0	0	0	Reduction of climate change risks by mitigation should be mentioned earlier. (Government of Austria)	Specific suggestion?
SPM-20	A	0	0	0	0	R&D is considered a specific policy option within the TS and the individual chapters, but is not discussed as an important policy option in the SPM. Insert text from lines 29 to 36 of TS page 93. See also Table TS 19. (Government of United States of America)	is covered in para 23 and 22
SPM-21	A	0	0	0	0	It seems that the document is missing the implications of potential positive feedback loops that may cause efforts to stabilize at higher atmospheric concentrations to be fruitless (e.g. feedbacks such as the release of CH4 from arctic bogs). A notable exception is the reference to the inability to determine how agricultural and forest sinks may react to higher CO2 concentrations.	Reject, Issue is covered in paragraph 23 (and also in para 18 and 22)

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						(Government of Canada)	
SPM-22	A	0	0	0	0	It is welcome that only statements of a high confidence have been included. (Government of Austria)	Thank you
SPM-23	A	0	0	0	0	It is noted that the SPM does not address gaps in knowledge and needs for additional research. (Government of Austria)	Is left to TS, because no short summary possible
SPM-24	A	0	0	0	0	It is not stated the cut-off date for documents included in this section. (Government of CHILE)	Reject, not done in previous IPCC reports either
SPM-25	A	0	0	0	0	It is implicit in the stabilization modeling that advanced technologies will be available in the future to facilitate achieving long-term climate goals. However, there is no discussion in the SPM of the role of advanced technologies and operational changes and the R&D efforts required to develop them. Consider incorporating elements from the discussion on TS page 23 line 11. (Government of United States of America)	Is covered in para 18
SPM-26	A	0	0	0	0	Is suggested to include a Glossary (Government of Austria)	For freestanding publication of SPM separate Glossary will be included;
SPM-27	A	0	0	0	0	In order to keep consistency with other IPCC working groups' reports, please replace "ppmv" with "ppm" in this report. (Government of China)	Accept: use "ppm" as this is the IPCC standard
SPM-28	A	0	0	0	0	For GDP, it is suggested to use GDP(MER) instead of GDP(PPP) or at least use both of them (add footnote) in the whole report. There are two reasons. First, GDP(MER) has still been widely used in the current economic activities. Second, the estimations of GDP(PPP) are made by different agencies based on different data sources. Therefore, there are great differences between estimations. (Government of China)	Accept: a footnote to address this point has been added in paragraph B3.



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SPM-29	A	0	0	0	0	Even with explanations in the Annex it would help the readability if abbreviations would be explained at first instance of introduction. Examples GWP, GHG, CCS, UNFCCC, GDP, NGO. (European Community)	OK, will be written in full (with acronym) first time
SPM-30	A	0	0	0	0	Due to the format chosen of setting 26 points along the document, each with a single concept to communicate, it is difficult to identify at a glance which are the key conclusions and which are less fundamental. Such a format weakens the goal to put across in a simple way a few powerful messages for policy makers and it also makes difficult for this document to become a communication friendly tool, able to target a range of policy makers, not only to those more familiar with the subject of mitigation and climate change. (Government of CHILE)	Reject; headline statements for each section are limited
SPM-31	A	0	0	0	0	Comment: we suggest to annex a table summarizing where available information per country such as population, GDP per capita, emissions, emissions per capita, emissions per unit GDP, mix of used energy sources (with %), baseline projections for each of these, emission caps (KP), etc. (Government of Netherlands)	Reject, impossible
SPM-32	A	0	0	0	0	Comment: the SPM has greatly improved in content and presentation compared to the SOD. (Government of Netherlands)	Thank you
SPM-33	A	0	0	0	0	Bioenergy and biofuels should be one word in all instances. This should apply further to the sections of the report and the technical summary. (Government of Canada)	OK
SPM-34	A	0	0	0	0	As suggested in the draft, a sentence on developing country challenge is absolutely necessary. (Government of Japan)	UNCLEAR; what is the suggestion?
SPM-35	A	0	0	0	0	Although there is Annex I, it is still not very easy for	OK, Annex I will be elaborated on the

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						<p>policymakers to understand the uncertainty representation in SPM. It is necessary to clearly describe the process of the uncertainty estimation for each major conclusion in SPM, for example, in which situation "high agreement" can be achieved and what it does mean. (Government of China)</p>	<p>terminology used</p> <p>DISCUSS if properly applied Authors shall check this and return to TSU (RD) if the rule of evidence and agreement has been applied in the same manner. Breakout group to discuss further</p>
SPM-36	A	0	0	0	0	<p>Although it is acknowledged that this SPM should cover conclusions useful for the overall world, a few local examples may help to point out some specific features, drawing also attention to local policy makers. (Government of CHILE)</p>	<p>Reject, no space for local examples without creating unbalance; see main report</p>
SPM-37	A	0	0	0	0	<p>A whole point stating key updates of this document in comparison with the TAR, would be an asset of this Summary. (Government of CHILE)</p>	<p>Reject, TAR comparisons are made where relevant (and will be improved in a number of cases; see other suggestions)</p>
SPM-38	A	0	0	0	0	<p>A stable climate is a global public good. So is energy efficiency -- the benefits from an isolated investment in energy efficiency are fuel savings, the benefits of many similar investments are reduced fuel volumes and costs, as a lower global demand depresses costs. Hence the importance of coordinating the worldwide efforts for energy savings. Shouldn't this figure out in this SPM? I'm sure it's buried somewhere in this report. (International Energy Agency)</p>	<p>Reject, point is made in para 8, second bullet</p>
SPM-1	B	0	0	0	0	<p>Throughout the SPM the authors provide percentiles for projected changes in emissions, and for mitigation potentials. It would be useful for policy readers if the raw figures for these percentile changes were also included to allow a more clear comparison. (Government of Australia)</p>	<p>See specific comments</p>

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SPM-2	B	0	0	0	0	Throughout the SPM figures and tables are used that are drawn from the body of the report, yet in the SPM there is no reference to where those figures can be found in the body of the report, this should be rectified. (Government of Australia)	OK, add references
SPM-3	B	0	0	0	0	The SPM of the report contains 25 propositions. Each comes with a two dimensional qualification - agreement and evidence. The degree of agreement is understandable. However, it is difficult to understand how can one assert that there is "much/less evidence" in support of a proposition as most of the WG3 findings relate to future outcomes. Hence we do not possess any meaningful 'evidence' on future events that are inherently uncertain. We suggest that a further qualification be attached to the term evidence such as 'indicative evidence' or 'level of understanding' to present a clearer picture of the uncertainty typology for readers. (Government of Australia)	Reject, our terminology is in agreement with IPCC guidance on uncertainties
SPM-4	B	0	0	0	0	The SPM is the only one part of the WG3 report that will be read by many people. However, currently it is too technical for many policy makers and assumes too much knowledge, in particular a number of the figures need to be reviewed to present a clearer message for policy readers. (Government of Australia)	See # A4
SPM-5	B	0	0	0	0	Whole document: BECS and BECCS are both used as abbreviations for bio-energy with CCS. BECS seems to be the most common. (Government of Belgium)	Use BECS
SPM-6	B	0	0	0	0	The titles under the figures could be made easier to read and perceive by dividing the text in a title and explanations, limitations etc. The title should stand in a separate line and the rest of the text could have smaller letters, (Government of Norway)	OK, this model will be followed systematically (as already done in several cases)

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SPM-7	B	0	0	0	0	Information given in the glossary is important for the readability of the SPM, e.g. terms like EMF21, carbon price, PPP, TPES etc. should be explained. For some of these terms it may be beneficial to explain them in the SPM-text as well. (Government of Norway)	OK
SPM-8	B	0	0	0	0	The UK thanks IPCC WGIII for the enormous amount of work in preparing the draft AR4 and offers these comments on the Policymakers Summary. The report sets out a very useful summary of findings in key areas and is an excellent factual resource. The text is concise which aids readability for an expert audience, we appreciate the clear diagrams provided in the SPM. However, we would like to make a number of general suggestions regarding presentation and structure of the SPM, which we think would make it more accessible to a non-technical audience and bring out some of the key conclusions. We also note that there is an uneven treatment of quantification in the bold headings and suggests that quantification of key points is made. (Government of UK)	Thank you; quantification not always possible or desirable for headline
SPM-9	B	0	0	0	0	It would be helpful also to highlight what is new in this assessment compared to previous ones. In particular it would be helpful to highlight where the evidence is reducing uncertainty and whether trends are emerging. This could be done by adding some text describing briefly what the main advancements since TAR in the introduction or by introducing a box. The text should include the fact that multigas stabilisation scenarios are now available in the literature, for example: "New multigas stabilization scenarios represent a significant change in the new literature compared to TAR that focused mostly on CO2 emissions. They also explore lower levels and a wider range of stabilization than in TAR." (Executive summary of Ch.3,	OK, where useful and feasible

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						line 9-13) (Government of UK)	
SPM-39	A	0	0	0	0	It is a big problem that Figures require color print to be intelligible. Most of the readers, especially outside the rich countries, may not have access to color printers. (Government of Sweden)	OK, will be checked for final publication
SPM-40	A	0	0	0	0	In several places, add "annual" to clarify that annual emissions are referred to. (Government of Sweden)	See specific proposals
SPM-41	A	0	0	0	0	General comment: There is a risk that much of what is being said will raise more questions than answers. Perhaps, the reason for this is that the SPM relies too much on modeling studies (which are complex and difficult to comprehend) and too little on back of the envelope calculations which offer clearer and reproducible information. Perhaps it would be more illustrative to rely more on technological data (e.g., in line with the Socolow & Pacala paper in Science), i.e., include tables on the potential of wind, of biomass (how many hectares of land for a car depending on the biomass source) etc. And then give qualitative statements on how economic considerations might change the result. The focus would then be more on what one learned from advanced modeling exercises rather than primarily reproducing the data that emerged from such scenarios. (Government of Sweden)	Reject, report is based on bottom-up technological studies and top-down models
SPM-42	A	0	0	0	0	General comment: The summary tends to provide information in such a way that it provides a sense of what can be found in the relevant chapters in the Fourth Assessment Report, but fails to summarize the important issues in a clear and purposeful manner. For example, the value and necessity of early action in terms of mitigation and adaptation strategies for stabilizing GHG concentrations at	Reject, issue of early action is in para 17 (headline and second bullet)

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						lower levels and the problem of inertia and lock-in effects are clearly reflected in many of the chapters (and the TAR) and yet the issue of early action and the promotion thereof is completely omitted in the SPM. Early action is of crucial importance for addressing climate change, and it should be included in the SPM. See, for example, Ch. 3.3, 3.4, 3.5, 3.6, 4.1, 9.5, 11.6, 12.2 (Government of Sweden)	
SPM-43	A	0	0	0	0	General comment: Lifestyle choice and change, consumption patterns, attitudes, cultural beliefs, behavioral change, individual and collective change, personal responsibility, ethical attitudes, education and awareness-raising are not referred to throughout the SPM. These wider social and cultural factors are, in addition to policy instruments and technological innovation, critical for addressing climate change in an integrated manner. We suggest that a comment on these aspects be inserted at the end of E. Policies, measures and instruments. (Government of Sweden)	Reject, SPM box 1 explains that “Non-technical mitigation options, such as lifestyle changes are not included” in the mitigation potential estimates
SPM-44	A	0	0	0	0	General comment: Although the authors have managed to summarize a broad and complex literature we would like to raise some doubts concerning the usefulness to policy makers of the SPM in its current form. In many places, especially at the end, there are vague and sometimes trivial statements. In other places, text as well as figures, the information must be rather incomprehensible to someone who is not already quite familiar with scenario-work, modeling, and previous debate on climate policy. Figures need comments and explanations. The SPM lacks the sense of urgency which, given the data presented, should be there in terms of policy making. It also fails to pinpoint the difficulties and challenges facing policy makers. What is it that needs to be done, not least in terms of policy, in order to	OK, text will be clarified and simplified where possible. On the issue of low level stabilisation scenarios: that issue is clearly dealt with in para 17 and referred to in para 4

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						reach low carbon concentrations A1 and A2 scenarios consistent with a +2 degC target?. (Government of Sweden)	
SPM-1	C	0	0	0	0	Although the difference between the uncertainty representation levels between WGs I and II and WG III has been noticed earlier, at this stage it seems useful to mention that the information given in Annex I: Uncertainty representation, is very clear and has our support. The figures chosen are clear, meaning what they aim at. Although in some instances the issues dealt with in this document are controversial, they are presented with information about their complexities, then giving a sense of authenticity to the phrase / sentence involved. Specific comments will show the aim of this general comment. (Government of Argentina)	Thank you
SPM-2	C	0	0	0	0	There should be more references to the relationship between adaptation and mitigation as, for example, mitigation, vulnerability and adaptation relationships (Chapter 2), the interaction between mitigation and adaptation, in the light of climate change impacts and decision making under long run uncertainty (Chapter 3), etc. (Government of Spain)	Reject, adaptation is covered in paragraph 14 and 26
<b>PARAGRAPH A1</b>							
SPM-45	A	3	1	3	19	Please add to the introduction: "Given that mitigation options vary significantly with economic sectors, it was decided to use the economic sectors to organise the material on short to medium term mitigation options. Contrary to what was done in the Third Assessment Report, all relevant aspects of sectoral mitigation options, such as technology, cost, policies etc., are discussed together to provide the user with a comprehensive discussion of the sectoral mitigation options." (TS, p.3)	Reject, Introduction should be kept as short as possible and sector organisation is self evident

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						(Government of Finland)	
SPM-46	A	3	1	3	19	Comment on Section A: Section A should give some general background and also the objective of SPM to the reader. "The main aim of this report is to assess options for mitigating climate change. Several aspects link climate change with developmental issues and the climate change mitigation policies with other policies and decision making" (First sentences of the Technical Summary, slightly modified) (Government of Finland)	Reject, the mandate of WG III is already given
SPM-10	B	3	3	3	7	Suggest that it would be useful to define "mitigation" in the SPM. (Government of UK)	See glossary
SPM-11	B	3	5	3	7	Suggest that the inclusion of the SRCCS and SROC at this point in the introduction could confuse some policy readers unfamiliar with the work of the IPCC, as the sentence seems to infer that only literature since the publication of the special report sin 2005 has been included in the WG3 report. The sentence should end after "(TAR)", and a new sentence could be drafted to state "The Working Group 3 contribution also draws upon and updates the information contained in the IPCC Special Reports on CO2 Capture and Storage (SRCCS) and on Safeguarding the Ozone Layer and the Global Climate System (SROC)". (Government of Australia)	Reject, because we do not summarise Special Reports
SPM-47	A	3	7	0	0	The abbreviation SROC does not match the preceding text. (Government of Nepal)	Reject, SROC is the accepted abbreviation
SPM-48	A	3	7	3	7	The acronym "SROC" stands for "Special Report on Ozone and Climate". Please replace "SROC" by the correct acronym of "Special Report on Safeguarding the Ozone Layer and the Global Climate System". (Government of Pakistan)	See #A47



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SPM-12	B	3	8	3	8	TAR has an introductory section here describing context. Suggest including a similar section before going into the details. (Government of UK)	Reject, TAR has similar introduction as here
SPM-49	A	3	10	0	0	Should be “anthropogenic greenhouse gas emissions” (UNEP)	Reject – also predominantly anthropogenic some GHG emissions may have come from natural sources which though statistically insignificant cannot be separated out
SPM-50	A	3	11	3	11	This sentence should be changed to the following: “at the sector level (until 2030)”. (Government of Japan)	See B13 for better text
SPM-13	B	3	11	3	11	Suggest redrafting to "Mitigation in the short and medium term, across different economic sectors" (Government of UK)	OK
SPM-51	A	3	12	3	12	Suggest to remove the word "context" from this line, to be consistent with previous one and with the title of the section. (Government of Mexico)	OK
SPM-14	B	3	12	3	12	Delete "context" as this does not reflect the heading of section D, and is superfluous. (Government of Australia)	See #A51
SPM-15	B	3	13	3	13	Suggest redraft to "Policies, measures and instruments to deliver mitigation" (Government of UK)	OK
SPM-52	A	3	16	3	19	The explanation in Annex 1 is useful. However, reference to the difference in uncertainty statements might be useful here, as opposed to solely in the Annex. Suggested text: "...for the AR4, and which are different for WG3 from the terminology used in WG1 and WG2, can be found in Annex 1." (Government of Canada)	see B16
SPM-53	A	3	16	3	17	Suggest adding a few words to end of sentence: "...can be	see B16

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						found in Annex 1 of this document." (Government of United States of America)	
SPM-16	B	3	16	3	17	It needs to be more clearly (and less defensively) articulated at this point that the WG3 report uses a different metric to describe uncertainty, than that featured in the other WG reports. Suggest that this sentence is deleted and replaced with the following drawn from Annex 1: "In this WG3 report a two-dimensional scale noting (a) the relative level of expert agreement on the respective statements in light of the underlying literature; and (b) the amount of scientific/technical evidence on which the findings are based, is used (see Annex 1). This approach differs from the characterisation of uncertainty in the WG1 and WG2 reports because fundamental differences between the underlying disciplinary sciences of the three reports make a common approach impractical." (Government of Australia)	OK (covers also A52, 53)
SPM-3	C	3	16	3	17	In order to provide more clarity, please modify this line according to the explanation on the annex I of the SPM WG III. (..... , according to the agreed terminology for the AR4 for the WG III,...) (Government of Spain)	Reject, there was only a general guidance note on uncertainty
SPM-54	A	3	18	3	18	Comment: the use of square brackets for referencing source paragraphs in the underlying chapters is inconsistent with the WG1 SPM, that uses square brackets for uncertainty ranges and braces "{}" for referencing (Government of Netherlands)	Reject, Will be coordinated in final publication
SPM-55	A	3	19	3	19	It must be possible to read the SPM as a free standing publication. Because of that a glossary must be available in the SPM, or abbreviations inserted in a footnote. The reader (policy maker) should not have to go to the full report to find out the meaning of a particular abbreviation or colloquial	See #A26

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						term (Government of Sweden)	
<b>PARAGRAPH B2</b>							
SPM-17	B	3	21	0	0	Nowhere in the text of section B is there a clear statement of what the figures for the emissions of each of the GHGs were in 1970 and what they were in 2004. We suggest that this is important information for policy makers and should be included in the text (rather than as an additional figure) of the section. Even a footnote along the lines of Chapter 1, footnote 1 (page 3) would be of help for policy readers. (Government of Australia)	See #A69
SPM-56	A	3	23	3	23	What is the situation regarding non-KP GHG's, such as HCFC's? (Government of Nepal)	OK, add text as new bullet (after first): "The emissions of ozone depletion substances (ODS) under the Montreal Protocol but not covered by the Kyoto Protocol have declined significantly throughout the 1990s and continued after 2000 albeit at a slower pace. By 2004 the CO2eq of the emissions of these gases amounted to 25% of their 1990 value."
SPM-57	A	3	23	3	24	What does the term "additional" in the title refer to? It may be advisable to drop it. (Government of Nepal)	Reject, is needed because there is already some mitigation ongoing
SPM-58	A	3	23	3	24	Suggest to insert a comma between the words "policies" and "global". (Government of Mexico)	Reject, good English
SPM-59	A	3	23	0	0	Should be "without additional mitigation measures" (UNEP)	Reject, "policies" also applies here
SPM-60	A	3	23	0	0	Section B.2: There is no discussion of the observed difference in growth of emissions across sectors. Some - such as power generation and road transport - have seen	Ok , ad sentence suggested in B32

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						large increases in emissions, while others - such as residential and commercial buildings - have seen little change in emissions. Suggest including text from Chapter 1, p. 13, lines 11 - 14. (Government of United States of America)	
SPM-61	A	3	23	3	24	Please replace "additional climate mitigation" with "additional GHG mitigation". Remove "appropriate" - it doesn't add to the sentence and is vague and value laden. Replace "sustainable development policies" with "energy and economic policies" to be consistent with rest of document. (Government of United States of America)	Reject, <ul style="list-style-type: none"> <li>• “climate mitigation” is an accepted term</li> <li>• “appropriate” is needed because not all SD policies will reduce GHG emissions</li> <li>• “SD policies” is used throughout the report; no reason to replace it here</li> </ul>
SPM-65	A	3	23	3	24	delete "and/or appropriate sustainable development policies", as this would imply that just with appropriate sustainable development policies global emissions would be stabilised or reduced, or that they are equal in significance with additional mitigation policies, whereas the underlying material shows that even optimistic baseline scenarios do not lead to a stabilisation or decrease in emissions within a few decades. The possibility implied here that SD policies can also reduce emissions is acknowledged in Chapter but is not unambiguous eg see Ch12 ES pages 5" there is a growing understanding of the possibilities to choose mitigation options and their implementation in such a way that there will be no conflict with other dimensions of sustainable development; or, where trade-offs are inevitable, to allow rational choices to be made. The sustainable development benefits of mitigation options vary within a sector and over regions (high agreement/much evidence):..etc". Over the	Reject, chapter 12 makes the case that well chosen SD policies (that is why the word “appropriate” is there) can reduce emissions; the paragraph does not speak about stabilisation. Also SRES B1 to A1T demonstrates the value of this issue.

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						recent period evidence tends to conflict with the statement as written. (Government of Germany)	
SPM-66	A	3	23	3	24	“and beyond” should be added to this sentence so that it reads as follows: “global GHG emissions will continue to grow over the next few decades and beyond.” (Government of Japan)	Reject, as is clear from fig 4 in some baseline scenarios (i.e. without climate policy) emissions will decline in the second part of this century
SPM-18	B	3	23	3	23	The inclusion of the statement about sustainable development is confusing and weakens the key point of the heading that without further mitigation emissions will continue to grow. Suggest deletion of "and/or appropriate sustainable development policies". (Government of Australia)	See #A65
SPM-19	B	3	23	3	23	The first sentence at dot point 4 (line 40) makes the point of this headline statement much more clearly than the present construction. Suggest this sentence is deleted and replaced with "Without additional climate mitigation policies global GHG emissions are projected to increase by 25-90% between 2000-2030". (Government of Australia)	Reject, headline covers historic and period till 2030; bullet point only future
SPM-20	B	3	23	3	46	Suggest that Section 2 focus only on current and historical emissions and Section 3 on projections. Specific suggestions: a) The headline and final bullet from Section 2 could be moved to Section 3, also suggest adding to the current headline "...over the next few decades. BAU policies would be likely to imply higher stabilisation levels and greater risks of dangerous climate change."; b) the first bullet "Between 1970 and 2004..." could become the headline message of Section 2; c) the final sentence of the fourth bullet "Since 2000 carbon intensity..." should be left in this section as a stand-alone bullet; (Government of UK)	Reject, para 2 is limited to 2030; para 3 is covering period to 2100; moving around last bullet of para 2 would mean to loose headline of para 3 which is important given the SRES criticism

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-21	B	3	23	3	23	Suggest redraft "Without additional climate change mitigation..." (Government of UK)	See #B20
SPM-29	C	3	23	4	16	<p>Time is coming to refer to the important and urgent tool to bring the “wide variety of policies and instruments” to implementation. The outreach activity to be implemented by IPCC and non-governmental groups, shall bring this policies and tools to factual application.</p> <p>On page 3 paragraph 25, it is said that net GHG emissions have increased, in spite of the fact that energy intensity of production and consumption has decreased. It would be worthy to highlight that the decrease in net emissions are due not only to the increase in population and income per capita, but also is a consequence of the stability observed in de intensity carbon´s indicator (TonCO2/tep) between the years 1970 and 2004, as can be seen on the figure on page 5 of the SPM. The following formula shows the net emission´s dependency on these four variables.</p> <p>AS a consequence, there should be some paragraph making reference to this situation.</p> <p>Also, on page 3 paragraph 35, emissions per capita belonging to 2004 should be included when speaking about emissions per GDP unit. This would allow a better comprehension of the imbalance of GHG emissions between Annex 1 and non Annex 1 countries.</p> <p>En Figure on page 4, we suggest including an addittional one which would contain the aggregate of GHG emissions in percentual terms. The evolution of this structure for the years 1970, 1980, 1990, 2000 and 2004), will show the stability of the weight of agricultural and deforestation´s emissions vis a vis the weight of emissions coming from the fossil fuel´s burning.</p> <p>(Government of Argentina)</p>	See other comments

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-22	B	3	24	3	25	Since this is the first time uncertainty representation ("high agreement, much evidence") is mentioned, we think that a reference to annex 1 should be included. (Government of Norway)	OK
SPM-23	B	3	24	3	24	Insert "significantly" after "continue to grow". Explanation: in line 40-41 it is stated that global GHG emissions are projected to increase with 25-90% by 2030 relative to 2000. This significant increase should be reflected in the main message, giving it a clear meaning. (Government of Norway)	OK
SPM-24	B	3	24	3	25	Explain the uses of 'agreement' and 'evidence' the first time they are used. Also, why this this different to WG1? (Government of UK)	See #B22
SPM-67	A	3	26	3	26	Write out "GWP". Also, specify which GWPs are being used--100 yr. Is it really necessary to use GWPs? They are not really needed for Figure SPM. 1. It would be useful to say something about the fact that they are not used by climate models in the Notes of Figure SPM 1. (Government of United States of America)	See #A69 (in box)
SPM-68	A	3	26	3	26	This paragraph is not particularly clear or well written. 1) Please change to read "Between 1970 and 2004, annual global GWP weighted emissions of CO2, CH4..." 2) "global GWP weighted emissions" is not consistent with C02eq used elsewhere and will be confusing for policy makers. Suggest use C02eq throughout and explain details in a box as suggested in our general comments. (Government of Canada)	See #69
SPM-69	A	3	26	3	31	The inclusion of all specific GHGs here creates the impression that all GHG emissions are increasing. However, the International Aluminum Institute (2006) ( <a href="http://www.world-aluminium.org/iai/publications/documents/pfc2004.pdf">http://www.world-aluminium.org/iai/publications/documents/pfc2004.pdf</a> )	OK, <ul style="list-style-type: none"> <li>replace first sentence by bolded text and refer to Box 1 (new). Box to describe how CO2 eq is calculated</li> </ul>

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						shows a decrease in PFCs from the aluminum industry, a major source of these emissions. Olivier et al. (2005) (can be found here: <a href="http://www.mnp.nl/edgar/Images/Olivier2005-FT2000-NCGG4-Utrecht_tcm32-22124.pdf">http://www.mnp.nl/edgar/Images/Olivier2005-FT2000-NCGG4-Utrecht_tcm32-22124.pdf</a> ) also show that while SF6 is still rising, PFCs have levelled off and started decreasing. Suggest changing text to: " <b>Between 1970 and 2004, emissions of greenhouse gases controlled by the Kyoto Protocol, weighted by their global warming potential (GWP), have increased by 70%, from 28.7 Gt to 49 Gt of carbon dioxide equivalents (CO2-eq).</b> " Next line: The emissions of these gases, including CO2, CH4, N2O, HFCs, PFCs and SF6, have changed at different rates, with CO2, the largest source, having grown by about 80%..." (Government of Canada)	<ul style="list-style-type: none"> <li>replace second sentence as suggested</li> </ul>
SPM-70	A	3	26	0	0	The first occurrence of GWP should have the full form as it is an unusual term (Government of Nepal)	See #A69 (in box)
SPM-71	A	3	26	3	26	Suggest to substitute formulas by words: "carbon dioxide, ..." (Government of Mexico)	Reject, too cumbersome
SPM-72	A	3	26	3	26	Suggest to insert a comma between "2004" and "global" (Government of Mexico)	Reject, good English
SPM-73	A	3	26	3	31	It would be helpful to put the emissions growth rates in context by stating yearly increase. In Chapter 1 this is stated as "Over the last three decades, GHG emissions increased by an average of 1.6% per year with CO2 emissions from fossil fuels use growing at 1.9% per year." This also provides comparison with GDP growth, given in SPM Fig 2, and hence conveys any energy intensity improvements. (Government of United States of America)	Reject, text will become too cluttered; main report for more detail
SPM-74	A	3	26	3	26	It could be useful to also mention here the increase in percent since 1990 as this is a common reference year.	Reject, is done



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Germany)	
SPM-75	A	3	26	3	26	Despite the glossary, certain key acronyms should be described or at least written out in full to make the read easier and more understandable - GWP is one of those terms...please define. (Government of Canada)	See #A69
SPM-76	A	3	26	3	26	An explanation of the acronym GWP is required. Adding this as a footnote on this page is suggested. (Government of Japan)	See #A69
SPM-25	B	3	26	3	26	Despite the term GWP appearing in the glossary, due to its importance for section B we suggest that the term have an explanation footnoted in the actual text of the SPM. Suggest a footnote be inserted stating: "Global Warming Potential (GWP) is a way of measuring the radiative forcing effect of a unit of greenhouse gas in the atmosphere, and takes into account the differing lifetimes of the gases in the atmosphere and their effectiveness in absorbing infrared radiation". (Government of Australia)	See #A69
SPM-26	B	3	26	0	0	Define GWP (Government of Norway)	See #A69
SPM-27	B	3	26	3	30	It is not clear from this paragraph whether the stated finding about relative trends in income per capita/population and energy intensity are true globally - would it be possible to clarify this here? For example, say in all non-Annex 1, most Annex 1, if true? (Government of UK)	See # B30
SPM-4	C	3	26	3	26	As it is the first time that GWP appears in the text , please detail the acronym (Government of Spain)	OK
SPM-5	C	3	26	0	0	,,,,,,2004 Global Warming Potencial (GWP)..... (Government of Argentina)	See C4
SPM-28	B	3	27	3	27	For grammatical correctness delete "have".	See #A69

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Australia)	
SPM-77	A	3	28	3	28	Suggest deleting “being by far the largest source” and adding content to the end of the sentence “, increasing its share of GHG emissions from xx% in 1990 to xx% in 2004”. (IPIECA (Non-Governmental Organisation))	Reject, no good reason to change
SPM-29	B	3	28	3	29	This sentence as currently drafted is difficult to understand. Suggest it is altered to read "CO2 emissions are the largest source of this emissions growth, and have grown by about 80% since 1970 (28% since 1990) (Figure SPM.1)" (Government of Australia)	See # A69
SPM-78	A	3	29	3	30	The formulation of this sentence, albeit correct, is unfortunate since it implies that emissions reductions will require reductions in economic and population growth. In contrast [12 ES, P4, L31]: ““GHG emissions are influenced by, but not rigidly linked to economic growth: policy choices make a difference.”” (Government of Sweden)	Reject, that is not what sentence says
SPM-79	A	3	29	3	30	Please replace "increases in income per capita" with "increases in economic growth", and "outweighed" with "outpaced", as you are comparing growth rates. (Government of United States of America)	Reject, sentence is phrased in net differences, not in growth rate terms
SPM-80	A	3	29	3	30	It is proposed to change this point with a new redaction: “ Between 1970 and 2004 global GWP weighted emissions of CO2, CH4, N2O, HFCs, PFCs and SF6 (greenhouse gases covered by the Kyoto Protocol) have increased by 70% (24% since 1990). CO2, being by far the largest source, has grown by about 80% (28% since 1990) (Figure SPM.1). The persistence of unsustainable production and consumption patterns, mainly in industrialized countries, plus increases in income per capita and population, have outweighed decreases in energy intensity of production and consumption ”	Reject, statement is on global averages and report lacks basis to state reasons for certain regions

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Cuba)	
SPM-30	B	3	29	3	31	This sentence needs to more clearly explain the link between the drivers of emissions growth and reduction, and the observed emissions growth. "CO2 emissions growth has occurred because at the global scale, declining carbon and energy intensities (which reduce emissions of CO2) could not offset rising incomes and population growth (both of which increase CO2 emissions)" (Government of Australia)	OK, use "at the global scale" and the reversed order to modify sentence. Move last sentence from 4th bullet here and modify: "After a limited decline in carbon intensity till 2000, it has risen due to increased use of coal.." (also including #B55)
SPM-81	A	3	30	3	32	The current total value of GHG emission should be mentioned somewhere here. The reader should have a reference starting point. It would be useful if it was stated both as CO2 and as C. That also goes for a number stating the current concentrations of all GHGs in the atmosphere in terms of CO2-eq. (Government of Sweden)	See #A69
SPM-82	A	3	30	3	30	Please also add reference to the fact that changes in carbon intensity of the energy mix have an influence in overall emissions, not only energy intensity. (European Community)	Reject, as is clear from fig 2 carbon intensity changes have had no major effect
SPM-83	A	3	30	0	0	Energy intensity has not decreased everywhere. For example in Africa and Latin America and the Caribbean it has been levelling off since early 90s (see the UN Statistical Division data). The wording should therefore be "decreases in energy intensity in most regions". (UNEP)	Reject, this is a global statement (see also #80)
SPM-31	B	3	30	0	0	Please explain "energy intensity of consumption" here or below figure SPM 2 (Government of Norway)	OK, in caption fig SPM2; use definition in glossary
SPM-6	C	3	30	3	35	The reference to baseline is inadequate. Once policies are implemented, the resulted path is the baseline. Comparison to a non existent past path is no useful.	See A62

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Argentina)	
SPM-32	B	3	31	3	31	The authors should include a further dot point in this section explaining the key components of the emissions increase. Chapter 1 (page 12, lines 11-15) has a sentence that could be inserted here: "The largest growth in CO2 emissions has come from power generation and road transport, with industry, households and the service sector remaining at approximately the same levels for the 1970-2004 period (Figure 1.2)." (Government of Australia)	OK, add, but no figure
SPM-62	A	3	32	3	35	How can a baseline be identified for historical emissions? These are observed emissions; there is no counterfactual available for comparison. (Government of Nepal)	Reject, baselines were drawn up in the past and now we can see emissions are below these
SPM-84	A	3	32	3	34	Please modify this paragraph. It is clearly demonstrated in 12.2 that several energy policies (both on demand and supply side) undertaken since the energy crises in the 20th century can have a substantial impact on the development of emissions pathways (see for instance boxes 12.1 and 12.5). If mixes of these policies would have been implemented on a global scale than this would have made a substantial difference: Policies, including those on climate change, energy security and supply, and sustainable development, have led to reductions of emissions compared to the baseline in some regions. But the implementation on a global scale of such type of policies is not large enough to be visible in the historic global emissions trend. (European Community)	See #A91
SPM-85	A	3	32	3	32	Comment: what is "important" is subjective, rather use "substantial" (with significant commercial potential at the moment or before 2030)	UNCLEAR; the word "important" is not in line 32

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Netherlands)	
SPM-86	A	3	32	3	32	Comment: the Montreal Protocol is not mentioned as probably the single most effective means to have curbed GHG-emissions so far; after "climate change," we suggest to insert "ozone depletion," (Government of Netherlands)	Reject, these statements are on Kyoto gases only
SPM-33	B	3	32	3	35	This dot point needs to be restructured to highlight its findings more clearly suggest the following: "In some regions there has been a reduction in emissions, when compared to the baseline. These reductions are a result of policy action in the areas of climate change, energy security and supply and sustainable development, however, the scale of these reductions is not large enough to be visible in the historic global emissions trend." (Government of Australia)	OK, covered by improvement in A88 and A90
SPM-34	B	3	32	3	32	Clarify what "emissions compared to the baseline" means. (Government of UK)	See # A88
SPM-87	A	3	33	3	33	Suggest to add the acronym "GHG" before the word "emissions". (Government of Mexico)	OK
SPM-88	A	3	33	3	33	Replace "compared to the baseline" with "compared to projections without these policies". See Section 1.3. (Government of United States of America)	OK
SPM-89	A	3	33	3	33	Include "in 2003" after emissions (Government of Nepal)	Reject, this statement is not tied to a particular year
SPM-90	A	3	33	3	33	"baseline" - what baseline? (Government of Sweden)	See #A88
SPM-35	B	3	33	3	33	The authors need to provide in a footnote a more accessible and clearly understandable definition of "baseline" than that which currently appears in the Glossary. It should be borne in mind that the SPM will be read by policy makers not directly involved in climate change and aware of the field's	See #A88

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						jargon. (Government of Australia)	
SPM-91	A	3	34	3	34	The conclusion that the "scale is not large enough to be visible in the historical global emissions trend" is not accurate. Replace with "reductions have not been sufficient to counteract the overall growth in emissions". (Government of United States of America)	OK
SPM-92	A	3	34	3	34	Mention which GHGs (Government of Nepal)	Reject, details to be found in report
SPM-36	B	3	34	3	34	"but the scale is not large enough to be visible in the historic global emissions trend"; this statement is technically right, but does it contain a particular message that can be more outspoken, e.g. with reference to particular targets or required reductions? (Government of Belgium)	See #A91
SPM-63	A	3	36	3	39	Either the comparison of energy intensity should be dropped, or we should include the current comparison of per capita emissions as well. (Government of Nepal)	Reject, both per capita and per unit of GDP emissions are mentioned (and also reflected in fig 3)
SPM-93	A	3	36	3	39	This bullet overstates the higher emission per capita without providing sufficient context, and also understates the beneficial impacts of lower energy intensity. Comparative energy use is influenced by differences among regions in population size and growth and levels and efficiency of economic development. The phrase " and accounted for..." is overly subjective without providing necessary context. Suggest change to SPM and TS (page 7 line 1): "In 2004 developed countries (UNFCCC Annex I countries) held a 20% share in world population, yet accounted for 46% of annual global GHG emissions.....". Suggest also to add the sentence: "Differences among regions population size and growth and levels and efficiency of economic development	See #A98 on "yet" Reject scrapping intensity numbers

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						create differences in energy use among regions.” (Government of Canada)	
SPM-94	A	3	36	3	36	Please use "UNFCCC Annex 1" and "non-Annex 1 countries" and not "developed" and "developing countries" in this context, so it is clear that this refers to a specific political grouping of countries established under the UNFCCC in 1990. If a certain level of development is sought as a benchmark for grouping countries, please use a specific per capita income level (e.g., World Bank high income countries vs other countries). (Government of United States of America)	OK, delete “developed countries”
SPM-95	A	3	36	3	39	Please also express emission intensity in total GHG emission per capita (tCO <sub>2</sub> -eq/capita). (European Community)	Reject, numbers on emissions per capita can be found in fig 3
SPM-96	A	3	36	3	36	It is suggested to add some words at the beginning of this bullet: According to ORNL database information, from preindustrial era to 1950 and from 1950 to 2000, developed countries accumulatively accounted for 95% and 77% GHG emissions from fossil fuel use respectively. (Government of China)	Reject, these numbers are not in the report
SPM-97	A	3	36	3	39	It is not so sure if the sources of numbers "46%" and "20%" is reliable, please give a note to illustrate. Suggest to add descriptive words of uncertainty or specify data sources. To our understanding, IEA only provides CO <sub>2</sub> data, while EDGAR could provide data for all greenhouse gases. It seems not proper to put these two different data series together. (Government of China)	Reject, numbers are correct

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-98	A	3	36	3	39	If this sentence is kept, it will need to include percent of production and delete "yet," so that the sentence would read: "UNFCCC Annex 1 countries held a 20% share in world population, xx% in gross world product, and 46% of global emissions." This would render the second sentence in the paragraph on intensity unnecessary. If the intensities are discussed, ensure that they are actual averages across countries rather than simply ratios of total emissions to GDPpop. (Government of United States of America)	OK, delete "yet" REJECT deletion of second sentence, because that is clearer than reworded sentence UNCLEAR what is meant with "actual averages"
SPM-99	A	3	36	3	39	Comment: this bullet suggests that all non-Annex I countries have per capita GHG emissions below all Annex I countries, which is incorrect; we suggest to add as the second sentence to this bullet "A number of non-Annex I countries however have per capita GHG emissions above the average of the Annex I countries that ratified the Kyoto Protocol" (Government of Netherlands)	Graph will become very cluttered; OK to add note to caption that countries in groups do have different GDP, emissions and incomes
SPM-37	B	3	36	3	39	The authors need to explain the basis upon which they have decided that the most effective discussion of emissions trends is through the UNFCCC AI/non-AI divide (e.g. is it because the assessed literature uses this divide, or is it for other practical reasons?). There does not seem to be a scientific basis for this distinction, and it seems that the authors may be implicitly making political judgements. (Government of Australia)	Reject, is the most neutral way of comparing rich and poor countries
SPM-38	B	3	36	3	36	The authors need to delete the word "yet" as it implies a value judgement. (Government of Australia)	See #A98
SPM-100	A	3	37	3	37	Suggest to add the word "global" before " GHG emissions" (Government of Mexico)	OK, replace "annual" by "global" (annual is not needed since 2004 is mentioned)
SPM-101	A	3	38	3	39	The inclusion of PPP here is confusing because the standard	OK, add footnote (see also point A28)



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						is US\$/GDP. The point of using PPP in this context is not very clear. Please clarify in footnote. (Government of Canada)	
SPM-102	A	3	38	3	38	An explanation of “ppp” (i.e. as used in CO <sub>2</sub> - eq/US\$GDPppp) is required. Adding this as a footnote on this page is suggested. (Government of Japan)	See #A101
SPM-103	A	3	38	3	38	Although reference is made above to the glossary to the main report for an explanation of terms, we believe it would be useful to include in the SPM a brief explanation of CO <sub>2</sub> -eq, at least, as a footnote. (Government of New Zealand)	See point #A69 and new box to be added
SPM-39	B	3	38	3	38	The authors need to insert the word "however" after "Their economies" to more clearly articulate that lowering GHG intensities is away to reduce emissions growth. (Government of Australia)	OK
SPM-40	B	3	38	0	0	Since this is the first time GHG intensity is mentioned, we think that the term should be explicitly explained here ("energy use per GDP" according to figure SPM 2). To enhance readability, we propose that the difference between non-Annex-1 countries and Annex-1 countries is referred to only in relative terms (percentage). (Government of Norway)	OK, replace by “energy use per unit of GDP”
SPM-104	A	3	40	3	44	This information concerning the contribution of developed and developing countries to present and future GHG emissions should be complemented with the contribution of these groups of countries to the cumulative (historical) emissions. According to international CC statistics, provided by WRI, the developed countries accounted for 76% of cumulative (1850-2002) CO <sub>2</sub> emissions, with the remaining 24% corresponding to the developing countries. (Reference: WRI Report. Navigating the Numbers. Greenhouse Gas	Reject, these data not available in report (see also A96)

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Data and International Climate Policy, 2005). Rationale: The historical perspective is very relevant when dealing with the contribution to present GHG concentrations. (Government of Cuba)	
SPM-105	A	3	40	3	40	The word "with" should be removed from this sentence. (Government of Japan)	OK
SPM-106	A	3	40	3	41	The phrase "increase with 25 - 90%" may be replaced by "increase by 25 - 90%". (Government of Pakistan)	See #A105
SPM-107	A	3	40	3	43	Suggest to delete the word "with" at the end of line 40, and in line 43 (Government of Mexico)	See #A105
SPM-108	A	3	40	3	40	Replace "with" with "by". (International Atomic Energy Agency (IAEA))	See #A105
SPM-109	A	3	40	3	40	add "mitigation" after additional (Government of Germany)	Reject, can also be SD policies
SPM-110	A	3	40	3	42	25-90% and 40-110% are large ranges. Please add a sentence about why the range is so large, e.g. what are the common characteristics for low-end estimates and high-end estimates across the models? The recent literature suggests some expert consensus regarding possible baselines which narrows the range (for example, EMF-21). It would be more useful for policymakers to discuss this narrower range and the characteristics of those baselines. (Government of United States of America)	Ok, add "consistent with the range of SRES scenarios" at the end of the first sentence. EMF21 scenarios to be taken out of fig 4, because message is wrong and inconsistent with chapter 3 evaluation of baseline literature (see also ...)
SPM-111	A	3	40	3	41	1)Change to "increase 25-90%". Perhaps useful to state the increase in GtC C02eq (from xxGtC to xxGtC) and put percentages in brackets. 2) 25%-90% is a huge range. Is there not greater certainty in projections to 2030? (Government of Canada)	See #A105 and #A110; reject absolute numbers (they are in fig 4)
SPM-112	A	3	40	3	40	"Without additional policies" are not clear enough. Suggest to add after "Without additional policies" as follow	Reject, is already implied it could be technology policies; purpose of this

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						",including technology policies, ". (Government of Japan)	para is not to discuss mitigation policies
SPM-113	A	3	40	3	42	"which policies have taken into consideration to come up with 25-90% " (Government of Mauritius)	See #A105
SPM-114	A	3	40	3	40	"are projected to increase with ..." should read "are projected to increase between ..." (Government of New Zealand)	See #A105
SPM-41	B	3	40	3	40	The first part of this sentence directly repeats the bolded headline, we therefore suggest its deletion. (Government of Australia)	Reject, this sentence is more specific
SPM-42	B	3	40	3	46	The authors need to make it clear that the metric used in this dot point (i.e. CO2 emissions) differ from the preceding (and subsequent) points, which dealt with CO2-eq. This change is important and may be otherwise missed by policy readers. (Government of Australia)	Reject (see also box to be added on CO2eq). Is also stated "CO2 from energy use", so little chance of confusion
SPM-43	B	3	40	3	40	Editorial: "projected to increase BY 25-90%", not "WITH 25-90% " (Government of Australia)	See # A105
SPM-44	B	3	40	3	44	This paragraph should make clear on what the projections are based - i.e. state that the SRES scenarios are used (if this is the case) (Government of UK)	See # A110
SPM-45	B	3	40	3	46	Suggest this bullet point is placed in section 3 as it is on future emissions (see comment 3 23 3 46) (Government of UK)	Reject, see earlier UK remark
SPM-46	B	3	40	3	40	replace "with" with "by" (Government of UK)	See # A 105
SPM-115	A	3	41	3	42	Suggest replacing start of the sentence with "Fossil fuels currently contribute xx% of global energy supply, and are expected to still contribute xx-xx% in 2030. With increasing energy demand, CO2 emissions from energy use ..."	OK, See #A119

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(IPIECA (Non-Governmental Organisation))	
SPM-116	A	3	41	3	41	Change "Fossil fuel dominance" to "The contribution of fossil fuels to global energy supply". (Government of United States of America)	OK, See #A119
SPM-47	B	3	41	0	0	Suggest redraft to "The dominance of fossil fuel as a primary energy source is expected..." (Government of UK)	See #A110
SPM-117	A	3	42	3	42	The phrase "to grow with 40 - 110%" may be replaced by "to grow by 40 - 110%". (Government of Pakistan)	OK
SPM-118	A	3	42	3	42	Replace "with" with "by". (International Atomic Energy Agency (IAEA))	See #A117
SPM-119	A	3	42	3	42	Proposed Revision "Fossil fuels (oil, coal, natural gas) are projected to maintain their predominant position in the global energy mix to 2030 and beyond," Note that the SPM and TS never actually define what a fossil fuel is. (Government of Canada)	Ok, but without bracketed text
SPM-120	A	3	42	3	42	Insert "fossil" in front of "energy". (Government of United States of America)	Reject, not needed here
SPM-121	A	3	42	3	42	Define specific years rather than stating "over that period" in reference to the projected growth from 2030 to "beyond". (Government of United States of America)	OK, add "between 2000 and 2030" after "Co2 emissions"
SPM-122	A	3	42	3	42	"are projected to grow with ..." should read "are projected to grow between ..." (Government of New Zealand)	See #A117
SPM-48	B	3	42	3	42	Delete "with" and replace with "by between". (Government of Australia)	See A117
SPM-123	A	3	43	1	46	The listing of 'ranges' for comparison of Annex I and non-Annex I countries is misleading. Either a global number including all countries in each category should be used, or the full range should be included; in fact, the use of both would be instructive. 4 of the top 5 leading countries in	Reject, numbers are correct; they are derived from SRES marker scenarios

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						emissions/capita are non-annex I countries (and 5 of the top 10), and all of these and many others are well above the 'top' of the range of 5.1 t/CO2/cap indicated here. Likewise, there are more than 90 (NINETY) countries below the 'bottom' of this range of 2.8 t/CO2/cap. Also, for Annex I, the United States, Australia and Canada are well above the 'top' of the range of 15.1 tCO2/cap. These are not models, these are actual results, given the vagaries of reporting, and the use of this 'range' is fundamentally misleading. Data from <a href="http://cait.wri.org">http://cait.wri.org</a> for 2003 CO2/capita data accessed 5 April 2007 (Greenpeace International)	
SPM-124	A	3	43	3	44	Please use "UNFCCC non-Annex 1 countries." Some countries where emissions growth rates are expected to rise quickly will by 2030 have larger per capita incomes than many developed countries in 1990. Highlighting an average per capita income for all developing countries is not a meaningful statistic, as it does not account for large and growing differences between lower and higher income countries among Non-Annex 1 Parties. (Government of United States of America)	OK, replace by non-Annex-I Reject the point on per capita income (there is no mention of that)
SPM-125	A	3	43	3	45	Please clarify if the increase refers to CO2 or all gases, and indicate over what years these increases are expected to occur. (Government of United States of America)	Reject, it is stated that it is for CO2
SPM-126	A	3	43	3	45	Please be more explicit about how per capita CO2 emissions are projected to change over time for Annex 1 and non-Annex 1 countries. For example, if the non-Annex 1 countries are expected to account for 2/3 to 3/4 of all the increase in (fossil) energy usage from 2000 to 2030, is it likely that per capita CO2 emissions could actually go down (from roughly 3.2 in 2004 to 2.8 tCO2/cap, the low end of	Reject, numbers are ok

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						the range provided above) in 2030? Is projected population growth in developing countries responsible for this anomaly (i.e., is population growth expected to grow faster than energy demand)? (Government of United States of America)	
SPM-127	A	3	43	3	44	"whether the developing countries mentioned here include EIT and developing countries" (Government of Mauritius)	See #A124
SPM-49	B	3	43	3	43	Suggest replacing "grow with" with "increase by" (Government of UK)	See # A117
SPM-128	A	3	44	3	45	This is one example where it needs to be clarified that ANNUAL emissions are referred to. (Government of Sweden)	Reject, no confusion possible
SPM-129	A	3	44	3	44	Replace "though" with "while". (Government of China)	OK
SPM-130	A	3	44	3	44	Remove "though their" on line 44. An alternative sentence(s): "Two thirds to three quarters of this increase (CO2 or all gases?) is projected to come from non-Annex 1 countries. Non-Annex 1 country average per capita CO2 emissions will remain substantially lower..." (Government of United States of America)	See #A130
SPM-131	A	3	44	3	44	Line 44 after "developing countries" Add: "The increase in population growth and GDP per capita is a major contributor to GHG emission growth." [as per TS page 6 lines 23-25 and Figure TS3] (Government of Canada)	Reject, text becomes very cluttered if we add this.
SPM-50	B	3	44	3	44	Delete "will" which is categorical and replace with "are projected to". (Government of Australia)	OK
SPM-51	B	3	44	3	44	Suggest move reference to Figure SPM.4 up to line 41 at the end of the first sentence. (Government of UK)	OK

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-132	A	3	45	3	45	Suggest to substitute "those" by "that". This refers to average per capita... (Government of Mexico)	Reject, English language
SPM-133	A	3	45	3	45	Please include projected changes in emissions per unit GDP for both developing and developed countries. (Government of United States of America)	Reject, not needed here
SPM-134	A	3	45	0	0	Add "in some rapidly developing countries" after "coal". (UNEP)	Reject, no need to single out countries
SPM-135	A	3	45	3	46	The lower range of CO2 per capita for developed countries (9.6 t CO2 per capita) seem to indicate that this covers scenarios that see emission per capita decrease in developed countries by 2030 compared to 2000. If so, then it could be worthwhile to indicate also per capita CO2 emissions in 2000. (European Community)	Reject, numbers ok (some AnnexI numbers go down )
SPM-52	B	3	45	3	45	It is unclear whether the bracketed figures are the average per capita range currently, or what it is expected be in 2030. (Government of Australia)	OK, add "by 2030"
SPM-64	A	3	46	3	46	Delete the last line pertaining to coal – how is conclusive? The period is too short for trends, what about changes in carbon intensity prior to 2000? Is there equal level of confidence for all of these bullets? (Government of Nepal)	Reject, fig 2 shows the trend and the upward shift after 2000 is a policy relevant fact
SPM-136		3	46	0	0	It would be more appropriated if it is mentioned which region or industry is most responsible for the increased use of coal and this trend will be continued or stabilized at certain level. (Government of Korea)	Reject, Report does not have the data for that
SPM-137	A	3	46	3	46	It seems there is no relationship between this sentence and the above mentioned contents , so it is suggested to delete this sentence. (Government of China)	Sentence moved, see #B30

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-138	A	3	46	3	46	Is it possible to add numbers about energy efficiency and carbon intensity for both developed and developing countries? (Government of Netherlands)	Reject, these data are not in the report
SPM-53	B	3	46	3	46	It is unclear where this finding is drawn from in the body of the report. Section 1.3 does not make this claim as starkly as is presented. In addition as other statistics in this section note whether they are based on global averages or a developed/developing country distinction, this also needs to be made clear for this point to logically continue the story presented. (Government of Australia)	See #B30
SPM-54	B	3	46	3	46	"Since 2000 carbon intensity of energy has been on the rise due to increased use of coal"; this is not easily observed from figure SPM 2, where this statement refers to (see comments on figure SPM 2, page 5, line 5)) (Government of Belgium)	See #B30
SPM-55	B	3	46	3	46	replace "been on the rise" with "risen" (Government of UK)	Ok, but see # B30
<b>FIGURE 1</b>							
SPM-139	A	4	0	0	0	Figure SPM-1: This is a very good and explanatory figure. However, it might be useful to have a cumulative figure representing the sum total data for Gt CO <sub>2</sub> eq for 1970 to 2004. Also, the text in the Technical Summary, page 3, line 42, or Ch. 1, p. 3, lines 48-49, would also be useful here: "From 1970-2004, emissions of greenhouse gases covered by the Kyoto Protocol have increased approximately 70% (from 28.7 GtCO <sub>2</sub> eq to 49 GtCO <sub>2</sub> eq and 24% from 1990.....". [Text from Technical Summary, pg. 3, lines 42-43] GtC change per gas is also useful. (Government of Canada)	OK, add cumulative numbers at top of graph
SPM-140	A	4	0	0	0	Figure SPM-1: Footnotes in the figure should be ordered	OK



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						sequentially, and that order should be also used in the footnote descriptions below. (Government of Canada)	
SPM-141	A	4	0	0	0	Figure SPM-1: comment to the third graph (CH4): the emissions reported here are not contained in chapter 9 Forestry, they are from figure 1.1 in chapter 1. it is unclear and not explained in chapter 1 as well what is the correct definition of deforestation as according to footnote 5 part of the emissions from deforestation are included not under "deforestation" but under "decay and peat". this leads to confusion as deforestation is defined differently in both chapters. emissions from deforestation amount according to line 8 page 3 of chapter 9 to 5.8 GtCO2/yr whereas in SPM1 to 2,5GtCO2/yr only. Please clarify! (Government of Germany)	Reject/Accept: the difference in chapter 9 (forestry) and chapter 1 numbers come from our present EDGAR approach of CO2 emissions from forests, we use the methodology of the 1996 IPCC guidelines, using the default factors/ fractions suggested there. This method assumes that the above ground biomass only a fraction is burned/ removed (i.e. 50% of the carbon is released in the year of deforestation (cf FAO figures) and that the remaining fraction decomposes in the next 10 year, each year 10% of the original remaining biomass. Although this is not the exactly the LULUCF definition, but a more practical one from the perspective of global atmospheric modelling.
SPM-142	A	4	0	0	0	Figure SPM 1: To improve readability, please re-number the footnotes so that they are in numerical order. (Government of United States of America)	See #A140
SPM-143	A	4	0	0	0	Figure SPM 1: Footnote – 4– “include large-scale clearing by burning biomass”. This is not necessarily true. In many countries timber is harvested for commercial export, leading to GHG emissions. Can GHG emissions from deforestation be separated from biomass burning, etc.? (Government of Nepal)	Accept: suggested made in new footnote 5 (previous footnote 4) CHECK if data available

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-144	A	4	0	0	0	Figure SPM 1, please add totals for each of the years (perhaps just as figures in the explanation), please also add % contribution of each source (Government of Netherlands)	See #A139
SPM-57	B	4	0	0	0	Figure SPM 1: Clearly the most important part of this figure is the graph on CO2 it should be given greater prominence than at present (for example it could appear at the top of the other graphs or to one side). In addition the inclusion of the grey bars is confusing and should be deleted. (Government of Australia)	Reject, is clear enough
SPM-58	B	4	0	0	0	We propose that the denotation on the y-axis is changed to "GtCO2eq/yr". (Government of Norway)	OK
SPM-59	B	4	0	0	0	Please consider expanding the figure with bars showing total emissions for each year (Government of Norway)	Reject, not needed for SPM (we need to keep figures simple)
SPM-60	B	4	0	0	0	The light grey bars are confusing; suggest deletion. (Government of UK)	OK
SPM-61	B	4	0	0	0	Fig SPM1: Uncertainty bars would help to show that estimates for some gases are more accurate than others. Note 5: The contribution from deforestation and peat soils is highly uncertain. The sum of these is near the upper end of the range for LUC CO2 given in WG1 SPM (pg2) which is 1.8 to 9.9 GtCO2. A cross reference to WG1 chapter 2.3 and 7.3 could help here. (Government of Belgium)	Reject: CO2 numbers from decay are indeed correct (double checked) and uncertainty bars are difficult due to the differentiation in the data collection methods. CHECK numbers on CO2 from decay and see if uncertainty bars are possible
SPM-56	B	4	1	6	15	The presentation of these figures needs to be improved. Currently it is unclear that the description and explanation for the inclusion of the figures is on page 3. It would be of assistance to policy readers if the dot points explaining the figures appeared on the same page as the figures themselves. (Government of Australia)	Will be considered in final lay out

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-145	A	4	3	4	3	Suggest to include words "Global Warming Potential" before acronym (GWP) (Government of Mexico)	Ok, modify text and refer also to box as suggested by #A69
SPM-146	A	4	3	4	3	Figure SPM1: suggest including information on sectors (see e.g. TS2a) (Government of Germany)	Reject, becomes too detailed for SPM; is in TS
SPM-147	A	4	6	4	6	Replace "Figure 1.1" by "Figure 1.1a" as per label of the Figure in chapter 1. (Government of Pakistan)	OK
SPM-62	B	4	8	4	8	What is meant by "traditional biomass combustion at 10%"? (Government of Norway)	OK, clarify (Jos)
SPM-148	A	4	10	4	10	Process emissions from Steel are not included in overall CO2 process emissions? Similarly Figure 1.1 in Chapter 1 is confusing, including steel and other non energy use of fossil fuels in deforestation emissions? (European Community)	Ok, add this to note #2 – Check with BM as this was deleted in current footnote 6.
SPM-63	B	4	11	4	11	Add "emissions" after Including (Government of Norway)	OK
SPM-64	B	4	11	4	11	(Footnote 3) Suggest redraft "Including emissions from biofuel..." (Government of UK)	See #B63
SPM-65	B	4	12	4	13	The meaning of this sentence seems unclear and should be clarified (Government of Norway)	OK, clarify- Not done
<b>FIGURE 2</b>							
SPM-149	A	5	0	5	0	In the caption of Figure SPM 2, "Energy" and "Emission intensity" may also be mentioned. (Government of Pakistan)	OK
SPM-150	A	5	0	0	0	Figure SPM-2: The labelling of these curves (on the right hand side of the figure) is not clear. What does "TPES" mean next to the two energy curves? The labells are also not consistent with the figure caption below.	OK, improve

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of New Zealand)	
SPM-151	A	5	0	0	0	Figure SPM-2: Should include in caption all of the information shown and the significance of the concepts such as energy intensity, TPES, etc. Need a comma after "Relative development of gross Domestic Product (GDP)," (Government of Canada)	OK
SPM-152	A	5	0	0	0	Figure SPM 2: TPES should be explained. (Government of Sweden)	OK
SPM-153	A	5	0	0	0	Figure SPM 2: Global CO2 per capita needs to be included in this figure for completion (Government of Nepal)	Reject; CO2 and population are close together so CO2 per capita would follow same line and would make figure unreadable
SPM-66	B	5	0	0	0	Figure SPM 2: two comments on this figure (that is technically OK): 1) for a summary for policy makers, this graph contains too many curves, while there is some redundancy in the information provided - recommended is to limit the number of curves to the 5 variables of the Kaya identity; 2) the impact of the 4 explanatory components of the Kaya identity is not very obvious from the graph because every curve shown follows the own trend with the interactions among the variables left unclear - recommended is a graph in first differences, or picturally more informative: differences over 5-year periods from 1970 to 2004, giving 7 results; although the latter option is sensitive to the choice of base-years and time-intervals (why exactly the 2 subperiods of one decade of our calendar?) the changing impact of the 4 components over time on the change in emissions is more visualized. (Government of Belgium)	Reject, we had such a figure in the SOD and that was heavily criticised. Figure makes a differences between primary elements (solid lines) and relative elements (dotted lines)
SPM-154	A	5	2	5	5	Include the word "Global" in the figure caption (Government of Switzerland)	OK
SPM-67	B	5	2	5	6	Figure SPM 2 comment: (A) Change "PURCHASE Power	(A) see # A156

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Parity" to "PURCHASING Power Parity" for consistency. In addition, <b>(B)</b> the explanation for this figure needs to include a qualification somewhere explaining that the possible fall in emissions intensity is highly dependent on underlying growth and exchange rate assumptions. The reason for this is that a fall in emissions intensity of world GDP (irrespective of the exchange rate used in the aggregation) could be misleading to readers. Under unchanged technologies relatively faster economic growth in developing countries may increase emission intensity of the world GDP, but under PPP aggregation, for example, the GDP of the developing countries will be further scaled up which may end up lowering the emission intensity of the world GDP. This will be so if the exchange rate conversion effect (which does not impact on actual emissions) dominates the economic growth effect (which impacts on emissions) on the emission intensity of the world GDP. This is an unavoidable problem and a qualification to this effect, that it should be read with care, would enhance the quality of the reporting. (Government of Australia)	(B) Reject, for inter country comparisons PPP basis is best ; becomes too confusing for SPM to explain that
SPM-68	B	5	2	5	6	The term "Energy (TPES)" should be explained. (Government of Norway)	See # A152
SPM-155	A	5	2	5	5	This caption for Figure SPM-2 is not consistent with the labelling of the curves. Does "GDP" in the caption refer to the curve labelled "Income (GDP-ppp)"? The "Energy" curve is not mentioned in the caption. "Carbon Intensity (CO2/energy use)" is used in the caption but "Carbon intensity (CO2/TPES)" by the curve. (Government of New Zealand)	OK, improve
SPM-156	A	5	2	5	2	"Figure SPM 2" "PPP stands for Purchasing Power Parity rather than Purchase Power Parity" (Government of Mauritius)	OK

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-69	B	5	2	5	5	State that these are global averages. E.g. redraft as "Global average values for Relative development of Gross..." (Government of UK)	OK- Not done now
SPM-157	A	5	3	5	3	Suggest to invert words and acronym to: "Purchase Power Parity (PPP)" (Government of Mexico)	See #156
SPM-158	A	5	3	5	3	"Purchase Power Parity" should be "Purchasing Power Parity" (and possibly all in lower case, if lower case is used to label the figure). (Government of New Zealand)	See #156
SPM-70	B	5	3	0	0	Define the term PPP in order to make the Figure SPM 2 more understandable for non-economists. Define the term TPES.. (Government of Norway)	See # A152 and A156
SPM-159	A	5	6	0	0	References are given for source but SPM does not have a section with cited references (Government of Nepal)	OK, but add reference {fig.1.5} instead; NOTE: SPM references are now missing in figure 1.5
<b>FIGURE 3</b>							
SPM-160	A	6	0	0	0	In line 1 of legend of Figure SPM 3a, the end bracket after GHG may be removed. (Government of Pakistan)	OK
SPM-161	A	6	0	0	0	In Figure SPM 3a, the red line denoting the average per capita GHG emissions for Non-Annex I countries should be marked in such a way that it does not give an impression as if it is only for Africa and South Asia. (Government of Pakistan)	OK, extend the line: New bar for average has been added
SPM-162	A	6	0	0	0	In figure SPM 3, "USA and Canada" appear as a region, but in the notes that region is called "North America" (Government of Mexico)	OK, replace by "North America" in the figure: Not done – Holger action?
SPM-163	A	6	0	0	0	Figure SPM-3a: The text label "Other non-Annex 1" on the 5th bar is not able to be easily read, and we suggest it is removed from the bar and placed nearby, as in Figure SPM-	OK, improve

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						3b. The division into Annex 1 and Non-Annex 1 areas on the figure, using the dashed lines, is confusing and a better way of marking this division should be found. (Government of New Zealand)	
SPM-164	A	6	0	0	0	Figure SPM-3a and 3b: Please define Middle East in the note as done for other regions including a list of countries in this geographic region. (Government of Canada)	OK, add
SPM-165	A	6	0	0	0	Figure SPM.3 and Note: Please include all EU27 Member States in Emission from Europe Annex I (Figure and note are confusing with one referring to Europe Annex I and the other to Europe Annex II. Add country list for Middle East to the Note and replace 'USA and Canada' with North America in the figure. (European Community)	Reject, as stated UNFCCC classifications are used; OK to change Europe Annex II into Europe Annex I and USA and Canada into North America
SPM-166	A	6	0	0	0	Figure SPM 3a/b, comment: the figures suggests that countries within each of the groupings have comparable per capita and per PPP GHG emissions, which is not correct; we suggest to add to each of the groupings a bar indicating the distribution between the countries within each of the groupings (Government of Netherlands)	See # A99
SPM-167	A	6	0	0	0	Figure SPM 3a and b: as for Figure SPM2 the phrase "CO2 emissions (from fossil fuel burning, gas flaring and cement manufacturing)" should be included to make clear that CO2 emissions from deforestation and peat as in SPM1 are excluded here. (Government of Germany)	CHECK (HHR says peat is not included, but it needs to be checked if other land use is)- what is outcome?
SPM-168	A	6	0	0	0	Figure SPM 3:It is not clear what countries are included in the figure as "Latin America". Does that include the Caribbean? (Government of Mexico)	OK, add

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-169	A	6	0	0	0	In Figure SPM 3a and 3b, the descriptions in dark background colour bars, like the one for JANZ, are not legible. These may better be made identical to those in Figures TS 4a and TS 4b. (Government of Pakistan)	OK, improve
SPM-71	B	6	0	0	0	Figure SPM 3a: The authors should also include a figure showing total GHG emissions per region not just per capita and GDP emissions. (Government of Australia)	Reject, too much for SPM
SPM-72	B	6	0	0	0	Figure SPM 3a: The authors need to include an explanation of what the percentiles on each of the graph bars present. In addition this figure needs to more clearly state that the selected regions are grouped by their status as either A1 or NA1, and that they are ordered by descending per capita emissions. (Government of Australia)	OK, add to caption
SPM-73	B	6	0	0	0	Figure SPM 3: The authors need to consider whether the use of this figure in the SPM is necessary. It is presented in a complicated manner and does not provide significantly more information than that which is included in the text at page 3 (lines 36-39). (Government of Australia)	Reject, others like it
SPM-74	B	6	0	0	0	Title of both SPM 3a and 3b is better to put "in 2004" at front, or to read: "Year 2004 distribution of ... Etc." (Government of Belgium)	OK
SPM-75	B	6	0	0	0	Fig SPM 3: Very useful histograms. Could be useful to add lines showing the 1990 levels to show the change (as this is the base used by UNFCCC). Why do bars overlap slightly? (Government of Belgium)	OK, to repair overlap (not intended) Reject 1990 data (not in report)
SPM-76	B	6	0	0	0	Fig 3b; in the figure the year 2000 is used while the subtitle reads "in 2004"	OK, modify to make clear that this is year 2000 US\$- Not clear



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Norway)	
SPM-7	C	6	0	0	0	Figure SPM 3a In the Y axis of figure SPM 3a says (2000) and it must say (2004) (Government of Argentina)	OK, 2000 is only referring to \$, but will be changed to avoid misunderstanding
SPM-8	C	6	1	0	0	.....regional per capita GHG emissions (all Kyoto gases).... (a parenthesis exceeds) (Government of Argentina)	OK
SPM-9	C	6	6	6	8	Figure SPM 3a/3b. The note on country grouping is confusing. (Government of Spain)	Ok, will be modified as requested by others
SPM-170	A	6	7	6	7	Title should say "Europe Annex I" instead of "Europe Annex II" (Government of Mexico)	See #A165
SPM-171	A	6	7	6	7	correct: Europe Annex I (NOT "Annex two") (Government of Germany)	See #A165
SPM-77	B	6	7	6	7	Annex II should read Annex I (Government of Belgium)	See #A165
SPM-78	B	6	7	6	7	The text reads Europe Annex II while in figure 3a and 3b "Europe Annex I" is used (Government of Norway)	See #A165
SPM-172	A	6	8	6	8	Turkey: It is suggested to verify the actual status of this country under the UNFCCC - see decision COP/6 (Government of Austria)	CHECK;( the note will change to Annex I; as far as I know Turkey did not ratify the UNFCCC because they are listed as Annex D) Turkey has ratified the KP and it came into force in May 2004, however data on this is not available, therefore is negligible
SPM-173	A	6	9	6	9	If the acronym is "JANZ" then the explanation should be "Japan, Australia, New Zealand, in that order, not "Australia, Japan, New Zealand" (Government of New Zealand)	OK, modify
SPM-174	A	6	10	6	10	Please delete "Hong Kong", which is a part of China.	OK

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of China)	
SPM-79	B	6	13	6	13	delete because "North America" is not used in the figures; USA and Canada are mentioned as such (Government of Belgium)	Reject, see #A165
SPM-175	A	6	14	6	14	The word "Kyrgyzstan" may be replaced by "Kyrgyzstan". (Government of Pakistan)	OK
SPM-10	C	6	14	6	14	Please remove Gibraltar on the list of "Other non-Annex I Countries". (Government of Spain)	OK
<b>FIGURE 4</b>							
SPM-178	A	7	0	0	0	Figure SPM-4: Should the vertical axis be labelled as "Gt CO <sub>2</sub> eq / year", not "Gt CO <sub>2</sub> eq"? (Government of New Zealand)	OK- still Gt CO <sub>2</sub> eq/year!
SPM-179	A	7	0	0	0	Figure SPM-4: introduces new scenario results (EMF-21). Some information about this group of scenarios and how they compare to the SRES is important for policy makers. Also inclusion of the lines TS page 9 lines 6-8 "For 2100, the SRES range (a 40% decline to 250% increase compared to 2000) is still valid. More recent projections tend to be higher: increase of 90% to 250% compared to 2000." in the Figure SPM4 caption would be useful. It is interesting to note that some of the EMF scenarios include climate policy and still result in higher emissions. Inclusion of Figure 3.9 from underlying chapter 3 would be useful to show relation between the SRES and EMF-21 group of scenarios. (Government of Canada)	See #A177 OK, revision of figure by deleting EMF21 scenarios. Instead one should to add bars for 5, 25, median, 75, 95 percentile of the emissions of the full literature as assessed in Chapter 3.3. Add remark in caption that post-SRES baseline
SPM-180	A	7	0	0	0	Figure SPM-4: How significant is the fact that "this figure does not show the full range of scenario results since SRES..."? If significant, an explanation should be included. (Government of Canada)	OK, see #A177
SPM-181	A	7	0	0	0	Figure SPM-4: as for Figure SPM2 the phrase "CO <sub>2</sub>	Reject, SRES scenarios include all

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						emissions (from fossil fuel burning, gas flaring and cement manufacturing)" should be included to make clear that CO2 emissions from deforestation and peat as in SPM1 are excluded here. (Government of Germany)	land-use emissions, although it is not known to what extent peatland emissions are included (OK, to add a note to figure caption)- Not needed in new graph?
SPM-182	A	7	0	0	0	Figure SPM-4: A sentence or two to explain the SRES and EMF scenarios and their purpose (to illustrate a range of GHG outcomes based upon an assumed series of drivers or parameters (population, GDP, etc., etc.) over various time periods) would be helpful as neither the SPM nor TS do so. Most policy makers will not read Chapter 3. (Government of Canada)	See # A176 and #A177
SPM-183	A	7	0	0	0	Figure SPM 4: Explain EMF 21 and what the acronyms MES, MIT,IPAC etc mean. (Government of Sweden)	See #A177
SPM-184	A	7	0	0	0	Figure SPM 4: A box should be added clearly defining each scenario. Draw from the box used to describe the SRES scenarios in the SPMs for the WG1 and WG2 reports, but include descriptions of all scenarios used in this SPM. (Government of United States of America)	See #A176
SPM-185	A	7	0	0	0	Figure SPM 4: 19 models were used in EMF-21. The notes should also describe how the 6 models presented here were chosen and how representative they are of the 19. Also, a note is needed about the SRES scenarios presented. Are these the marker scenarios? How representative are they of the 40 SRES scenarios, or at least the 26 harmonized scenarios? (Government of United States of America)	See #A177 and A176
SPM-187	A	7	0	0	0	<b>Fig</b> SPM 4, comment: suggest to have an identical order of scenarios for all three years. (Government of Netherlands)	Reject, would make it more difficult to see the high and the low
SPM-81	B	7	0	0	0	<b>fig. SPM4</b> We propose that the denotation on the y-axis is	See # A178

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						changed to "GtCO2eq/yr". (Government of Norway)	
SPM-82	B	7	0	0	0	Figure SPM 4 would be easier to understand as a line graph of total emissions vs time for different scenarios. It could be improved if the order of the scenarios on the x-axis were consistent between years (understand though that this loses the descending order) (Government of UK)	Reject, because emphasis is here on range, not on dynamics over time
SPM-188	A	7	1	7	4	Include the word "Global" in the figure caption (Government of Switzerland)	OK- Not done
SPM-80	B	7	1	7	5	The authors need to provide some information on the EMF-21 scenarios and state why they have been used as the comparator for the SRES. (Government of Australia)	See #A177
SPM-186	A	7	2	7	5	Fig.SPM 4 caption. Explain, at least in a footnote, the meaning of EMF 21 and the characteristics of the corresponding scenarios (Government of France)	See #A176
SPM-83	B	7	2	7	4	Title of SPM 4 is not very clear for a non-inside reader; should be rephrased. Also instead of "2000-2100" it is better to use "2000; 2030; 2100" because the provided data are discrete. (Government of Belgium)	OK- Not done
SPM-84	B	7	2	0	0	We propose that the text is changed to "GHG emission baseline scenarios" to make it more in line with the text in line 7. (Government of Norway)	OK- Not done
SPM-85	B	7	2	7	2	The abbreviation EMF 21 should be explained (Government of Norway)	See #A177
SPM-189	A	7	3	7	3	It is suggested to substitute "since SRES by after 2001"? (Government of Austria)	See #A177
SPM-190	A	7	3	7	3	It is not clear whether the phrase "full range of scenario	See #A177

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						results since SRES" refers to post-SRES scenario results or the results of SRES scenarios. This may please be clarified. (Government of Pakistan)	
SPM-86	B	7	3	7	3	Editing: replace "is" with "are". (Government of Australia)	Reject, sentence will be deleted
SPM-87	B	7	3	7	4	We suppose that F-gases does not include CFCs, HCFCs and other F-gases than those mentioned. If this is the case we propose that the sentence is changed to "F-gases are HFCs, PFCs and SF6." (Government of Norway)	OK
SPM-191	A	7	4	7	4	Please, add to the Caption of the Figure SPM 4: Variations between emission projections reflect alternative development pathways in respect to population, technology, governance and economy. (Government of Finland)	See #A176
SPM-192	A	7	5	7	5	The figure "200.6" may be written as "2006". (Government of Pakistan)	OK
SPM-193	A	7	5	7	5	space between 200 and 6 to be removed (Government of Austria)	See #A192
SPM-194	A	7	5	7	5	Correct the date of the Weyant reference: 2006 (Government of Switzerland)	See #A192
SPM-195	A	7	5	0	0	200.6 should be replaced by 2006 (Government of Nepal)	See #A192
<b>PARAGRAPH B3</b>							
SPM-196	A	7	7	7	7	For clarity purposes, it would be usefull to intoduce explanations on the "long-term baseline scenarios" in the form of a short table - or a footnote (Government of Switzerland)	Reject, not clear what the added value is; SRES box will be added
SPM-197	A	7	7	7	9	Figure SPM 4 does not support the statement and seems to suggest the conclusion that GHG emissions ranges have changed appreciably. The low end of the SRES scenarios in 2100 is not reflected in the EMF-21 models presented. Also,	See #177 (EMF data to be removed from fig 4)

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						<p>this comparison is a bit arbitrary for two reasons: (1) the SRES and EMF-21 scenarios presented in Fig. SPM 4 are a small subset of the scenarios in those exercises and it is not clear that they are representative, and (2) unlike SRES, the EMF-21 exercise was not designed to span a range of possible baseline futures. Arguably, the EMF-21 results with their "modeler choice" baselines suggests a level of expert agreement that 2100 emissions are expected to be more than that suggested by SRES A1T, B1, B2, and A1B. This movement away from low SRES emissions in 2100 is a significant point worth making.</p> <p>(Government of United States of America)</p>	
SPM-88	B	7	7	7	22	<p>The authors need to address the criticisms that have been made of the SRES in a more open and transparent manner. At present it seems that the SPM downplays the SRES criticisms, especially when it comes to questions of population and economic growth projections. A more transparent method to deal with these criticisms would be for the authors to take a "twin-track" approach where they present both the SRES scenarios and the criticisms of those scenarios as valid differences of opinion. The authors need to avoid giving the impression that the validity of the AR4 rests on readers agreeing with the authors' views on MER/PPP. One way to do this is to focus on concentrations rather than emissions. Specific suggestions follow.</p> <p>(Government of Australia)</p>	Reject, these are the conclusions from a comprehensive review of the literature, including the criticisms
SPM-89	B	7	7	7	7	<p>In the headline statement the authors need to note that there is some uncertainty with baseline emissions scenarios. Suggest that the headline statement is reworked to incorporate the following: "Although significant uncertainty exists about future baseline emissions levels (in the absence of additional policies), the overall likely range has not changed appreciably since the SRES used in the TAR".</p>	Reject, baseline scenarios are specifically used to deal with inherent uncertainty about the futuer. The wide range of baseline emissions reflects that

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						(Government of Australia)	
SPM-91	B	7	7	7	9	We think that this main message might be of limited interest to policy makers. A message focusing on the differences between the different scenarios, as well as changes in assumptions, might be more useful. (Government of Norway)	Reject, this is relevant in light of the SRES criticisms
SPM-92	B	7	7	7	8	The term "appreciably" may not be well known to non-native English speakers. Please consider an alternative term. (Government of Norway)	See #B93
SPM-93	B	7	7	7	7	To clarify suggest redrafting to "The ranges of more recent GHG emissions scenarios, which exclude climate policies, are comparable to those included in the IPCC Special Report on Emission Scenarios." (Government of UK)	OK
SPM-94	B	7	7	7	8	See comment (3, 23, 3, 46) - suggest replacing the headline message with line 40 to 46 on page 3. The current headline would become the first bullet point of Section 3 (Government of UK)	Reject, see above
SPM-95	B	7	7	7	7	It would be helpful to introduce a box explaining the SRES scenarios, in line with WG1 SPM (WG1 SPM page 18). (Government of UK)	OK, See also # A176,A177
SPM-96	B	7	7	7	22	It would be helpful to add a graph on emissions projections by sector at global and regional level, also to support section 10 on page 13. (Government of UK)	Reject, additional text inserted on sector contributions in para 2
SPM-11	C	7	7	7	7	Footnote: be more specific about "current ones "(year, period,...) (Government of Spain)	See B90
SPM-97	B	7	8	7	8	Figure SPM 4 indicates that the emission range should be 25-140 Gt CO <sub>2</sub> -eq? (Government of Norway)	Reject, EMF21 to be taken out (see other comments) and range is range of SRES markers
SPM-98	B	7	9	7	9	The authors need to review their confidence finding - its	Reject, high agreement is what report

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						seems the statement of "high agreement" may implicitly fail to reference the SRES criticisms. Suggest that "medium" agreement may be more appropriate. (Government of Australia)	says, reflecting that writing team is in full agreement with this conclusion from the assessment. In addition, there is a total of 9 studies that were assessed to reach this conclusion. Therefore, "much evidence" applies. In order to avoid misunderstanding, rephrase first part to be "Evidence from PPP based studies ..."
SPM-198	A	7	10	7	22	This section is missing the key message that under baseline projections the accumulation of GHGs in the atmosphere is projected to continue for the coming century. Are there changes in the assumptions on economic growth for China and India? This is of more relevance than the projections for the regions given here. Are there changes for other regions? It seems more important to indicate many new studies since the SRES do not project baselines within the lower range of the SRES results. This has a considerable consequence on projected temperature increases by the end of the century (this should be flagged as WG I used also the lower range of SRES scenarios to estimate temperature changes). (European Community)	Reject; is clear from fig 4
SPM-199	A	7	10	7	15	Paragraph 3 switches from "post-SRES" to "since TAR" and back to "SRES" again. Unless the authors are prepared to explain the difference, suggest using one or the other. Also, identify the year the SRES was issued so readers know the time frames for "SRES" and "since SRES". (Government of United States of America)	OK, SRES in all cases
SPM-200	A	7	10	7	15	It is important that the SPM makes clear that the relationship between economic growth and emissions can differ from country to country. This paragraph appears to carry the implication that there is a universal relationship between	Reject, text is not suggesting that



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						each driver and emissions. However each country may have quite different drivers for emissions and in some cases population growth may be less important, and economic growth more important, than in others. (Government of New Zealand)	
SPM-201	A	7	10	7	23	"Is it possible to provide information on those parameters which have large uncertainties" (Government of Mauritius)	Reject, scenarios are a way to deal with uncertainties
SPM-99	B	7	10	0	0	Define TAR. (Government of Norway)	Reject, already done in para 1
SPM-202	A	7	11	7	15	These two sentences substantially overlap and are therefore somewhat repetitive. Suggest eliminating the more detailed second sentence on economic growth projections or consolidating the information into one sentence. (Government of United States of America)	Reject second sentence is on population. Third sentence is on economic growth
SPM-203	A	7	13	7	14	term "post-SRES scenarios" is misleading here, as this is used in TAR for stabilisation scenarios. (Government of Germany)	OK, add "baseline" after "post-SRES"
SPM-12	C	7	13	7	14	Please clarify the term "post-SRES scenarios" (Government of Spain)	See A203
SPM-204	A	7	16	7	17	Suggest this sentence be modified to read: "Representation in long-term scenarios of aerosols and aerosol precursor emissions (e.g., SO <sub>2</sub> , BC and OC), which have a net cooling effect, has improved since SRES. A general finding is that these emissions are projected to be lower over the long term compared to SRES." Note the word "net" because BC has a warming effect. (Government of United States of America)	OK
SPM-100	B	7	16	7	17	The authors should reference the findings of WG1 on the cooling effect of aerosols. (Government of Australia)	OK, see #A204,
SPM-101	B	7	16	7	16	Suggest inserting a bullet point to clarify that the underlying	UNCLEAR what is meant

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						drivers of emissions do indeed matter - this could be related to the SRES scenarios (Government of UK)	
SPM-205	A	7	18	7	22	This paragraph must be rather incomprehensible to non-expert policy makers who have not followed this 2-3 year old debate and may not be familiar with PPP and market exchange rates. (Government of Sweden)	Reject, too politically important for those that have been involved in the debate
SPM-206	A	7	18	7	22	It may be helpful to add at the end of this bullet point, the statement: "PPP is considered a better approach especially when being used for welfare and/or income comparisons across regions." (Government of New Zealand)	Reject, not consistent with chapter 3.3. PPP is the better measure of national (not regional) welfare differences. In the context of emissions scenarios, however, it is not clear which of the both metrics would be more accurate as a metric for measuring economic activity.
SPM-207	A	7	18	7	22	Comment: although we recognize discussions about the GDP metric have been fierce and in fact detrimental to the support for a previous IPCC report, we doubt a caveat statement like this merits being taken up in the SPM. (Government of Netherlands)	See #A205
SPM-102	B	7	18	7	22	In this dot point, the authors need to be more explicit about the SRES criticisms. Suggest that this point be redrafted along the following lines drawn from Chapter 3 (page 22): "Although there has been significant debate about the choice of metric for GDP, the available evidence indicates that the differences, between projected emissions using MER exchange rates and PPP exchange rates are small in comparison to the uncertainties represented by the range of scenarios and the likely impacts of other parameters and assumptions made in developing scenarios, e.g., technological change".	OK, add before first sentence: "There has been debate about the choice of metrics for GDP (Market Exchange Rates (MER) or Purchasing Power Parity (PPP). The next sentence then slightly modified: "Evidence .... New PPP based studies.....the choice of exchange rate in measuring GDP does not .....consistently." (as suggested in A208)

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Australia)	
SPM-103	B	7	19	7	20	The term "appreciably" may not be well known to non-native English speakers. Please consider an alternative term. (Government of Norway)	Reject, not too difficult
SPM-208	A	7	20	0	0	The word 'metric' is unfamiliar (Government of Nepal)	Ok, change to "the choice of exchange rate in measuring GDP"
SPM-209	A	7	20	7	20	The differences between GDP PPP and GDP MER, are these differences in a certain direction, if so, please mentioned. This needs to be clear also for those not directly involved in these modelling exercises. For policymakers this is not transparent if not explained. (European Community)	Reject, TS and chapter 3 have more detail
SPM-210	A	7	22	7	22	It is suggested to substitute "technological change" by "rate of technological change" (Government of Austria)	Reject, it is more than the rate, it is also the nature of technological change
SPM-90	B	7	24	0	0	Footnote 1: Do "current" policies include the Kyoto protocol, EU Emissions Trading Scheme, etc.? Please clarify, in consultation with creators of these scenarios (Government of Belgium)	the resolution of the models is too coarse to clarify this. Some of the more recent ones might include Kyoto, but certainly not all. Change sentence to clarify that the sentence is giving a definition of baselines and not trying to make a quantitative statement what present policies are included. OK, Change sentence footnote added into: "Baseline scenarios in the literature do not...include additional climate policies above current ones. Some do include Kyoto Protocol."
SPM-176		7	25	0	0	(footnote 1) It'd help to understand if the concept and explanation of the Baseline scenarios as an annotate is added. (Government of Korea)	OK, draw from WG 1 and 2 boxes

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-177	A	7	25	0	0	Footnote #1: Please clarify because some EMF scenarios are said to include some climate policies. Also, please use the quote from WGI page 18 SRES box, "The SRES scenarios do not include additional climate initiatives, which means that no scenarios are included that explicitly assume implementation of the UNFCCC or the emissions targets of the Kyoto Protocol." (Government of Canada)	OK, EMF21 scenarios to be removed; see # A110 See also #A176 for SRES explanation
<b>BOX 1</b>							
SPM-213	A	8	0	0	0	Box SPM-1: As the SPM will be used by a range of policy makers it would be useful to clarify some of the terms used here. The differences between "social cost pricing" and "private cost pricing" could be made clearer, as could "without most externalities" (perhaps in this case by adding "i.e. assuming some actions/activities do not carry costs"). It is not sufficiently clear what is being referred to by "...barriers limiting actual uptake." (Government of New Zealand)	OK, try and improve clarity of box
SPM-214	A	8	0	0	0	Box SPM 1: The SPM is comparing apples to oranges at the moment in the comparison of bottom-up estimates for a given carbon price to top-down estimates required for achieving reduction quantity targets over time. These estimates are not directly comparable. Had the top-down models run carbon price paths (vs. quantity targets) the estimates would have been more comparable to the bottom-up estimates. However, estimates from carbon prices provide information on the amount of mitigation available at a carbon price. Estimates from quantity target scenarios provide information on the amount of mitigation actually utilized in the least-cost portfolio of options in a particular period. The former is economic potential and the later is competitive potential. The top-down estimates used in the	<b>DISCUSS</b> Accept and following action taken: Important: The notion of "competitive potential" is not covered in the report, nor was it raised during the review process In trying to solve this it might help if we more precisely explain the two methods: T/D potentials, given the way models work, are giving something below economic potential. B/U potentials are also not true economic potential because 1) a number of studies do include barriers; 2) many studies are incomplete in

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						<p>SPM are definitely not estimates of the amount of mitigation received for a given carbon price, i.e., they are not estimates of economic potential as currently defined in the box. The carbon price derived from stabilization scenarios reflects the amount of mitigation required to be on the stabilization path, where the carbon price is endogenous and represents the marginal cost of the last option that had to be adopted to be on the stabilization path in that period. Meanwhile, the definition of market potential in the box is currently limited to implementation costs and barriers and represents a bottom-up implementation potential concept.</p> <p>We believe the box really needs to define this other concept—competitive potential—to clarify these distinctions and establish the relationship between the two types of potential reflected in the bottom-up and top-down estimates represented in the SPM. We propose the following changes to the current text in the box:</p> <ol style="list-style-type: none"> <li>1. Define competitive potential: Competitive potential is defined as the amount of GHG mitigation that is competitively selected to minimize costs for achieving a defined mitigation goal (e.g., emissions cap or stabilisation target). Analyses of this type are referred to as cost-effective analyses, in that they identify the most cost-effective combination of options for achieving the pre-defined goal.</li> <li>2. Revised definition of economic potential: Economic potential, as used in most studies, is the amount of GHG mitigation that is economical for a given carbon price, including energy savings or crop yield changes, but without externalities or market feedbacks.</li> </ol> <p>A few additional comments and questions:</p> <ol style="list-style-type: none"> <li>1. What is “social cost pricing”?</li> <li>2. “covering all sectors” suggests that all bottom-up studies cover all sectors. However, just the opposite is true—most</li> </ol>	<p>terms of options, sub sectors and regions. We might also use TAR box spm2 that that says differences between T/D and B/U analyses have been reduced. We could present numbers more separated</p>

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						<p>are sector (and location) specific.</p> <p>3. The economic feedbacks such as input re-allocations within periods and across time, investment decisions over time, trade effects, and comparative production and mitigation advantages, as well as biophysical system dynamics are incredibly important parts of estimating global potential. The text here inappropriately plays down the importance. The SPM should instead be encouraging modeling that endogenizes important relationships between technologies, markets, regions, and time periods.</p> <p>4. Given the bottom-up consistency issues with baselines and the different kinds of potential being estimated, the similarity between the bottom-up and top-down global estimates of potential is purely coincidental and should not be considered validation of either estimate.</p> <p>(Government of United States of America)</p>	
SPM-215	A	8	0	0	0	<p>Box SPM 1: The definition refers to a given "carbon price". Given that certain policies (e.g., tax credits) can place a value on carbon, but not a market price per se, suggest changing this to "carbon value".</p> <p>(Government of United States of America)</p>	Reject, carbon price is the word used in the report, OK to explain in box that carbon price can also mean implicit or shadow carbon price,
SPM-216	A	8	0	0	0	<p>Box SPM 1: Do the top-down models also include aspects such as life-style changes (considered as a non-technical mitigation option)?</p> <p>(Government of Nepal)</p>	OK, change text to make clear that this applies to both top down and bottom up studies
SPM-217	A	8	0	0	0	<p>Box SPM 1: Consider putting the caveat in Box SPM 2 on p 12 here so that it is before paragraphs where it is relevant. Also, a box that explains for the lay person the basics of models and what they do and don't account for would be far more useful here than this box. Something should be said about assumptions about technological change and deployment as well as net costs. There is nothing in any of</p>	<p>Reject putting box 2 in box 1, because Box 2 is meant to discuss cost estimates and the influence of model assumptions</p> <p>OK to take into account in box 2 reformulation- Monique confirms that no caveat included in Box 2</p>

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						the statements in this document about distribution of costs, which is one of the key political issues associated with the transition to a low carbon economy. (Government of United States of America)	
SPM-218	A	8	0	0	0	Box SPM 1 : replace at the end of the first two paragraphs, 2.5 by 2.4 (Government of France)	OK
SPM-219	A	8	0	0	0	Average for those spacelines is shown instead of in shown in footnote 3 (Government of Austria)	UNCLEAR
SPM-104	B	8	0	0	0	Box SPM1: Definitions provided are not exactly in line with underlying chapters - and those are most transparent. Therefore replace current definitions with: "Economic potential is theoretically defined as the amount of GHG mitigation that is cost-effective for a given carbon price, taking into account both market and non-market social costs and benefits, using social discount rates. This therefore includes valuation of externalities, but does not assume that underlying consumer preferences are changed. However, in most studies, energy savings are included, but externalities are excluded [2.4]." "Market potential is defined as the amount of GHG mitigation that might be expected to occur under forecast market conditions, including policies and measures in place at the time based on private costs and discount rates. Therefore it assumes current market prices, barriers, hidden costs, etc remain in place, and a zero carbon price [2.4]." (Government of UK)	Reject, too technical for SPM, see #A213 For discussion- what has been the result of discussion. Think we should reject as originally suggested
SPM-223	A	8	0	0	0	Box SPM 1: add the words "and changes in production and consumption patterns" after "Non-technical mitigation options, such as life style changes" (Government of Germany)	OK, but then replace "life-style changes"- In new text deleted

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-224	A	8	0	0	0	Box on economic and market potential is too technical for policy makers and its varied use in the text is confusing. Further, the term "mitigation potential" as introduced in footnote 3 might be confused with either "economic potential" or "market potential" used elsewhere, although they are not the same thing. For "economic potential" we suggest using "opportunity for cost-effective reductions" or "potential for cost-effective mitigation"...? The Term "market Potential" is not really explained well, the current description makes it sound like a "business as usual" scenario of implementing simply what exists, which is not what we think was meant. (Government of Canada)	OK, take into account when reformulating box 1, See also # A212 Accept: Do believe this has been taken into account
SPM-105	B	8	0	0	0	Box SPM 1: The authors should include a note in this box setting out that economic potential is generally the potential most analysed in the SPM and WG3 report. (Government of Australia)	OK- Footnote not there
SPM-106	B	8	0	0	0	Box SPM 1: Definition of "Market Potential" - insert "GHG mitigation" before "potential" for clarity and consistency with the definition above. (Government of Australia)	OK- we still need to add GHG
SPM-107	B	8	0	0	0	Box SPM 1: Definition of "Market Potential" - Delete "as used in most studies" as this unnecessarily complicates the definition. In addition, replace "with" with "under" for grammatical completeness and delete "including energy savings" as it seems odd to include energy savings when not all emissions are connected to energy use. (Government of Australia)	OK, to add "where applicable" after "energy savings"- not added Reject deletion of "as used in most studies" in light of para 2 definition
SPM-108	B	8	0	0	0	Box SPM 1: Definition of "Economic Potential" - the definition in Chapter 2 (page 33) is much clearer, we suggest that the authors use that definition as a replacement for the current version in the SPM.	See # B104



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Australia)	
SPM-109	B	8	0	0	0	Box SPM 1: Definition of "Economic Potential" - Delete "as used in most studies" as this unnecessarily complicates the definition. In addition, delete "including energy savings" as it seems odd to include energy savings when not all emissions are connected to energy use. (Government of Australia)	OK, to add "where applicable" after "energy savings" Reject deletion of "as used in most studies" in light of para 2 definition
<b>PARAGRAPH 4</b>							
SPM-212	A	8	1	15	2	Economic potential, according to Box SPM 1, is without most externalities. Is this true for Figures 5 and 6? How much bigger would potentials be if sulfur dioxide reductions, indoor air-pollution, energy security and other aspects were properly accounted for? It should be noted that a more integrated approach would result in greater potentials. Where is the link to Chapter 12? Are the macro economic cost estimates [P11, L16-22] without most externalities, and if so how? What is the value of this information? (Government of Sweden)	OK, add sentence on impacts of including externalities in potential estimates in box 1 (if supported by chapter 2/11)- Not included in new text, do not know reason for rejecting comment For discussion
SPM-220	A	8	1	15	2	Section C: This section is far too technical to be understood by policy makers. For example, non-economists will not understand the difference between economic and market potential based on the description, as they will not understand the economic jargon of social cost pricing and discount rates and market cost pricing and discount rates. This needs to be explained in layman's terms. (Government of United States of America)	Box 1 to be simplified
SPM-221	A	8	1	15	2	Section C: There are fundamental issues in this section (noted below), and we therefore propose a restructuring of the section. We suggest that the section start with the top-down global estimates of mitigation potential for different price ranges, including a figure and discussion of the	DISCUSS, see #A214 restructuring would be virtually impossible at this stage

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						<p>sectoral global estimates available in Chapter 3, and a discussion of the limitations of top-down models given their more aggregate representation and current handling of implementation issues. This could be followed by a discussion of the bottom-up sectoral estimates and sector specific technologies for the various 2030 price ranges given by the stabilization studies, where the bottom-up estimates give a sense of the mitigation and technologies we “might see” implemented for a given carbon price (Table SPM 1 and Figure SPM 6 and the sector specific paragraphs on pp 12-14), while the top-down estimates give a better feel for the mitigation we “will see”.</p> <p>1. The aggregation of the sectoral bottom-up analyses to generate global estimates of potential – The current bottom-up literature does not offer studies that were designed for consistent aggregation in order to provide global estimates of mitigation potential. The fact that the global estimates of mitigation potential from bottom-up aggregation and the top-down estimates are similar is a coincidence and not an analytically robust result. The top-down studies were designed to provide global estimates of mitigation potential, though with aggregated technological and regional representations, and, given what is currently available, should be the main literature used to inform policy-makers about global mitigation potential.</p> <p>2. The mixture of sector baselines (see Footnote 3), which runs across studies within sectors as well as across sectors, illustrates a key reason why aggregation of the bottom-up studies is highly problematic. The summing of the bottom-up baselines is troubling since each emissions baseline represents different economies with different prices, technologies, trade, demographics, etc. Also, which sectoral baselines are being summed? Are the sectoral baselines</p>	

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						<p>assumed in the sector chapters of AR4 the same as the baselines assumed by the individual studies used by the sector chapter assessments? Our sense is that they are not, which raises the question of which baselines were summed and, regardless of the answer, raises significant consistency issues for bottom-up global sectoral estimates.</p> <p>3. The bottom-up and top-down estimates are not comparable. They were constructed for very different policy relevant questions. Bottom-up estimates provide an estimate of the maximum amount of mitigation that is economical for a given sector/location/technology at a given carbon price. The top-down estimates here (from stabilization runs), provide estimates of the amount of mitigation that is cost competitively utilized (i.e., cost-effective) for achieving a given long-term climate stabilization goal. The bottom-up estimates provide a partial equilibrium boundary of sorts for the top-down estimates on a detailed sector/location/technology basis for a constrained economic environment (e.g., prices, trade, input supply fixed). Note, that the stabilization sectoral results from Tables 3.13 and 3.14 can be quite different from the bottom-up estimates—both higher or lower—for a given carbon price range. These are important differences that should be presented and discussed in the SPM. The top-down models could have been run with carbon prices, with or without market and environmental dynamics, to make a more direct comparison to these bottom-up estimates.</p> <p>4. The GDP loss numbers in this section are from the top-down stabilization scenarios, but, given the format of this section could easily be interpreted as corresponding to the bottom-up mitigation potential estimates created on the previous pages. The link between the GDP loss numbers and the bottom-up estimates is weak to non-existent. This is very</p>	

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						misleading. (Government of United States of America)	
SPM-222	A	8	1	15	2	Section C: There are a number of key points from Chapter 11 that should be reflected in the SPM. Prior to explaining sector-by-sector findings (paragraphs 8-15) the following point should be made: "No one sector or technology can address the entire mitigation challenge. All main sectors contribute to the total. In the lower-cost range and measured according to end-user contribution, electricity savings in buildings and agriculture have the largest potential for reductions. By emission source contribution, energy supply has the largest potential for reductions." (see lines 15-20, p. 4, ES of Chapter 11) (Government of United States of America)	OK, bring this into para 4, second bullet, but it is confusing to mix end-use allocation and point-of-emission allocation. Reformulate proposal to "No one sector ... total. In the cost range <\$20/t CO2eq electricity savings in the buildings sector has the biggest potential, followed by fuel shifts in the electricity supply sector and various options in the transport and agriculture sector (see fig SPM6)."
SPM-225	A	8	5	8	7	Very important statement. It should stay as it is. (Government of Germany)	Thank you
SPM-226	A	8	5	8	22	Section C.4: [A] Shorten declarative statement to: "The economic potential for mitigation of greenhouse gas emissions is estimated and varies depending on modeling assumptions about the value of carbon. The market potential is less." Reserve statements about quantities and value judgments about "significance" to the bullets that follow, which provide the appropriate defining context for each. Insert new bullets, after 1st bullet, as follows: [B] "The economic potential for GHG mitigation by 2030 at carbon values below 20 US\$/t CO2-eq/yr is considered to be sufficient to slow significantly future growth in global GHG emissions. The market potential is less." [C] "The economic potential for GHG mitigation by 2030 at carbon values between 20 US\$ and 100 US\$/t CO2-eq/yr is estimated to be sufficient to reverse future growth in GHG emissions, such that GHG emissions in 2030 could be	Reject, would make very weak headline statement and fig 5 clarifies the impact vis a vis current levels sufficiently. Repetitive mention of market potential is overdone Ok to include short sentence on market potential in headline

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						reduced below current levels. The market potential is less." (Government of United States of America)	
SPM-227	A	8	5	8	22	Is there equal confidence in all the statements under this section? Prima facie, that does not seem reasonable (Government of Nepal)	Reject, there is equal agreement and evidence for all elements
SPM-228	A	8	5	8	5	Delete "significant". (Government of China)	DISCUSS, see #A229 "significant" could be deleted if the last part of the sentence stays- Last part of sentence has stayed and significant has not been deleted
SPM-110	B	8	5	8	5	The authors need to standardise the use of "GHG" or "greenhouse gas" emissions throughout the SPM. (Government of Australia)	OK, GHG everywhere, but first time use full text with abbreviation- already done in paragraph B2
SPM-13	C	8	5	8	15	In Box SPM1 is remarkable the absence of development, in the methodological approach, in relation to the third Assessment Report. The approach is identical. There exist no reference in the literature to a most dynamic approach to technological development and potential of implementation of new technologies?. The background, based in Static Cost-benefit Analysis, is the only existent instrument that can be use to estimate potentials? (Government of Argentina)	Ok, will be taken into account when modifying box 1- Accept it is done, therefore highlight yellow
SPM-229	A	8	6	8	7	Delete "sufficient .... levels.". Reason:(1)baseline used in Fig SPM5 is not representative of the baseline shown in Fig SPM4. If other baselines are used, it may not be able to reduce emissions below current levels;(2) current emission shows an increasing trend, and the experience of efforts made by Annex I does not support this possibility. (Government of China)	DISCUSS, see also USA comments (.), China comment #A228 and UK comment #B113- Has not been deleted and do not know why
SPM-111	B	8	6	8	6	Insert "the expected" before "growth of global emissions". (Government of Australia)	Still discussion about the word "projected"- The word projected has been added in the text but unsure about

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
							this comment.
SPM-112	B	8	6	8	6	Delete "or" and replace with "and possibly". (Government of Australia)	DISCUSS, See #A229, B113- 'or' is still there
SPM-113	B	8	6	8	7	Suggest delete after comma - this is redundant if mitigation is defined (see comment 3,3,3,7); suggest adding last bullet to header so that both economic potential and market potential are mentioned. The new header would read "There is a significant economic potential for the mitigation of greenhouse gas emissions from all sectors over the coming decades. The market potential is much smaller than the economic potential. A mix of policy instruments (see section E) can bridge the gap between market and economic potential." (Government of UK)	DISCUSS, see also USA comments (.), China comment #A229 Ok to insert the market potential bullet in the header- done
SPM-230	A	8	7	8	7	One could add a bullet saying "Bottom up studies find significant potential to reduce emissions at no costs or economic gains in 2030 of xx Gt (xx%below baseline)" (Government of Germany)	Reject, is already in 3 <sup>rd</sup> bullet
SPM-231	A	8	7	8	7	Indicate the range of carbon prices for which the statement is valid, i.e." for a carbon price in the range of a few tens US dollars" (Government of France)	Reject, this is already in first bullet
SPM-114	B	8	7	8	7	We propose changing text to "...to reduce global emissions below current levels". Additionally, should "current levels" be specified? (Government of Norway)	Reject, given uncertainty about baseline this cannot be justified
SPM-232	A	8	8	8	8	We have doubts about the level of agreement here. Please specify. (Government of China)	Reject, this is a solid conclusion from the chapters
SPM-233	A	8	8	8	10	This statement is not clear. Presumably the "15-30% below baseline" refers to the "9-18 GT CO <sub>2</sub> eq/yr" and not to the "20 US\$/tCO <sub>2</sub> eq" is is placed next to. Reword along the	Ok,on first point: rephrase;- The suggested rephrasing is not in the C4 text

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						lines "In 2030 the economic potential ranges from 9-18 Gt CO <sub>2</sub> eq/yr relative to a medium emission baseline (15-30% below baseline) at carbon prices lower than 20 US\$/tCO <sub>2</sub> eq ...". The statement still lacks some clarity however: how are these reductions to be compared (in percentage terms) with reductions relative to 1990? (Government of New Zealand)	Reject 1990, because text would become too cluttered
SPM-234	A	8	8	8	11	It's not evident if the 16-30 Gt are additional to the 9-18 Gt or cumulative and how these ranges were derived from Fig SPM 5 (Government of Canada)	OK: clarify by rephrasing
SPM-235	A	8	8	8	8	Insert after ... potention for the mitigation of GHG Emissions... (Government of Austria)	OK, replace full text with GHG abbreviation- why full text of GHG abbreviation already given earlier?
SPM-236	A	8	8	8	10	I understand this sentence to mean that the range 9-18 GtCO <sub>2</sub> -eq/yr <sup>2</sup> corresponds to the price range 0-20 US\$/tCO <sub>2</sub> -eq, and the range 16-30 Gt CO <sub>2</sub> -eq/yr <sup>2</sup> corresponds to the price range 0-100 US\$/tCO <sub>2</sub> -eq. That interpretation assigns two different economic potentials to the price of 0 US\$/tCO <sub>2</sub> -eq. Explanation and clarification are needed. (International Atomic Energy Agency (IAEA))	See #233; it is everything that is economic at 20 and 100; no discrepancy- explained in text and there is no discrepancy
SPM-237	A	8	8	8	10	Also present the range for emissions reductions at costs < 50 USD/tCO <sub>2</sub> -eq. The relevance hereof can be found in line 18. (European Community)	OK, add
SPM-238	A	8	8	8	11	A note (and reference to Section 3.6.2.2 in Chapter 3) should be added here (or to the caption of Figure SPM 5) about the fact that the statistical numbers are being used. The first bullet references Figure SPM.5 and footnote 2 with regard to the range of mitigation potential from top-down and bottom-up estimates for various carbon price ranges. However, the top-down estimates reported in SPM 5 (low, mean, and	DISCUSS (ch 3) The statistical analysis in 3.6.2.2 is sound and numbers can be quoted. A note can be added to explain the difference between carbon price in a BU and TD setting

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						high) are the statistical estimates of emissions reductions derived in Chapter 3 from stabilization scenario results. The specific numbers used in Fig. SPM 5 only apply to the specific prices of \$20 and \$100 (see page 111 in chapter 3) and not the price ranges. The top-down low, mean, and high results for the \$0-20 price range are more like 2, 8, and 15 respectively (estimating from Figure 3.40 on page 110). The authors should refer to this range instead or describe the numbers as the statistically expected reductions for \$20. (Government of United States of America)	
SPM-115	B	8	8	8	11	This dot point is confusing as it mixes the ranges presented from both top-down and bottom-up studies and footnote number 2 does not explain this clearly and misleads readers into assuming the range for each type of study is identical. We suggest that this dot point is replaced with the construction at Chapter (page 27): "At 2030, for carbon prices <20 US\$/tCO <sub>2</sub> -eq the economic potential ranges are 10-17 GtCO <sub>2</sub> -eq/yr for bottom-up versus 9-18 GtCO <sub>2</sub> -eq/yr for top-down studies. For carbon prices <100 US\$/tCO <sub>2</sub> -eq the ranges are 16-30 GtCO <sub>2</sub> -eq/yr and 17-26 GtCO <sub>2</sub> -eq/yr for bottom-up and top-down respectively. At the sector level, however, there are larger differences between bottom-up and top-down studies". (Government of Australia)	OK, TD and BU will be treated in separate bullets
SPM-116	B	8	8	8	11	We think that this sentence would be more readable if it was split into two sentences as follows: "In 2030 the economic potential ranges from 15-30% below baseline at carbon prices lower than 20 US\$/tCO <sub>2</sub> -eq to 30-50% below baseline at carbon prices lower than 100 US\$/tCO <sub>2</sub> -eq. This corresponds to reductions of 9-18 Gt CO <sub>2</sub> -eq/yr and 6-30 Gt CO <sub>2</sub> -eq/yr respectively (see figure SPM.5)." (Government of Norway)	See # B115



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-117	B	8	8	8	8	The range on Figure SPM 5 looks more like 9-15 Gt CO2 rather than 9-18 Gt CO2 (Government of UK)	Ok, figure will be checked (after modification)- Understand that figure 5 is correct now?
SPM-118	B	8	8	8	11	Identify that these results are from bottom up studies. Suggest for clarity redraft as "Global mitigation potential varies depending on cost. At a cost of 20US\$ per tonne of carbon dioxide equivalent emitted, emissions could be 9 to 18 GtCO2 per annum lower by 2030 than they would otherwise have been. When this cost rises to 100US\$ global mitigation potential increases to 16-30 GtCO2" (Government of UK)	See #B115
SPM-119	B	8	9	8	9	Editing: replace "emission baseline" with "emissions baseline". (Government of Australia)	OK- text is re-phrased, such that these words are no longer together
SPM-120	B	8	9	0	0	Explain and exemplify the term "Carbon price". (Government of Norway)	OK, but do that in box 1
SPM-239	A	8	12	8	12	The most important mitigation "technologies", please replace the word "technologies" by "(technical) measures". (European Community)	Reject, accepted terminology in main report
SPM-240	A	8	12	8	12	Comment: what is "important" is subjective, rather use "substantial" (with significant commercial potential at the moment or before 2030) (Government of Netherlands)	Reject, does not work in conjunction with "mitigation technologies"
SPM-241	A	8	12	8	12	Comment: it seems strange to have a bullet only referring to a table without further content; we would suggest rephrasing the bullet to "For all major sectors several mitigation technologies with significant reduction potential are currently on the market, and other technologies are expected to be commercialised before 2030 (see Table SPM 1)." (Government of Netherlands)	Ok, will be changed according to #A222
SPM-121	B	8	12	8	12	The authors need to explain how they have determined what "the most important" mitigation technologies are: (e.g. is it	OK, modify to .."technologies with the largest potential"

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						based purely on the size of the mitigation contribution, or are other factors taken into account?) (Government of Australia)	
SPM-122	B	8	12	8	12	Suggest put "economic" before "sectors" (Government of UK)	OK- "economic" not found in text now
SPM-242	A	8	16	8	17	This sentence is correct but fails to convey the policy challenge of realizing mitigation options with a net negative cost to society. The chapter [11] puts great emphasis on the need for clearer, more predictable, longer term and more robust policies than current ones [11 ES, p 6]. (Government of Sweden)	OK, add some words to indicate policy challenge- cannot find a policy sentence
SPM-243	A	8	16	8	17	This may be one of the most important findings in this subsection. It should be elevated in the subsection to the second bullet, and should read: "Within the economic potential of 9-18 GT CO <sub>2</sub> e/yr that can be achieved, bottom-up studies indicate that 5-7 GT CO <sub>2</sub> e/yr of GHG reductions can be achieved at net negative costs." (Government of Canada)	Ok, move it up (otherwise too lengthy) For text see #A244
SPM-244	A	8	16	8	17	This is unclear: Rewrite to say "Bottom-up studies suggest that mitigation opportunities yielding net negative costs have the potential to reduce emissions by about 6 Gt Co <sub>2</sub> -eq/yr." Also, explain how net negative costs are possible - what leads to such opportunities? (Government of United States of America)	OK Still to be discussed
SPM-245	A	8	16	8	17	Strike the word "a range" and insert in its place "an estimated range". (Government of United States of America)	Drop the word "range"
SPM-246	A	8	16	8	16	Please check the data of 6GtCO <sub>2</sub> -eq, it seems overestimate the mitigation potential at net negative costs comparing with the results from the TAR. (Government of China)	CHECK numbers (ch 11) Ok, add a bullet stating that mitigation potential in AR4 is LOWER than TAR due to better information (and add a column to table 1)

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-247	A	8	16	8	17	Move bullet up to position just before preceding bullet, starting with "The most important [change to significant] mitigation technologies ..." (Government of United States of America)	OK, see#243
SPM-248	A	8	16	8	17	If the bottom-up studies identify a mitigation potential of 6 Gt CO <sub>2</sub> eq/year at net negative cost, what are the factors that prevent this potential from being realized? (Government of Nepal)	Ok, see #242
SPM-249	A	8	16	8	16	Add percentage (about 10% of baseline!!). (European Community)	OK, add % compared to baseline and current, as for other bullets
SPM-250	A	8	16	8	16	A year should be given. If the year is 2030, this line would be at odds with my interpretation above of lines 8-10 on the same page (which is anyway problematic). I'd recommended either working out a consistent number to use in both places, or explaining the difference. (International Atomic Energy Agency (IAEA))	OK, add 2030
SPM-123	B	8	16	8	17	Suggest redraft to read "Bottom-up studies indicate that a global mitigation potential of about 6 GtCO <sub>2</sub> exists globally at net negative cost." (Government of UK)	See #A244
SPM-14	C	8	16	8	17	Please include the reference to the percentage ( aprox. 9-12% below baseline??) (Government of Spain)	See A249
SPM-251	A	8	18	8	20	Translating \$50/tCO <sub>2</sub> into \$/liter gasoline, \$/kWh electricity for a typical coal plant, etc. would be useful. (Government of United States of America)	Reject, this information is not available in report
SPM-252	A	8	18	8	20	There are a number of problems with this sentence, primarily the lack of context. (1) Using the phrase "up to" implies that a figure less than that cited (e.g., \$50/tCO <sub>2</sub> -eq) could achieve the emissions trajectory given as an example, but presumably not \$0. Either provide the potential range of carbon prices to	Discuss; this bullet needs to be rephrased based on TD results

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						<p>achieve the given trajectories for stabilization or provide the range of GHG concentration for the “up to” \$50 and \$100/tCO<sub>2</sub>-eq carbon prices and associated trajectories.</p> <p>(2) The overall impression the authors leave is that these economic potentials ultimately would be consistent with a stabilization trajectory beyond 2030, when this is clearly not the case.</p> <p>(3) Are there any results for other models for 550 to 650 ppmv? The next paragraph (5) leads its discussion of cost based on a 650 ppmv trajectory, so it would be useful if there were a sentence on results for 650 ppmv.</p> <p>Suggest adding: (1) the appropriate CO<sub>2</sub> price range; (2) the phrase “out to 2030” at the end of the sentence, and (2) a new sentence stating: “These economic potentials are not necessarily consistent with the long-term stabilization trajectories for a concentration range of from 450 to 550 ppmv CO<sub>2</sub>-eq.”</p> <p>(Government of United States of America)</p>	
SPM-253	A	8	18	8	19	Same presentation of units (USD/tCO <sub>2</sub> -eq.) (European Community)	OK, change
SPM-254	A	8	18	8	20	<p>Is this economic potential up to \$ 50/tCO<sub>2</sub> or \$50/tCO<sub>2</sub>-eq?</p> <p>There should be consistent reporting in this section with regard to carbon prices, corresponding mitigation potential, and corresponding stabilization targets. For example, it is said that a target price of \$50/tCO<sub>2</sub> will give stabilization at 550 ppmv (is this interpretation correct?); however, there is no mention of the corresponding economic mitigation potential. Similarly, the first bullet states that prices lower than \$20/tCO<sub>2</sub>-eq will provide an economic mitigation potential of 9-18 Gt CO<sub>2</sub>-eq/year; but what will this range correspond to in terms of stabilization targets?</p> <p>(Government of Nepal)</p>	See #A252

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-255	A	8	18	8	20	Delete this bullet, or give the economic potential ranges for 50US\$/tCO <sub>2</sub> -eq in line 8-11 of page 8. (Government of China)	See A252
SPM-256	A	8	18	8	18	"50 US\$/tCO <sub>2</sub> " may be written in the same format as used in lines 9, 10, 16 and 19. (Government of Pakistan)	See #A252
SPM-124	B	8	18	8	18	The authors should include the range of economic potential for prices <50 US\$/tCO <sub>2</sub> -eq (i.e. 14 to 25 GtCO <sub>2</sub> -eq.) to allow some comparison with the figures quoted above in the first dot point. (Government of Australia)	See #A252
SPM-125	B	8	18	8	20	To make this message more comprehensible, we propose that a reference is made to known concentrations (for example pre-industrial levels) of expected temperature increases. (Government of Norway)	See A252
SPM-126	B	8	18	8	20	Suggest redraft for greater clarity to read "The economic mitigation potential available at a carbon price of up to \$50USD per tonne of CO <sub>2</sub> -eq emitted would be sufficient to stabilise atmospheric CO <sub>2</sub> at 550ppmv. The corresponding carbon price for stabilisation in the range 450ppmv - 550ppmv would be between \$50US and \$100USD per tonne CO <sub>2</sub> -eq emitted" - if this is what is meant. (Government of UK)	See A252
SPM-257	A	8	21	8	22	To be coherent with [11] this needs to be rephrased and also be explicit about the need for new and more stringent policy. (Government of Sweden)	UNCLEAR what the request is
SPM-258	A	8	21	8	22	This should be the first bullet under the bolded text to be clear that the economic potential estimates in Fig. SPM 5, Table SPM 1, and Fig SPM 6 all over-estimate the abatement potential for any given carbon price. (Government of United States of America)	OK, moved to headline

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-259	A	8	21	8	22	It is reasonable for the market potential to be lower than the economic potential, but there needs to be some indication of how much lower that might be. (Government of Nepal)	Reject, report has no basis to make statements about that
SPM-260	A	8	21	8	22	Add: "policy instruments ARE NEEDED TO OVERCOME BARRIERS AND TO bridge the gap..." (Government of Canada)	DISCUSS, see #A229 and B112, 113
SPM-127	B	8	21	8	21	If possible the authors should provide figures for the market potential, if this is not possible it should be explained why, and on what basis they have determined that policy instruments can bridge the gap between market and economic potentials. (Government of Australia)	See #A259
SPM-128	B	8	21	8	21	Suggest clarify to read "Because of the differences in investment criteria and the effect of barriers identified in Box SPM1, the market potential is much smaller than the economic potential." (Government of UK)	DISCUSS, see #A229 and B112, 113
SPM-261	A	8	22	0	0	Section 4.: add: "These estimates do not include, however, potential emission reductions resulting from changes in production and consumption patterns. For example switching from car transport to public transport (and freight from road to rail), energy management approaches in industry and a decrease in suburbanisation trends would contribute to significant further reductions in emissions. These reductions should be addressed in detail in future reports." (Government of Germany)	Reject, this is in box 1
SPM-262	A	8	23	8	23	Comment: is seems strange to have no reference in the text to figure SPM 6; we suggest to add a bullet reading: "Bottom-up studies for the major sectors estimate substantial mitigation potentials in 2030 at different carbon prices. For	Ok, See #A222

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						waste, transport and buildings a very large potential is available at prices below 20 USD. For industry the larger share of the mitigation potential however is available between 20 and 50 USD. Across cost categories the potential for agriculture and forestry in 2030 is relatively large in developing countries (see Figure SPM 6)." (Government of Netherlands)	
SPM-211	A	8	25	0	0	<b>footnote 3:</b> Insert space after ... SPM.5 (Government of Austria)	Editing point
SPM-263	A	8	25	0	0	Footnote 3: More needs to be said to describe the "mixture of baselines." The mixture of sector baselines which runs across studies within sectors as well as across sectors, illustrates a key reason why aggregation of the bottom-up studies is highly problematic. The summing of the bottom-up baselines is very unsatisfying since each emissions baseline represents different economies with different prices, technologies, trade, demographics, etc. Also, what is a "medium baseline"? It would seem to be more appropriate to use a median baseline for the top-down models (an actual baseline that isn't influenced heavily by literature that is exploring upper or lower boundaries). (Government of United States of America)	<b>DISCUSS</b> Fall back might be to show SRES B2 and A1B in figure together with top down and bottom-up mitigation potential
SPM-264	A	8	26	0	0	<b>Footnote 3:</b> in shown' should be replaced by 'is shown' (Government of Nepal)	<b>OK</b>
<b>FIGURE 5</b>							
SPM-265	A	9	0	0	0	Figure SPM-5: This figure has caused a lot of confusion. We presume it shows, not the 'economic mitigation potential' as stated in the caption, but rather, at the level of each coloured band, the 'total global emissions assuming the full economic mitigation potential [at the indicated price] is realised'. A colour key could be used to explain that the numbers in the middle of the bars refer to the carbon price. It is not even	<b>OK, figure will be redrafted (high and low bar only) and clarity improved (see also DISCUSSION in #A263) Maybe show SRES B2 and A1B baselines</b>

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						currently clear, without reference to the text on page 8 lines 8 - 11, that the "US\$/tCO <sub>2</sub> eq" above the bars refers to these numbers. It should not be assumed that those trying to understand the figure will have read the preceding text. Please note however that Figure SPM-5 has the potential to be a very useful figure, and should not be omitted because of difficulties in making it clear. (Government of New Zealand)	
SPM-266	A	9	0	0	0	Figure SPM-5: Should the vertical axis be labelled as "Gt CO <sub>2</sub> eq / year", not "Gt CO <sub>2</sub> eq"? (Government of New Zealand)	OK
SPM-267	A	9	0	0	0	Figure SPM-5: Please increase the scale. Note that the 2004 total emissions looks lower in Figure SPM 5 (around 44 GT CO <sub>2</sub> e) than in Figure SPM 1 (around 50 GT CO <sub>2</sub> e). Showing the actual numbers for these emissions would help clear up this discrepancy. (Government of Canada)	OK, explain why 2004 number here is different from SPM 1 (in caption); increase scale somewhat; if baselines are replaced by SRES (see #A265) then maybe 2004 to be dropped
SPM-268	A	9	0	0	0	Figure SPM-5: It would be welcome if the bottom-up and top-down approach would have the same baseline. (Government of Austria)	see # A263 and A265
SPM-269	A	9	0	0	0	Figure SPM 5: What is the number of studies, based on which low, mean and high values have been computed? Do low and high refer to minimum and maximum, respectively? Why is the width of the mean column greater than the other two? [This is an important figure and needs to be examined carefully (Government of Nepal)	See #A265; detail on number of studies cannot be given in SPM, this is in chapters
SPM-270	A	9	0	0	0	Figure SPM 5: Delete this figure. Reference directly Tables 3.13 and 3.14. Given the significant analytical consistency issues associated with aggregation of the bottom-up literature estimates to the global scale, these numbers are not robust enough to be meaningful and should not be presented	Reject deletion; figure is valuable for policy (and appreciated by others) Caption to explain better the use of baselines Chapter references to be added



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						as such for policy makers. If the authors wish to give an estimate of global potential, they should rely on the studies designed to estimate global potential. Furthermore, the bottom-up and top-down estimates should not be compared as they are here since they were designed to inform different questions. Most, if not nearly all, of the bottom-up studies used were not designed to estimate global potential and the top-down studies used here were not run with a carbon price trajectory to estimate the global mitigation potential for a given carbon price (they estimate the mitigation required in 2030 for long-run stabilization, which is not the same thing). (Government of United States of America)	DISCUSS the criticism about incomparability of TD and BU and how to redraw figure (showing SRES B2 and A1B as lines or bars) in 2030 together with T/D and B/U mitigation potential bars might work)
SPM-271		9	0	0	0	Figure SPM 5 is too complicated to understand the exact meaning. It can be simplified to help understand. (Government of Korea)	See #A265, A270
SPM-278	A	9	0	0	0	Figure SPM 5 is hard to understand (Government of Netherlands)	See # A265, A270
SPM-279	A	9	0	0	0	Delete Fig SPM5. Reason: 1)baseline emissions for 2030 is not representative as compared to Fig SPM4, and thus the message can be misleading;2) the current state does not support such a conclusion. (Government of China)	Reject deletion; DISCUSS, see also USA and Greenpeace comments
SPM-272	A	9	0	0	0	The explanation of the difference in the baselines for the top-down and bottom-up studies should be further explained if this table is to be included. (Greenpeace International)	Ok, add further explanation (see#A270)
SPM-273	A	9	0	0	0	Table SPM 5, comment: it would be useful to add percentages to the b-u and t-d mitigation potential projections. (Government of Netherlands)	Reject,already in text of para 4
SPM-274	A	9	0	0	0	Figure SPM5, it is not evident from the explanation of the Figure whether the differences in width of the columns	See #A265

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						presented in this Figure reflect a particular feature, or it is just an issue of presentation of data. (Government of CHILE)	
SPM-129	B	9	0	0	0	Figure SPM 5: The authors should make it clear that the GtCO <sub>2</sub> -eq notation is per year. (Government of Australia)	OK
SPM-130	B	9	0	0	0	Figure SPM 5: This figure can be improved because it suggests some relations that are not there, e.g. The sizes of the columns of the two wide bars are different but there is no meaning for it, except a graphical one (?). It is recommended to set the LEGEND of the 'Economic mitigation potentials at US\$/tCO <sub>2</sub> -eq' separately from the bars for the four types <0; 0-20; 20-50; 50-100, and to make all 7 bars of the diagram of equal width. On top of the three columns one should mention the 3 Gt numbers that correspond with the three ceilings of the columns. At the bottom (abscissa) it is best to put the dates 2004 / 2030 / 2030 on the same line; the 2030's followed by 'bottom-up' and 'top-down', and to have the names 'low/mean/high' mentioned in the bars (of equal width). Title of figure SPM 5 reads difficult, and can be reformulated shorter and clearer. (Government of Belgium)	See#A265, A270
SPM-131	B	9	0	0	0	We do not see how figure SPM 5 reflects the range of 16-30 Gt CO <sub>2</sub> -eq/yr at carbon prices lower than 100 US\$/tCO <sub>2</sub> -eq stated in line 10 on page 8 and the total of table SPM 1. Consider to adjust figure SPM 5 to reflect the numbers quoted more exactly. (Government of Norway)	See #A265, A270
SPM-132	B	9	0	0	0	Figuer SPM5: The inclusion of "low", "mean" and "high" makes the figure confusing. We propose to remove these bars. (Government of Norway)	See #A265, A270

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-275	A	9	3	9	8	This caption for Figure SPM-5 is not adequate to explain what is being shown in the figure. We presume the figure shows, not the 'economic mitigation potential' as stated in the caption, but rather, at the level of each coloured band, the 'total global emissions assuming the full economic mitigation potential [at the indicated price] is realised'. (Government of New Zealand)	See #270
SPM-276	A	9	3	9	7	Include the word "Global" in the figure caption (Government of Switzerland)	OK
SPM-277	A	9	3	9	3	Explicit that the vertical axis represents the emissions not the mitigation potential (Government of France)	OK, modify caption
SPM-133	B	9	3	9	4	Suggest adding a reference to where the bottom-up results come from in the main report (Government of UK)	OK
SPM-134	B	9	10	9	10	The authors need to consider whether to provide an explanation as to why top-down studies cannot provide a range for economic potential <0 US\$/tCo2-eq. (Government of Australia)	OK, add this in caption
<b>TABLE 1</b>							
SPM-280	A	10	0	0	0	Table SPM-1: Transport: We question whether hydrogen fuel-cell powered should be listed in the column with significant mitigation potential before 2030, considering chapter 5, page 51, lines 8-14. Certainly not the same potential as nuclear, CCS, advanced energy efficiency. (Government of Canada)	CHECK suggestions (all sector chapters)
SPM-281	A	10	0	0	0	Table SPM-1: This table has several errors and typos, and needs better formatting. (Government of Canada)	CHECK typos; UNCLEAR what is meant with reformatting
SPM-282	A	10	0	0	0	Table SPM-1: Row 6 (Agriculture): The table gives the misleading impression that agricultural mitigation is relatively straightforward across agriculture as a whole: it	Still under discussion if there is indeed significant economic mitigation potential now for livestock methane

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						does not distinguish adequately the difficulties, and the lack of an economic mitigation potential, for ruminant methane emissions from pastoral agriculture. (Government of New Zealand)	emissions
SPM-283	A	10	0	0	0	Table SPM-1: Row 4 (Buildings), Column 4: Smart metering and intelligent controls are being deployed now - why are they being rejected as technologies that can make a difference before 2030? (Government of New Zealand)	CHECK suggestions (all sector chapters)
SPM-284	A	10	0	0	0	Table SPM-1: Row 1, Column 1: This column caption should read "2030 economic mitigation potential ..." (not "..economic potential...") to make the meaning clearer to those looking at the table out of context, as a stand-alone table. It then becomes clear that 'bigger is better' in that column. (Government of New Zealand)	OK, but say "2030 total economic mitigation potential"(ch 4)
SPM-285	A	10	0	0	0	Table SPM-1: How is "significant" defined here - X megatonnes, or XX% probability of reductions (and on what order)? And why is it "significant reduction potential" in column 3, and "significant mitigation potential" in column 4. (Government of Canada)	OK, change to "Mitigation technologies with the largest reduction potential...."
SPM-286	A	10	0	0	0	Table SPM-1: Given that this table lists both strategies and technologies (e.g. afforestation and reforestation are not technologies, they're management strategies), it is suggested that the title of this column be changed to "Mitigation technologies and strategies with significant reduction potential currently on the market" (Government of Canada)	OK
SPM-287	A	10	0	0	0	Table SPM1 could include in the second column also the reduction below baseline of the particular sector. (Government of Germany)	Reject, data on reduction below baseline not easily available for all sectors
SPM-288	A	10	0	0	0	TABLE SPM1 COMMENT: Is it clear that the set of options	OK, add footnote to column 2 heading:

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						summed do not overlap (eg are not double counted) in the energy supply area for biomass, agriculture and forestry sectors? This is not entirely clear from Chapters 4, 8 and 11 and may affect the estimates for forestry in particular (Government of Germany)	“Based on end-use allocations of emissions, meaning that emissions of electricity use are counted towards the end-use sectors and not to the energy supply sector. Double counting has been eliminated by calculating energy supply mitigation potential after allowance for end-use sector energy efficiency measures and by counting bioenergy only in the end-use sector.” Add this last sentence also as a footnote to the bioenergy entries in the rows on Agriculture and forestry. Delete text on end-use allocations from caption
SPM-289	A	10	0	0	0	TABLE SPM1 COMMENT: FORESTRY The reduced deforestation and degradation potential are by far the largest source of mitigation potential within the forestry sector and it would be highly policy relevant to indicate this in the text (Government of Germany)	Reject, impossible to indicate the magnitude of individual technologies
SPM-290	A	10	0	0	0	Table SPM-1 - Transport: One of the greatest sources of mitigation potential in transport in many developed countries is integrated land-use planning/smart growth planning, with consideration for energy consumption and the needs of individuals. Given that there is potential for redesigning some elements of some neighbourhoods in the 23 year span that remains to 2030, this should be included. Ch. 5 also covers land use planning well, on pp. 39-40 and 61-63. Please add "land-use planning" to the "Mitigation technologies and strategies with significant reduction potential currently on the market" column under transport. (Government of Canada)	CHECK suggestions (all sector chapters)

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-291	A	10	0	0	0	Table SPM-1 - Industry: It is questionable whether CCS would be feasible for a large portion of the cement industry. For example, there are only 2 plants in Alberta (of the 16 in Canada) which could perhaps use it, due to the distance to acceptable geological formations for sequestration. Also, cement sells for 100US\$/tonne or less. The background information provided by in Ch. 7 (Anderson and Newell 2004) estimates the cost of CCS for cement at between US\$180-915/t CO2. (Government of Canada)	Reject. Chapter 7 cites references indicating that it would be feasible to apply CCS to cement kilns. Obviously, the technology would have to be evaluated on a site specific basis, but the comment that only 2 of 16 Canadian plants are close to acceptable geological formations cannot be generalized. Cost is a concern with all application of CCS, and the technology will be applied only if there is an appropriate cost of carbon
SPM-292	A	10	0	0	0	Table SPM-1 - Industry: Given that the underlying text (Ch. 7, pg. 26, lines. 19-24) hedges on the possibility of inert anodes in the aluminum industry within the next 15-20 years, and since the capital cycle in the aluminum industry is 20-30 years, replacements in existing plants (if technically possible) are unlikely. We question the inclusion of inert anodes for the aluminum sector as a mitigation technology that can contribute to "significant mitigation potential", as the technology is likely 20-25 years away, and will take time to become integrated fully into the industry. (Government of Canada)	Reject, the most right hand column is covering technologies with significant POTENTIAL by 2030, i.e these are technologies that than are commercially available AND could be applied at a substantial scale if the carbon price allows.
SPM-293	A	10	0	0	0	Table SPM-1 - Energy supply and transport: First and second rows - choose a consistent way of stating "bio-energy/bio energy/bioenergy" and "bio-fuels/biofuels". We suggest bioenergy and biofuels. (Government of Canada)	OK, bioenergy and biofuels
SPM-294	A	10	0	0	0	Table SPM.1: Agriculture (post 2030): The chapter addresses more options to improve energy crop yields. Why is this focus on genetic technologies only? Change into: "Improvement of yields of energy crops"	OK to replace "genetic technologies ..." By suggested wording

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(European Community)	
SPM-295	A	10	0	0	0	Table SPM.1, Total: Remove the totals. Sector estimates cannot be added to a total given their different underlying assumptions. Also, how do these results compare to top-down sector mitigation estimates? (Government of United States of America)	DISCUSS in light of other US comments Totals can be removed here, because already in paragraph 4, but NOT because they cannot be added
SPM-296	A	10	0	0	0	Table SPM.1 - Sector estimates should not be added to a total given the large inconsistencies in their different underlying assumptions – suggest removing total line. (Government of United States of America)	See #A295
SPM-297	A	10	0	10	0	Table SPM 1; Sector Buildings (row 4), column 3 "Mitigation technologies with significant reduction potential currently on the market". Comment: Most of these are very high-tech applications, except passive design. Most of the additional energy use in the world by 2030 and therefore emissions will occur in developing or transition-economy countries. Big part of their energy-related emissions will still in 2030 originate from heating, cooling and food-preparing purposes of residential buildings. The technologies to reduce these emissions will not be high-tech, but merely low-tech products, such as passive design for heating, cooling and lighting, solar-cookers and high-efficiency stoves (last two technologies that help mitigation by slowing down the deforestation), all technologies that are currently on the market. Also, daylighting technologies are totally missing from the list. Proposal: add "daylighting, solar cookers and high-efficiency stoves" to this box. (Government of Finland)	CHECK suggestions (all sector chapters)
SPM-298	A	10	0	10	0	Table SPM 1: at the line "energy supply", in the last column, add a footnote after "advanced nuclear power". The footnote would be : "complete realisation of the back end fuel cycle of the actual nuclear power fuel cycle for the actual power	Reject, too detailed

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						plants" (Government of France)	
SPM-299	A	10	0	10	0	Table SPM 1: What are the sources for this table? Sources need to be mentioned. Is this a synthesis across a number of bottom-up studies? Is there a specific quantitative interpretation of "significant" reduction potential? Is this consistent across the sectors and the different mitigation options? Is this the only criterion used for select technologies for inclusion in the Table? (Government of Nepal)	Sources are mentioned in first column; <b>CHECK cut-off level for each of the sector chapters</b>
SPM-300	A	10	0	0	0	Table SPM 1: Transport emission reduction potential seems very low, considering the rapid growth of this sector. Is this partially due to the chosen approach in the chapter? If so, please provide footnote to table. (European Community)	<b>CHECK suggestions (all sector chapters)</b>
SPM-301	A	10	0	0	0	Table SPM 1: row 4, column 3: Delete "and insulation." Fluorinated gas recovery from insulation is not cost effective. (Government of Japan)	<b>CHECK suggestions (all sector chapters)</b>
<b>SPM-302</b>	A	10	0	0	0	Table SPM 1: Industry: chapter has not looked at material substitution other than replacement of clinker in cement making. Please be specific. The AR4 has not considered material efficiency options other than recycling for a few bulk materials and cement making, while the TAR has a very rough estimate only. (European Community)	<b>Reject, chapter has sufficient coverage of materials efficiency to keep this in the table</b>
<b>SPM-303</b>	A	10	0	0	0	Table SPM 1: Industry: CCS is only considered for ammonia, hydrogen production, cement and iron making (in this order). (European Community)	<b>OK, The comment is correct about the industries, but the order should not be important. Delete fertilizer and change steel to iron.</b>
SPM-304	A	10	0	0	0	Table SPM 1: After "passive", add "and active". (Ref.	<b>CHECK suggestions (all sector</b>



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Philibert, C. BARRIERS TO TECHNOLOGY DIFFUSION: THE CASE OF SOLAR THERMAL TECHNOLOGIES, COM/ENV/EPOC/IEA/SLT(2006)9, IEA) (Government of Japan)	chapters)
SPM-305	A	10	0	0	0	Table SPM 1: 1) Are the technologies positioned in order of priority in the third and fourth columns? Does the most important one come first or there is no ranking? Suggest ranking mitigation technologies if possible (optional). 2) What is the difference between “improved energy efficiency” and “advanced energy efficiency”? (UNEP)	CHECK suggestions (all sector chapters); no ordering of impact meant
SPM-306	A	10	0	0	0	Table SPM 1. To be fair, on the transport sector, modal shifts and ways of reducing transport work (mobility management) should be mentioned both in “current” and “before 2030” (a general problem with the table is the sole focus on technologies). District heating is important enough to deserve mentioning under Energy Supply. (Government of Sweden)	Reject, falls under “CHP”
SPM-307	A	10	0	0	0	Table SPM 1, Transport: This table is mainly based on mitigation technologies; however, policies to ease congestion and operational measures to enhance efficiencies for all modes (as well as air traffic management for aviation) could be important and should be included in this table. Note that efficiencies are later discussed on SPM page 12, lines 34-36. (Government of United States of America)	OK, change column heading to “mitigation technologies or practices”
SPM-308	A	10	0	0	0	Table SPM 1, Transport: There are more efficient aircraft available now which could replace older models, as well as projected more efficient aircraft. Hence “more efficient aircraft” should be considered under both categories. (Government of United States of America)	CHECK suggestions (all sector chapters)

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-309	A	10	0	0	0	Table SPM 1, Transport: The origin of 2030 mitigation potential is traced to pp.60 of Chapter 5; however, it is not clear how stated aviation component of 280 MtCO2 at Carbon price < 100 US\$/tCO2 on pp. 60 is derived from Table 5.13 under subsection 5.4.2.2. It is also listed on pp. 39 of technical summary. (Government of United States of America)	CHECK suggestions (all sector chapters)
SPM-310	A	10	0	0	0	Table SPM 1, Transport: Mitigation technologies should acknowledge both light duty, heavy and heavy-duty road vehicles. (Government of United States of America)	CHECK suggestions (all sector chapters)
SPM-311	A	10	0	0	0	Table SPM 1, Transport: Include footnote specifying whether numbers are for CO2 only or include non-CO2 GHGs. (Government of United States of America)	CHECK suggestions (all sector chapters)
SPM-312	A	10	0	0	0	Table SPM 1, Transport: Consider inclusion of plug-in hybrid electric vehicles and flex fuel hybrids in third column. (Government of United States of America)	CHECK suggestions (all sector chapters)
SPM-313	A	10	0	0	0	Table SPM 1, Industry: Consider adding a reference to alternatives to cement. (Government of United States of America)	Reject, This suggestion is covered by materials substitution,
SPM-314	A	10	0	0	0	Table SPM 1, Energy Supply: Consider inclusion of solar PV, solar thermal, and concentrated solar in third column. (Government of United States of America)	Is covered under advanced renewables, but OK to add "( including marine energy, concentrating solar solar PV)" after "advanced renewables"
SPM-315	A	10	0	0	0	Table SPM 1, Energy Supply: CO2 Capture and Storage (CCS) should be defined first time used in SPM. (Government of United States of America)	OK
SPM-316	A	10	0	0	0	Table SPM 1, caption: Replace "global mitigation potential" with "economic potential for global mitigation". (Government of United States of America)	OK

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-317	A	10	0	0	0	Table SPM 1, Agriculture: For agriculture it is not clear where the low-end figure 2.3 GtCO <sub>2</sub> eq./yr comes from: The executive summary of Chapter 8 states there is a low-end economic potential of 1500 MtCO <sub>2</sub> eq. in 2030 for all GHGs excluding biofuels at \$20/tCO <sub>2</sub> , and that there is a low-end biofuel potential in 2030 of 70 MtCO <sub>2</sub> eq. at \$20. This adds to 1.6 GtCO <sub>2</sub> eq./yr. The high-end estimate for agriculture in Table SPM 1 is more in line with the summation of the two high-end estimates found in the executive summary of Chapter 8. (Government of United States of America)	Reject, the numbers in SPM are fully consistent with those in table 8.7 (if need be the ES can be made consistent after the meeting)
SPM-318	A	10	0	0	0	Table SPM 1, Agriculture: Consider inclusion of cellulosic ethanol and bioenergy refineries in third column. (Government of United States of America)	Reject, biofuels are under Transport
SPM-319	A	10	0	0	0	Table SPM 1, Agriculture, Forestry: Just an observation, but the table suggests that the economic potential of GHG mitigation in both the agriculture and forestry sectors is nearly as much - and possibly significantly more - than the economic potential of mitigation in both the energy and fuels sectors. Compare 3.6 vs. 4.0 GT CO <sub>2</sub> at the low end and 10.8 vs. 7.2 Gt CO <sub>2</sub> at the high end. (Government of United States of America)	Reject, This is caused by the end-use sector allocation. OK to add footnote as in A288
SPM-320	A	10	0	0	0	Table SPM 1 and Figure SPM 6: It is difficult to derive the numbers from the sections of the text. Document clearly through specific references how the numbers were derived. For example, Table 11.5 presents a variety of estimates based on alternative assumptions and models. The variation in these bottom-up results is not reflected in Table SPM 1. If only one set of estimates is to be presented, caveats should be included explaining why this was done. Also, another example, we had trouble matching the TS values for buildings (from Table TS-7) to those in Fig SPM 6.	DISCUSS (ch 11 to check traceability); see A321, 322

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of United States of America)	
SPM-321	A	10	0	0	0	Table SPM 1 and Figure SPM 6: Change captions to clearly reflect that the estimates are “economic potential” and that market potential is much smaller. In the caption, please change “mitigation potential” to “economic mitigation potential” and add the sentence from Page 8, lines 21-22 to the caption that “The market potential is much smaller than the economic potential.” (Government of United States of America)	Ok to change caption as suggested;; remark about market potential is already in text of para 4. Discuss how we motivate that top-down sector potentials should not be presented here
SPM-322	A	10	0	0	0	Table SPM 1 and Figure SPM 6: Both here and in Figure SPM 6, the global sectoral totals from the top-down models need to be presented as well as the bottom-up totals. We suggest presenting the top-down global sectoral competitive mitigation potential numbers first from stabilization scenarios and then discussing the detailed economic mitigation potential suggested by the bottom-up studies for carbon price ranges. Chapter 3 provides the global sector totals at the end of the chapter. (Government of United States of America)	Discuss how we motivate that top-down sector potentials should not be presented here
SPM-323	A	10	0	0	0	Table SPM 1 - Agriculture: Genetic modification of crops gets nearly no mention in Ch. 8 (only on pg. 47, and the word energy is not beside it when mentioned - though crops and livestock are mentioned). It is suggested that, since it is not supported by the background information, genetic modification of energy crops should not be included in the SPM. (Government of Canada)	OK, see A294
SPM-324	A	10	0	0	0	More needs to be said about how the SRES B2 and WEO 2004 baselines were used. This goes to the consistency question and the reasonableness and legitimacy of the resulting global sectoral AND total numbers. The Notes on Figure SPM 6 are too vague. For example, what does it	DISCUSS

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						mean to be "close to the SRES B2 baseline?" Is that in terms of emissions or socioeconomic variables? Also, there is a lot of room between B2 and A1b, so what does it mean for the building sector to have a baseline in between. Finally, what does it mean to "mostly use" SRES B2 drivers? (Government of United States of America)	
SPM-325	A	10	0	10	0	In Table SPM 1, last column, the row corresponding to the "Waste Sector" needs to be formatted. (Government of Pakistan)	OK
SPM-326	A	10	0	10	0	In Table SPM 1, last column, the phrase "Improvement and identification of plant species which have more C sequestration potential" may be inserted in the row corresponding to the Forestry Sector. (Government of Pakistan)	CHECK suggestions (all sector chapters)
SPM-327	A	10	0	10	0	In Table SPM 1, last column, the phrase "Improved pesticides usage technologies" may be inserted in the row corresponding to the Agriculture Sector. (Government of Pakistan)	Reject, not supported by chapter
SPM-328	A	10	0	10	0	Forestry, column 4. Suggestion for the empty box: "Genetic technologies to improve tree species, including those for bioenergy plantations". Unlike the chapter on agriculture, that on forestry does not use the words "genetic technologies". However, "tree improvement" is mentioned in chapter 9.4.1 (Government of Sweden)	CHECK suggestions (all sector chapters)
SPM-329	A	10	0	10	0	"Table SPM1" "include the cultivation of cheap crops adapted to tropical regions for the production of bio-fuel for cars (Government of Mauritius)	Reject, is already covered in existing text on energy crops
SPM-330	A	10	0	10	0	Table SPM 1, on the items related to Buildings. According to the content of WGIII Chap 6, page 6, lines 15 and 16, it is very important to list in the mitigation technologies the so-	CHECK suggestions (all sector chapters)

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						called "integrated design process involving architects, engineers contractors and clients"" ; this very efficient process already exists but is not yet largely practiced. We would therefore suggest to include it in the technologies listed in the column "mitigation technologies with significant potential to be commercialised before 2030", but without excluding that it could also be in the column of the technologies already on the market( but not really currently) (Government of France)	
SPM-337	A	10	0	10	0	In the Table SPM 1 were realized any changes and additions, mainly in the sectors of Energy Supply, Transport and Buildings. The proposed modifications are shown in Annex (Government of Cuba)	CHECK suggestions (all sector chapters)
SPM-135	B	10	0	10	0	Table SPM1. (A) Suggest that it would be useful to see further cost breakdown (e.g. <US\$20, <US\$50 and <US\$100 such as in Figure SPM6). (B) Can we say something about whether 16-30GtCO2eq economic abatement is significant in relation to mitigation levels consistent with avoiding dangerous climate change, and whether the pace of RDD&D is consistent with timely deployment. (Government of UK)	(A) Reject; figure SPM 5 gives those numbers (Y axis will be expanded to facilitate reading the numbers) (B) UK suggestion (..) to delete sentence in headline para 4, referring to reduction below current makes it impossible to give an idea about what the economic reduction potential can achieve
SPM-136	B	10	0	0	0	Table SPM1 - suggest in right-hand box for Energy Supply to use semi-colon to make clear that CCS refers to gas, biomass and coal i.e "CCS for gas, biomass or coal-fired electricity generating facilities; advanced nuclear power; advanced renewables" (Government of UK)	OK
SPM-137	B	10	0	0	0	Table SPM1 - suggest in 3rd box for Transport clarify that "More" means "greater penetration of" rather than "higher efficiency"	OK, change to "higher efficiency aircraft"

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of UK)	
SPM-15	C	10	0	0	0	Table SPM 1: Although later the potential interferences between crops for food production and crops for energy production, to replace fossil fuels, is mentioned, a similar warning is necessary in this row. (Government of Argentina)	Reject, no space to add caveats for each technology
SPM-16	C	10	0	0	0	Table SPM 1. For Agriculture insert under the Mitigation technologies column, the agriculture residues as other replacement for fossil fuel use. (Government of Spain)	Check ch 8
SPM-17	C	10	0	0	0	Table SPM 1. As it is the first time that CCS appears in the text, please detail the acronym (Government of Spain)	OK
SPM-331	A	10	1	10	25	Table SPM 1: Energy Supply: "Improved supply and distribution efficiency" and "CHP" are not included in the cost and potential number presented here (European Community)	DISCUSS CHP is not covered in the mitigation potential; how do we know that it has a large potential; see comm. Ch 4
SPM-332	A	10	1	10	25	Table SPM 1: Agriculture: please delete the word GENETIC, this is not always required. In addition, what about other measures? (European Community)	OK, same as A294
SPM-333	A	10	1	10	25	Table SPM 1: This table is very important and should be kept however it needs improvement. The table is giving a biased signal to policymakers by using only bottom-up methodologies. It is relatively understating the potential in the energy sector / overstating potentials in other sectors. The table is based on a bottom up approach per sector/technology with some assumptions on how to aggregate across sectors to avoid crowding out (see chapter 11.3.1.3). Mitigation potentials in the energy supply and conversion sector seem to be much lower through this methodology than for top-down methodologies even after	OK, add note to explain differences with point-of-emission method

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						taking into account point of emission allocation, certainly for the high end of mitigation potentials (see Table TS 16). This large difference needs to at least to be noted in the SPM or better a column needs to be added with top down results (this would also require a differentiation between end-use sector allocation and point of emissions allocation). (European Community)	
SPM-334	A	10	1	10	10	Table SPM 1, under Energy Supply - 'to be commercialised before 2030 - 'marine' energy should be added, as this technology is under rapid development, particularly in waters off the UK and Portugal...not sure if this was meant to be included in 'advanced'renewables, but as it represents a separate category of renewable energy compared with the 'currently on the market' suggest inclusion. (Greenpeace International)	See # 314
SPM-335	A	10	1	10	1	In the 'Buildings' category, under 'to be commercialised before 2030': 'integrated solar PV', assuming this means 'building-integrated solar PV' is already a commercial product and is in increasing use in both residential and commercial buildings in both OECD and non-OECD countries - and I find no reference to this in either chapter 4 or Chapter 6 - although there is reference to integrated passive solar design in 6.5, which is another well-established (although underutilised) technology. As for 'smart metering' - presume this refers to 'net' metering, which is in wide application in many countries...and should certainly be available in all. But if something else is meant, which is not yet commercial, then it should be clear what this is. There is one reference to 'smart' in the list of publications, which refer to a type of meter which is currently available in many countries, but is only now coming onto the market in Germany...it's not new technology. (Greenpeace International)	CHECK suggestions (all sector chapters)



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-138	B	10	1	10	1	Table SPM 1: The authors need to explain why SRES B2 was chosen. (Government of Australia)	OK, change caption to reflect baseline choices
SPM-139	B	10	1	10	1	Table SPM 1: Insert "economic" before "mitigation". (Government of Australia)	OK
SPM-140	B	10	1	0	0	Table SPM1: "Mitigation technologies with significant mitigation potential projected to be commercialised before 2030 " includes "advanced nuclear power". This does not seem to reflect the chapter adequately. Section 4.3.2.3. announces "generation 4" reactors after 2030, and it is difficult to imagine that commercial exploitation could begin earlier. Column 3 should be improved and/or modified. In the "Buildings" category, what do "intelligent controls" and "smart metering" mean, regarding technologies that are not currently available ? Is this selection of technologies giving a good insight on the new technologies coming before 2030 ? (less important comment): Column 3 "Hydrogen powered fuel cell vehicles". Does it exist evidence that this may represent actual mitigation before 2030 ? As hydrogen is not an energy source, it would need to be produced either from nuclear, fossil fuel with CCS, or renewables. Chapter 4 reports that hydrogen produced from natural gas has a better efficiency regarding emissions than found in current cars, but this is partly due to the fact that natural gas contains less carbon than oil - thus it is not specific to the hydrogen/fuel cell technology. To produce significant mitigation, hydrogen production would need to use excess energy from low carbon sources such as renewables or coal with CCS, ie. energy that could not be used in a more efficient way otherwise. On the short term horizon, quoting hydrogen may result in double counting the	Reject, Gen 4 is not the only advanced nuclear (ch 4)

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						CCS potential. Transport row, right hand column: Add “Modal Shift (eg from road/air to rail) due to infrastructure development and city planning.”. Please also elaborate regarding short term public transport measures (middle column). Is it possible to add a column for market potential, to illustrate the difference? (Government of Belgium)	
SPM-141	B	10	1	0	0	Table SPM1:Box Energy Supply/ Mitigation: The term "natural gas processing" might confuse some readers and we propose that a more detailed description is given.(We suppose that it refers to CCS of excess CO2 from the extraction of natural gas, but it might also be interpreted as CO2 from gas-fired power plants). (Government of Norway)	OK, change to “storage of removed CO2 from natural gas” (ch 4 has as alternative “from natural gas processing” but this may still be confusing)
SPM-142	B	10	1	0	0	Table SPM1: For the transport sector, what about reduction potentials for vessels? (Government of Norway)	CHECK suggestions (all sector chapters)
SPM-143	B	10	1	0	0	Table SPM1: Box Transport/ Mitigation: If non-motorised transport mean more walking, cycling and riding, we think that similar non-technological measures should be referred to more consequently throughout the table. If it refers to sailing ship o.a. it should be stated more implicitly. Or does it refer to environmentally friendly (urban-) planning? (Government of Norway)	CHECK suggestions (all sector chapters)
SPM-144	B	10	1	0	0	Table SPM1: Box Transport/ Mitigation: As the target group for the summary is an international audience, we think that the world rapid should be omitted from "rapid public transport systems". (It can to easily be translate into "faster planes"). (Government of Norway)	CHECK suggestions (all sector chapters)
SPM-145	B	10	1	0	0	Table SPM 1: What is meant by "significant	See #A299

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						reduction/mitigation potential" in columns 3 and 4? (Government of Norway)	
SPM-146	B	10	1	0	0	Table SPM 1: make it clear what "B2" in "SRES B2" indicates. (Government of Norway)	Reject, will be clear after box on SRES that will be added
SPM-147	B	10	3	10	3	Table SPM 1: The authors need to make it clear that the figures in column 2 are derived from the analysis (and therefore should be read with the caveats) included at Table 11.3. (Government of Australia)	OK, add that to caption/ notes
SPM-148	B	10	3	10	30	Table SPM 1: The authors need to improve the punctuation and clarity of a number of statements in Table SPM 1. Often the technology examples provided are unclear and in the column of technologies currently on the market seem to include examples of current technologies with more limited mitigation potential. Suggest the following changes: (a) Column 4/Energy Supply row: "Improved supply and distribution efficiency, combined heat and power, renewable heat and power (hydropower, solar, wind, geothermal and bio-energy), early applications of CCS (eg natural gas processing)"; (b) Column 5/Energy Supply row: replace "or" with "and"; (c) Column 4/Transport row: "More fuel efficient vehicles, hybrid vehicles, , bio-fuels, rapid public transport, non-motorised transport"; (d) Column 5/Transport row: "Hydrogen powered fuel cell vehicles, second generation biofuels, more efficient aircraft, advanced electric and hybrid vehicles with more powerful and reliable energy storage technologies (batteries and supercapacitors)" (Government of Australia)	CHECK suggestions (all sector chapters)
SPM-149	B	10	3	10	3	Table SPM 1: The authors need to explain how they have determined what "significant reduction potential" is (i.e. for each of the sectors is it the technology that could be the	See #A299

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						biggest potential mitigator?) (Government of Australia)	
SPM-336	A	10	6	24	6	ref. to row 6 of table SPM1 Agriculture 8.4: The values provided for the mitigation potential are very low. Some literature claim values up to 11 Gt CO2-eq/yr; the reason is that the potential is not strictly related to the carbon price since the adoption of carbon sequestering agricultural practices is as such already more profitable than conventional agriculture (FAO)	Reject, chapter assessed all literature and these are the outcomes
<b>FIGURE 6</b>							
SPM-338	A	11	0	0	0	<b>FIG6</b> The abatement cost curve (20, 50, 100 USD) for transport is very flat. This is strange since raising a tax from 20 to 100 USD would create much more opportunity. The result is contrary to existing literature on price elasticities for gasoline demand. The same observation can be made for the buildings sector. An important question is when the tax is introduced and how. Please specify. (Government of Sweden)	CHECK ch 5 and 6 how this can be explained
SPM-340	A	11	0	11	0	Figure SPM-6: It is suggested to compare in an additional volume the total mitigation potential for all Kategories of countires. (Government of Austria)	Reject, there is no possibility to develop another volume
SPM-341	A	11	0	11	0	Figure SPM-6: It is noted that there is a larger mitigation potential in non-Annex 1 countries compared to Annex-1 countries. (Government of Austria)	Thank you
SPM-342	A	11	0	0	0	Figure SPM-6: Is this "economic" potential or other potential? Make clear. (Government of Canada)	OK, make clear it is economic potential
SPM-343	A	11	0	0	0	Figure SPM6 should also somehow show the absolute emissions of these sectors.	DISCUSS See also #287

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Germany)	
SPM-344	A	11	0	0	0	Figure SPM 6: This is an example of a figure which raises many questions. For example, energy supply currently emits almost 13 Gton. This will probably increase to 20 Gton by 2030. The mitigation potential with a USD100 carbon tax is surprisingly low (3.5 Gton) considering the changes in relative costs that would be the effect. Is consistency ensured? For example, do reductions in the buildings sector resulting from electricity price increase spill over into energy supply? The error bars for building sector are unreasonably small. Why? What do these ranges, in all sectors, refer to? (Government of Sweden)	OK, better explain the fact that these numbers are based on end-use allocation basis (as in TAR)
SPM-345	A	11	0	0	0	Figure SPM 6: Why is transportation represented only by world totals and not allocated across similar categories as other sectors? Realize the difficulty of bunkers - but these could be a separate bar. (Government of United States of America)	Ok, add footnote to explain
SPM-346	A	11	0	0	0	Figure SPM 6: Based on appearance alone, there seems to be something fundamentally wrong with this figure, namely because it is telling policymakers that agriculture offers greater mitigation potential than the energy supply sector and the transport sectors. The caption of this figure states these sectoral estimates are based on bottom-up studies; however, the executive summary of Chapter 8 states the agricultural biofuel mitigation potential estimates come from top-down studies, and it appears that the biofuel mitigation estimates have been included for agriculture for this figure. If agricultural biofuels are included, it immediately raises the question to what extent there may be double counting occurring with the energy supply and transport sectors. (Government of United States of America)	See #344

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-347	A	11	0	0	0	Figure SPM 6, caption: Replace "mitigation potential" with "economic potential for global mitigation". (Government of United States of America)	OK
SPM-348	A	11	0	0	0	Figure SPM 6 - It would be very useful to policymakers to identify the net-negative cost opportunities (i.e. <0) as well. (Government of Canada)	Reject, not available for all sectors
SPM-349	A	11	0	11	0	Comment on Figure SPM 6: The uncertainty ranges of Buildings sector are very small if compared with the uncertainty ranges of other sectors. It is unlikely that the mitigation potential in the Buildings sector is known with such a certainty. Should the uncertainties be reassessed for the Buildings sector? (Government of Finland)	CHECK ch 6
SPM-350	A	11	0	11	0	Similar remark as for table SPM1, please indicate what energy supply mitigation potentials are so relatively low compared to top down approaches and/or change graph to incorporate accordingly. (European Community)	See #344
SPM-151	B	11	0	0	0	Figure SPM6: We think that reading would be easier if this figure could be made more similar to figure SPM 5 - for example with bars representing the regions and with these bars sub-divided according to costs. (Government of Norway)	Reject, others like it this way
SPM-152	B	11	0	0	0	Figure SPM6: We suppose that this figure is based on the same assumptions as figure SPM 5 and propose that the text is changed to "Estimated ECONOMIC mitigation potential" to reflect this. (Government of Norway)	OK, see #A347
SPM-351	A	11	2	11	2	To clarify what mitigation potential is meant and to be consistent with use elsewhere in the SPM, should "Estimated mitigation potential" be "Estimated economic mitigation potential"?	Ok, see #347

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of New Zealand)	
SPM-352	A	11	2	11	13	Since the figure may take on a life of its own, it may be useful to make it clear here at what carbon price the estimated economic mitigation potential includes significant Carbon Capture and Storage (Government of New Zealand)	Reject, that is not the purpose of this figure
SPM-353	A	11	2	11	3	Include the word "Global" in the figure caption (Government of Switzerland)	OK
SPM-153	B	11	3	0	0	Figure SPM6: For comparison the baseline scenarios emission levels should be included in the caption. (Government of Norway)	OK
SPM-154	B	11	3	11	5	Suggest redraft caption to read "Figure SPM 6: Estimated sectoral mitigation potential as a function of carbon price for different regions in 2030 from bottom-up studies, compared to the respective baselines assumed in the sector assessments (see notes)" (Government of UK)	OK, take into account with other suggestions
SPM-155	B	11	3	11	13	Figure SPM 6 - Explain why emissions from transport are reported as world total only. (Government of UK)	See #A345
SPM-150	B	11	5	11	13	Figure SPM-6: The notes for this figure needs to provide an explanation of the uncertainty error bars. (Government of Australia)	OK, see also #A349
SPM-354	A	11	5	11	35	Is it possible to add something about costs of inaction? (Government of Netherlands)	Reject, is covered in paragraph 20
SPM-355	A	11	5	11	8	Figure SPM6, it should be explained whether there are further implications in the selection of different sources to produce baselines for the different sectors presented in this Figure. (Government of CHILE)	UNCLEAR
SPM-356	A	11	7	11	7	The phrase "A1b;for waste SRES A1bdrivers" may be changed to "A1b; for waste SRES A1b drivers".	OK, improve the caption

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Pakistan)	
SPM-357	A	11	8	11	8	It is suggested to substitute A1b by A1B (Government of Austria)	OK
SPM-358	A	11	11	11	11	Please make clear whether "transport" (in the figure label above) includes air travel and air freight or whether they are covered by the term "public transport" and so excluded from the figure. (Government of New Zealand)	Ok, clarify in note
SPM-359	A	11	11	11	13	It is better that specific references could be given on how these results(10-15%) are achieved.if not,suggest deleting "10-15%" because it is impossible to give the specific value of underestimation if other categories' data are not available. (Government of China)	Ok, refer to respective section of ch 11
SPM-156	B	11	12	11	12	The authors need to explain if the underestimation of 10-15% is for each of the listed sectors or in total. (Government of Australia)	OK, clarify that is is total
<b>PARAGRAPH 5</b>							
SPM-360	A	11	15	11	15	While this SPM is improved from the previous version, the major negative is the loss of the previous table SPM 1. It now appears as table 3.10 in Chapter three, and should be inserted here. It is the clearest delineation of the sense of the WG III report overall, and would be most useful for policy makers. (Greenpeace International)	Reject, it is too complex for SPM and is also covered in TS
SPM-339	A	11	16	11	35	It is suggested to include an additional bullet in order to address the avoided damage costs as a result of mitigation. (Government of Austria)	Reject, is covered in paragraph 20
SPM-361	A	11	16	0	0	Which baseline are you using? Are these costs in 2030 relative to a 2030 baseline? It looks like these ranges are for category C? (Government of United States of America)	OK, Add a footnote to explain that these results are based on studies with a range of baselines; it is obvious from the text that these results are for 2030 and compared to GDP in 2030 in the



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
							baseline
SPM-362	A	11	16	11	22	What is the target date for stabilization and indicate whether costs for a given stabilization scenario vary depending on WHEN action is taken? (Government of Canada)	CHECK (ch 3) if we can say anything about the assumed time for stabilisation in the respective studies [different levels; cannot make one statement, literature uses different moments in time] Might footnote NAKI & Terry To be discussed- Checked and new text has been included from chapter 3
SPM-363	A	11	16	11	23	What is the baseline used here, compared to that referred to in lines 24-25 and 30-33? Are the studies referred to in 30-33 included in assessment here? (Government of Canada)	See #A361
SPM-364	A	11	16	11	35	The stabilization target is to be achieved over what time-scale? Without this, the stabilization target is not very informative. The title gives the impression that for a 650 ppmv stabilization level, GDP loss may actually be negative, indicating a net benefit. The range of GDP loss indicated for a 650 ppmv stabilization target needs to be examined carefully. (Government of Nepal)	See #A362
SPM-365	A	11	16	0	0	The implied value of carbon to achieve stabilization targets would be a useful bullet to include (see lines 15-25, p. 57 of section 3.3). (Government of United States of America)	OK, this is in 4 <sup>th</sup> bullet that needs to be revised in light of different treatment of TD and BU
SPM-366	A	11	16	11	22	The cost calculations do exclude a valuation of many benefits of mitigation as well as co-benefits. This should be stated from the start of this section, as it otherwise conveys the wrong message. (details can be given in paragraph 6 on p. 12). (European Community)	Ok, add footnote or text in box 2 to explain this

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-367	A	11	16	11	24	The breakdown of the total GDP loss into annual increments, as is done for the 650 ppmv CO2-eq trajectory are useful, (i.e., .06 % per annum to 2030), and the 550 ppmv CO2-eq (i.e., <.1% GDP/annum). The correct annual figure for the trajectories in the range of 445-535 ppmv CO2-eq should also be included for comparison purposes. (Greenpeace International)	OK
SPM-368	A	11	16	0	0	Suggest adding a bullet that these studies have different baselines and assumptions that influence the estimates. Add "The costs of stabilization crucially depend on the choice of the baseline; related technological change and resulting baseline emissions; stabilization target and level; and the portfolio of technologies considered (high agreement/much evidence). Additional factors affecting costs include assumptions regarding the use of flexible instruments and revenue recycling." Then refer readers to the text box for more information (see lines 15-20, p. 5, ES 3) (Government of United States of America)	Reject, already in box 2 (text may have to be improved)
SPM-369	A	11	16	0	0	Somewhere it should say that the majority of studies find GDP losses increase with the stringency target (see lines 1-2, p. 56 of section 3.3). (Government of United States of America)	Ok, include new bullet (same comment in para 19)
SPM-370	A	11	16	0	0	Section C.5: The GDP loss numbers are from the top-down models, but, given the format of this section could easily be interpreted as corresponding to the bottom-up picture created on the previous pages. This is misleading. The link between the GDP loss numbers and the bottom-up estimates is weak to non-existent. This is further justification for discussing the top-down results first in this section and using the bottom-up estimates to discuss region and sector specific technologies. (Government of United States of America)	OK, clarify in box 2 that these results are from top-down studies

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-371	A	11	16	11	22	Section C.5: This text is misleading. Rephrase the range for 650 ppm to "0 – 1.2% global GDP loss" per Figure 3.25a, page 54, Chapter 3, from the shaded grey area, which represents the 10th to 90th percentile range. Drop all references to the median of the medians, as this is misleading. Do the same for the 550 ppm range. (Government of United States of America)	Reject; nothing wrong with median (same comment in para 19)
SPM-372	A	11	16	11	25	GDP changes for scenarios towards stabilisation levels between 445 and 535 ppme should be included in the bold part of this paragraph (lines 16-22) since these are very important results with a view to assessing the consequences of aiming for a 2 C limit for global temperature increase over pre-industrial levels as is endorsed by an increasing number of governments. It should be pointed out that the "3% global GDP loss" is a maximum value and average values must be given like for the other scenarios before. These GDP figures should also be reported in terms of reduction of average annual GDP growth rates to allow for full comparison to other stabilisation categories. (Government of Germany)	move all numbers from headline to bullets ; see also A382
SPM-157	B	11	16	11	22	It is highly relevant to policy makers that the costs of mitigation in terms of GDP loss vary considerably from global losses, for different regions based on local economic circumstances and assumed emissions allowances. This should be inserted in the headline statement. (Government of Australia)	OK, add short sentence in headline (but only if all numbers go down to bullets)
SPM-158	B	11	16	11	35	Somewhere in this section it needs to be said that these estimates do not take into account the costs of the damage caused by the impacts of climate change associated with different stabilisation levels, which are expected to increase with increasing stabilisation levels as reported in WG2 SPM. (Government of UK)	See #A366

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-159	B	11	16	11	16	As these studies all either use multi-gas abatement options or assume them (and since this was not the case in the TAR), suggest that "multi-gas" be inserted before "mitigation".  (Government of UK)	OK
SPM-373	A	11	17	11	20	"0.2" and "0.6" should be deleted . It is better to use range(-0.6 to 1.2% and 0-2.5%) of uncertainty. Delete "(reduction of .....0.06 percentage points)" and "(reduction of .....0.1 percentage points)". (Government of China)	See #A371
SPM-374	A	11	18	11	19	These percent figures need to be translated into US\$ in a footnote, if not in the text. (Government of United States of America)	Reject, absolute \$ numbers cannot be understood without context of total GDP
SPM-375	A	11	18	11	20	Replace "loss" on lines 18 and 20 with "decrease". (Government of United States of America)	OK- not added
SPM-376	A	11	18	11	19	Clarify how "reduction of the average annual GDP growth rate less than 0.06 percentage points" is derived. (Government of United States of America)	Ok, add footnote (see footnote for para 19)
SPM-377	A	11	18	11	22	Change to: "A reduction of the annual GDP growth rate OF less than ....". Presentation of both of these metrics to explain mitigation costs is important, but couldn't they be more elegantly presented? (Government of Canada)	OK to say "of" There is no other , more elegant way, to say this
SPM-378	A	11	21	11	22	Delete "(See Box ..... These results)", add the first sentence in the Box SPM.2 on page 12, namely "Studies on mitigation portfolios and macro-economic costs assessed in this report are based on a global least cost approach, with optimal mitigation portfolios and without emission allowances to regions." (Government of China)	Reject, box 2 needs to have even fuller description of methods; not good to only take one sentence out of it
SPM-379	A	11	22	11	22	Instad of "caveats" used the word "discussion" (Government of Switzerland)	OK, but change to "methodologies and assumptions"- not found in current text

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-380	A	11	23	11	25	The cost are related to a certain period, which need to be put into perspective. Therefore it is important to compare costs also to expected GDP growth over this period, to put costs in perspective. (European Community)	OK, needs to be rephrased in the same way as for other categories; see other comments about equal treatment with other categories
SPM-381	A	11	23	11	25	Suggest adding before the period the following: ", which lead to lower estimated costs". (Government of United States of America)	Reject; that statement is already in box 2; refer to box is OK)
SPM-382	A	11	23	11	25	Please include these low stabilisation categories A1 and A2 and their costs on GDP in the chapeau. Numbers of studies are low because it is only fairly recent that the science of climate change has increased the level of ambition necessary to limit certain changes due to increases in estimated radiative forcing. Therefore it is even more crucial that policy makers are aware of these cost estimates. Reference to low number of studies and the use of relatively low baselines could remain in the main text. Note that it could be interesting for policy makers to indicate that the low emission baselines used are similar up to 2030 to the WEO 2004 results at least for the energy sector. (European Community)	Reject, See #A372
SPM-383	A	11	23	11	25	Please delete this paragraph. Reason (1) the number of the studies is relatively small, thus lack of representative. (2) in 2004, GHG concentration has reached 435 ppm CO2-eq. (Government of China)	Reject, formulation is chosen to reflect lower number of studies
SPM-160	B	11	23	11	25	Redraft to "...cost are lower than 3% global GDP loss with the majority of models suggesting costs of less than 2%..." All the model results shown in Fig. 3.25 give GDP costs less than 2% of GDP by 2030, except for one outlier. the text "less than 3%" relies too heavily on this result. (Government of UK)	Reject, no basis to do that (as in para 19); but change "535" by "490"
SPM-384	A	11	24	11	25	The words "but the number of studies is relatively small and	For A2 the wording "limited number of

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						they generally use low baselines." should be deleted, since Fig 3.17 shows, that categories A1 and A2 combined ( 445-535 ppme) represent even more studies than there are in category B (550 ppme), and Fig 3.20 shows that the baselines are NOT AT ALL "generally low". In fact, for 2030 the average of baselines is very equal for all categories. (Government of Germany)	studies” does not apply. So replace “535” by “490” text has been changed and deleted, therefore this comment cannot be implemented
SPM-385	A	11	24	11	24	"lower than 3%" is vague. Please be more specific - "just under" maybe? (Government of United States of America)	See #B160 for better text
SPM-161	B	11	24	11	24	We propose changing text to "... are lower than 3% global GDP loss compared to the baseline..." (Government of Norway)	See #B160 for better text
SPM-386	A	11	25	11	25	It would be useful to note the implications of having higher emissions baselines - higher mitigation costs. (Government of United States of America)	See #A382, A384
SPM-387	A	11	25	11	25	Are the baselines being referred to at the end of the bullet emissions baselines? Please specify. (Government of United States of America)	See #A382, A384
SPM-162	B	11	25	11	25	The authors need to explain what a low baseline is or at least provide a reference to Box SPM 2. (Government of Australia)	OK< refer to box 2; but see also #A382/384
SPM-388	A	11	26	11	28	Please include conclusions on how the timing of emissions reductions affects costs. (Government of Canada)	OK, add explanation in box 2 that these are fixed time horizon estimates-not found in Box 2
SPM-389	A	11	26	11	28	It would be useful to give some sense of how much these measures lower costs. Suggest for clarity "auctioned permits under an emissions trading scheme". (Government of Canada)	addition of “under an emission trading system” OK Based on ch 11 suggestions, text could become: “Cost may be substantially reduced, if revenues from carbon taxes or auctioned permits under an emission trading system are used to promote

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
							low-carbon technologies or reform of existing taxes, depending on the existing tax system and spending of the revenues. " [ch 11 to look at wording Terry& Igor]- Assume that current wording is o.k. by chapter 11.
SPM-390	A	11	26	11	29	Comment: The source of revenues is irrelevant, so please edit (Government of Netherlands)	Reject, would make sentence hard to understand
SPM-391	A	11	26	11	29	Comment: it remains unclear where the money will go, to implementation of low carbon technology or to technology development; in the first case macro-economic cost are not affected, although the end-user cost are reduced; in the second case the cost reduction will only occur over longer periods of time. (Government of Netherlands)	Reject, too much detail for SPM
SPM-392	A	11	26	11	29	Comment: although we recognize that coupling of carbon tax or permit auctioning revenues to low carbon technology funding is politically logical, the source of revenues is irrelevant, so we suggest to rephrase. (Government of Netherlands)	Reject; See #A390
SPM-393	A	11	26	11	29	Change to "Costs are lower or there may even be net economic benefits if revenues from ...". (Government of United States of America)	Reject, this issue is covered in third bullet
SPM-394	A	11	26	11	29	Add a second, separate bullet: "New research on non-CO2 and terrestrial sinks GHG mitigation suggests that there are cost-competitive opportunities for reducing the costs of climate policies in the near-term, when energy-related CO2 mitigation alternatives are more economically constrained by existing infrastructure and not-yet-available future low-carbon technologies."	Reject, too much detail for SPM and this belongs to mitigation potential discussion

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of United States of America)	
SPM-163	B	11	26	11	26	The start of this sentence implies the use of carbon taxes or auctioned permits, it should therefore be rephrased to state "Costs can be reduced if any revenues are generated from the use of carbon taxes or auctioned permits and are then used to promote..." (Government of Australia)	Reject, sentence is clear as is
SPM-164	B	11	26	11	27	We suggest the following wording "Costs are lower if revenues from taxes on, or auctioned permits for GHG emissions are used to promote low emission technologies or reform of existing taxes". Justification: In a.o.3.3.5.4 it is stated that multigas emissions reduction scenarios are able to meet climate targets at substantially lower costs compared to CO2-only strategies. This should not be left out by only focusing on "carbon" like the existing sentence does. (Government of Norway)	Reject, sentence is clear as is
SPM-165	B	11	26	11	29	Also note that although the practical implications of induced technological change are indeed lower costs overall, they may also mean higher upfront costs - for investment in research, development and deployment of technology - in order to achieve those lower costs. This is noted in underlying chapters. (Government of UK)	OK, add text- do not think that this point has been covered in the new text
SPM-166	B	11	27	11	27	Suggest rephrasing to "...technologies or reduction of burdensome taxes. ..." as the benefit comes if the tax reform reduces burdensome taxes. (Government of UK)	Reject, "burdensome" is a value judgment
SPM-395	A	11	28	11	28	how much lower are costs estimated for these scenarios? Some indication would be useful (Government of Germany)	See #A389
SPM-167	B	11	29	11	29	Suggest add "overall" between "lower costs" at end of and adding new sentence. This would now read "...also give	OK- this wording suggestion is not there in text



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						lower overall costs. However, this induced effect may require higher upfront investment and deployment of new technologies in order to achieve cost reductions thereafter [3.4]." (Government of UK)	
SPM-396	A	11	30	11	30	Very important statement. It should stay as it is. (Government of Germany)	Thank you
SPM-397	A	11	30	11	33	This is very interesting conclusion- are these models used in calculating overall average cost figures? Are these global gains? At what ppm? How do these baselines compare to those referred to in key message? More detail would be useful. (Government of Canada)	Reject, for more detail see TS and chapter
SPM-398	A	11	30	11	30	The language "or negative GDP losses" is confusing. Please delete. (European Community)	OK
SPM-399	A	11	30	11	30	Suggest to delete the word "positive" (Government of Mexico)	OK
SPM-400	A	11	30	11	32	Delete third bullet, starting with "Some models..." (Government of United States of America)	Reject, is a policy relevant conclusion
SPM-168	B	11	30	11	32	Which climate mitigation policies steer economies towards reducing imperfections? R&D? The Authors need to be more specific. (Government of Australia)	Reject, too detailed for SPM
SPM-169	B	11	30	11	32	This dot point is quite confusing as presently drafted (e.g some models give positive GDP gains for what?), it also does not allow comparison with the figures above that provide figures for GDP losses as no stabilisation level is provided for these models. Suggest, therefore, that this dot point is deleted. (Government of Australia)	Reject, bullet explains the negative numbers mentioned above
SPM-170	B	11	30	11	30	The authors should delete "(or negative GDP losses)" as this	OK, see #A398

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						is unnecessary and confusing. (Government of Australia)	
SPM-171	B	11	30	11	33	Suggest rephrasing to "The substitution possibilities among producers and consumers, and therefore the assumed efficiency of the economy is also important in determining costs. For example, if baselines are not optimal, mitigation policies can steer economies towards reducing unemployment and market imperfections. The rate of technological change and the extent of mitigation benefits assumed also affects overall costs. Variations of these assumptions lead some models to report positive GDP gains (or negative GDP losses). [3.3, 3.4, 11.4]." (Government of UK)	Reject, too technical for SPM
SPM-401	A	11	32	11	32	Write "... towards reducing market imperfections." (Government of Switzerland)	OK
SPM-402	A	11	33	11	35	This can be confusing language for readers that have no expert knowledge concerning emission trading systems . As long there is Box SPM 2 which gives clear explanation this bullet point is redundant. Therefore delete. (European Community)	See #A403
SPM-172	B	11	33	11	33	To assist policy readers the authors should explain what an "assumed emission allowance" is (this also applies to Box SPM-2 line 3) (Government of Australia)	OK, clarify
SPM-173	B	11	33	11	33	It is asserted that the assumed stabilisation level and baseline scenario are more important in determining the regional policy cost than the regional emission allocations. However, in box SPM 2 on page 12, it is stated that in the reviewed literature emission allowances are NOT allocated to regions. Given that the relative importance of these cost drivers do not appear to have been quantitatively modelled, this assertion needs to be substantiated.	<b>DISCUSS</b> ch 13 (last sentence that gives opposite message to the one included in SPM text) <a href="#">[Dennis will look back in Ch 13, in combination with the heading. Will come back]</a>

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Australia)	
SPM-174	B	11	33	11	33	Please clarify the issue of emission allowances to regions as box SPM 2 states that the studies without allocation to regions (Government of Norway)	<b>DISCUSS</b> ch 13 (last sentence that gives opposite message to the one included in SPM text) [Dennis & Terry will look back in Ch 13, in combination with the heading. Will come back]
SPM-175	B	11	33	11	35	Suggest redraft to "Total mitigation costs depend on the extent of assumed participation of countries and sectors, because abatement costs differ across regions and sectors. The more countries involved in the mitigation efforts (whether through trading or other mechanisms), the lower total global costs are, because the cheapest abatement options globally can be exploited." Regional abatement costs are not dependent on emissions allowances assumptions -abatement costs exist despite those assumptions. (Government of UK)	<b>DISCUSS</b> ch 13 (last sentence that gives opposite message to the one included in SPM text) [Dennis & Terry will look back in Ch 13, in combination with the heading. Will come back]
SPM-403	A	11	34	11	35	Rephrase the sentence "assumed stabilization level and baseline scenario are more general precondition in determining regional costs" If allocation of allowances to some region is relatively small, this may have larger effect on abatement cost than stabilization level or baseline scenario. (Government of Japan)	Reject, this is not what the chapter says; <b>DISCUSS</b> -(ch 13) if better language can be found (see also #402) [Dennis & Terry will look back in Ch 13, in combination with the heading. Will come back]
<b>SPM-404</b>	A	11	35	0	0	include Table TS2 - like in the second order draft (SOD) (Government of Germany)	Reject, table is not relevant here
<b>BOX 2</b>							
<b>SPM-406</b>	A	12	0	0	0	Box SPM 2: The text "...with optimal mitigation portfolios and without allocation of emissions to regions. If regions are excluded or non-optimal portfolios are chosen, global costs will go up." is a very important caveat that should be	Reject, box is meant to give these points visibility

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						included in the bullets under paragraph #5 as well. (Government of United States of America)	
SPM-176	B	12	0	0	0	Box SPM2. Insert after portfolios", with carbon taxes or auctioned permits". The reason: the costs are larger if emission permits are given freely as in EU ETS. Also delete "and without allocation of emissions allowances to regions", because allocation, in a least-cost approach, should not have any effect on mitigation costs (a least cost approach assumes trading or a similar efficient mechanism to ensure global abatement costs are equalised). Also see our comments on 4th bullet in section 5 (11,33,11,35) where the same reasoning is applied. (Government of UK)	Reject suggestions, because incorrect Ok to explain least cost approach to clarify the points made [Naki and Terry check on this] (still under discussion)
<b>PARAGRAPH 6</b>							
SPM-407	A	12	3	12	5	Perhaps this conclusion needs to be qualified by a reference to the specific sectors where there are clear synergies between mitigation activities and air pollution, because it is not clear that this conclusion is justified in general. (Government of Nepal)	Reject, since connected to burning of coal and oil, many sectors involved
SPM-408	A	12	3	12	9	Consistent with chapter 11, "air pollution" should be clarified to mean "fine particulate matter and ground-level ozone" (chapter 11 page 76, line 12). (Government of United States of America)	Reject, too much detail for SPM
SPM-177	B	12	3	12	3	The authors should set out which world regions were analysed. (Government of Australia)	Reject, too detailed for SPM
SPM-178	B	12	4	12	5	It would be of assistance if the authors could provide some quantification of their use of the word substantial in respect of offsetting part of the cost of mitigation. (Government of Australia)	See #A409
SPM-179	B	12	5	12	5	Please clarify what is meant by "substantial fraction of mitigation costs"	See #A409

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Norway)	
SPM-409	A	12	6	12	9	What does the report tells us of the approximate size of these cost reductions? More detail is preferential. (European Community)	Reject, will take too much text (The health benefits vary widely, depending on the country, the pollutant and population at risk, between \$US 2 and 176/tCO2 abated. T11.18
SPM-410	A	12	6	12	6	Replace "energy security" with "energy-supply security (by increased energy diversity)" [Section 4.5.3, p. 88, line 25] (Government of United States of America)	Ok, add "supply", but not the bracketed text, because not correct
SPM-411	A	12	6	12	7	Increased agricultural production is an "important" co-benefit that should be included in this list, as described in section 11.8.1.3. In addition, benefits to natural ecosystems could be added to be more complete, as described in section 11.8.1.4. (Government of United States of America)	Ok, add "increased agricultural production and reduced pressure on natural ecosystems due to decreased tropospheric ozone"
SPM-412	A	12	6	12	7	How are the various co-benefits resulting from reduced air pollution, energy security & employment commensurate with mitigation costs, to permit a direct comparison? (Government of Nepal)	Reject, too much detail fro SPM
SPM-413	A	12	6	12	6	Delete "and employment" (for justification, see comments on Section C.8). (Government of United States of America)	Ok, delete employment
SPM-180	B	12	6	12	9	We propose that the second bullet point comes first to be more in line with lines 6 to 8. (Government of Norway)	Reject, first bullet gives more detail and logically precedes second bullet
SPM-414	A	12	8	12	9	This sentence needs to be clarified, consistent with section 11.8.1.7. It should be made clear that this refers to abatement of the air pollutant tropospheric ozone (not fine particulate matter). Further, it should be noted that ozone is itself a greenhouse gas with local and global impacts. (Government of United States of America)	Reject, This is one aspect of the cost reductions available. Another is the switch to gas or CCS from coal, which reduces the need for FGD to reduce air pollution. It will be difficult to put these points in the text without a new bullet.

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-415	A	12	8	12	8	The word "offers" needs to be changed to "offer". (Government of Pakistan)	Reject, correct English
SPM-181	B	12	8	12	9	The authors should review this dot point and consider its deletion. It seems to be a rephrasing of the headline statement albeit with a focus on policies rather than outcomes. (Government of Australia)	Reject, it is a further elaboration of the headline
SPM-416	A	12	9	12	9	The following language is suggested: ... compared to treating those policies... (Government of Austria)	OK, replace "the" by "those"
<b>PARAGRAPH 7</b>							
SPM-417	A	12	11	0	0	The statement 'Recent literature CONFIRMS the conclusions in TAR on spill over and carbon leakage' seems not to be underpinned by literature. It's 'medium agreement, medium certainty' and line 17 states that 'critical uncertainties remain'. Therefore, it is more accurate and neutral if it stated 'Recent literature IS IN LINE WITH the conclusions in TAR on spill over and carbon leakage'. (European Community)	OK, use "in line"
SPM-418	A	12	11	12	11	The statement "Recent literature confirms the conclusion in TAR.. (medium agreement, medium evidence). " may unintentionally suggest that there is now more confidence in the conclusions in the TAR, as opposed to what we understand the intent of this statement to be: reinforcing the conclusions of the TAR that there is considerable uncertainty and that estimates of spill over effects remain mixed and varied. This strong statement should be revised accordingly. (Government of Canada)	See A417
SPM-419	A	12	11	12	21	Suggest to re-phrase the jargon terms "spill over" and "carbon leakage" into more common terminology. (Government of Germany)	OK, Replace by "the effects of Annex 1 actions on the global economy and global emissions"

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-420	A	12	11	12	12	Should clarify "spill over" and "carbon leakage" for those who are not familiar with these terms, particularly as they are applied in the context of SPM Section 7 (Page 12, Lines 13-21). Carbon leakage and changes in oil price and demand are not the only "spill over" effects - wider treatment is required, i.e. technological spill overs. Positive effects should also be noted as per Table 11:13. Spill over effects are also not limited to Annex I/non-Annex I, but also occur between regions and sectors. For the current SPM wording on Page 12, line 14 "lower demand and price...and GDP growth" - we do not know the context of "lower" because no information on the baseline assumptions used as a basis for making this statement were provided in the SPM or in the Technical Summary (11.7). The SPM states that the extent of spill over "depends strongly on assumptions" related to Annex I policy decisions and oil market responses and therefore makes clear that the statement on spill over effects needs to be understood in the context of the assumptions on which it was based. It is therefore important that these assumptions be clearly illustrated. (Government of Canada)	See A419. The literature covered in Chapter 11 is specifically on the effects of Annex 1 action. We would need another bullet for technological spillovers: "The potential beneficial effect of technology transfer to developing countries brought about by Annex I action may be substantial, but has so far not been quantified in a reliable manner."
SPM-421	A	12	11	0	0	Section C.7: Leakage and spillover are technical terms that have no meaning to a layman. Please rewrite these paragraphs so that policy makers can understand these sentences even if they have never heard these specific terms. (Government of United States of America)	See A419, A420, and A451.
SPM-422	A	12	11	12	11	Reference is made to conclusions in TAR. Are policy makers expected to be closely familiar with the conclusions in TAR? What are the conclusions in TAR? (Government of Sweden)	OK, Add a footnote from TAR SPM
SPM-423	A	12	11	12	11	It would be useful to explain "spill over" and "carbon leakage" here, in a footnote, rather than requiring readers to	See A419

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						refer to a glossary. (Government of New Zealand)	
SPM-424	A	12	11	12	11	It would be clearer if the TAR conclusions were explicitly (shortly) given, e.g. in brackets or in a footnote (Government of Switzerland)	See A422
SPM-425	A	12	11	11	16	Given the concerns and rationale outlined above, we propose the following revision: "Fossil fuel exporting nations (in both Annex I and non-Annex I) may experience, as indicated in TAR, relatively lower demand as a result of certain emission abatement policies. However, the impacts are expected to be marginal given that fossil fuels are projected to predominate in the global energy mix to 2030 and beyond, and the overall influence of non-climate change factors on energy markets. The extent of spill-over depends strongly on assumptions related to a range of public and private policy decisions and oil market conditions which cannot be fully captured in the models." [11.7] (Government of Canada)	See A420. The additional text suggested raises too many extra questions.
SPM-426	A	12	11	12	12	Change "confirms" to be "repeats" or "shows". Reason: the using of wording "confirm" seems to conflict with the uncertainty level at the end of this sentence--medium agreement, medium evidence. (Government of China)	See A417
SPM-427	A	12	11	12	16	After reviewing TS, Chapter 11, we have reservations that the underlying assessment supports the statement as per SPM p. 12, lines 11-16. We articulate these reservations below in five sections in order to provide a rationale for our proposed revised language. This bullet should be REVISED accordingly. (Government of Canada)	See A420.
SPM-428	A	12	11	11	16	5. Models can not capture the full range of energy markets dynamic – as demonstrated in the very mixed results put	See A425.



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						forward in Chapter 11. Even IF certain abatement measures result in overall lower demand than would have been the case without abatement measures, this decrease in demand may not be accompanied by lower price and GDP growth as many other interacting factors can intervene and have a stronger affect. The baseline assumptions are also not realistic. There is no guaranteed price to benchmark, as we have seen with the movement from \$15 a barrel to the current \$60 a barrel in the past few years due to a host of demand and supply issues. Energy markets are not static and there is no baseline guarantee for a producer country on any level of fossil fuel price and quantities. (Government of Canada)	
SPM-429	A	12	11	11	16	4. In any future scenario envisaged, the SPM already acknowledges projections that fossil fuels will be vastly predominate in the global energy mix to 2030 and beyond, as per conclusion in SPM page 3 lines 41-42, and associated emissions increase 40-110%- this implies a significant INCREASE in demand. All signs indicate that increasing demand from growth in other regions will more than compensate for Annex I abatement policies. With the explosive projected growth of non-Annex One countries such as China and India, the continued focus on the impact of Annex I climate policy responses on fossil fuel exporting nations is too limiting - most projected future growth is for non-Annex I countries. (Government of Canada)	See A425.
SPM-430	A	12	11	11	16	3. Not all abatement measures include a shift away from fossil fuels, but rather “clean fossil fuel technology” which, unless costs are assumed to be prohibitive and passed along via price), will not have a major impact on demand in the longer run. Although these technologies are assumed to be an integral part of abatement policies in the near-term, it is	See A420

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						not clear if (and or how) these are included in the modeling studies referred to. [need some areas in SPM where this is ref] . With the development and implementation of clean and/or cleaner burning and/or more efficient technologies, such as carbon capture and storage and coal gasification, fossil fuel industries can accommodate many elements of emission abatement policies that are being introduced that could also extend the life and competitiveness of fossil fuels in the process particularly given rising concern over global environment and health issues. (Government of Canada)	
SPM-431	A	12	11	11	16	2. Related to (1) above, like any other economic sector, with innovation and ongoing change, the fossil fuel sector will always face the on-going need to adapt. Many private and public policy decisions, for a host of environment, energy and other reasons (e.g., energy security, supply and refinery problems, geopolitics, industry costs, competitiveness etc.), will continue to exert influence on oil markets even if climate change itself were not an issue. (Government of Canada)	Reject. The SPM is about GHG mitigation, not the global energy industry.
SPM-432	A	12	11	11	16	1. There are many non-abatement related influences on demand for oil- some of which far outweigh climate policy influence. For example, TS page 9 lines 16-19 refer to the fact that developing countries reduced emissions by 500 million tonnes/year for reasons other than climate change, and that these reductions (and associated reductions in oil demand) far exceed those required by Annex I Parties as per the Kyoto Protocol. (Government of Canada)	See A431
SPM-433	A	12	11	0	0	“Carbon leakage” needs to be defined somewhere. (UNEP)	OK footnote definition of carbon leakage from Ch11: “Carbon leakage is defined as the increase in CO2

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
							emissions outside the countries taking domestic mitigation action divided by the reduction in the emissions of these countries.”
SPM-182	B	12	11	0	0	Since this is the first time the terms "spill over" and "carbon leakage" are used, we think that an explanation should be included. (Government of Norway)	OK, see #A433. The meaning of “spillover” is clear in line 15. If definition needed: “Spillover effects of mitigation in a cross-sectoral perspective are the effects of mitigation policies and measures in one country or group of countries on sectors in other countries.”
SPM-183	B	12	11	12	12	Explain the terms 'spill over' and 'carbon leakage' to make the meaning clear to policy makers (Government of UK)	OK, see #A433. See B182
SPM-434	A	12	12	0	0	It appears better to include in the opening statement of point 7, a sentence indicating what are the conclusions in TAR which have been confirmed with regards to spill over and carbon leakage. (Government of CHILE)	See A422
SPM-435	A	12	13	12	13	It is suggested to address also in another bullet the reduction of climate risk. (Government of Austria)	Reject. Climate risks are WG1 and WG2 topics.
SPM-436	A	12	13	12	15	Economic impact on fossil fuel exporting countries would seem to have greater uncertainty than noted here under future scenarios. Also, not sure that the effect on fossil fuel demand should be described as a spillover unless you want to discuss improvements in energy security. Reword to say "Some fossil fuel exporting nations may expect ... lower fuel demand and prices and lower GDP growth due to	See more specific heading for para in A419

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						emission abatement policies. The extent of this effect depends strongly on...." (Government of United States of America)	
SPM-184	B	12	14	12	14	For clarity delete "in case of" and replace with "due to". (Government of Australia)	OK
SPM-185	B	12	14	12	14	Suggest redraft "...lower demand and prices which may cause some negative effects on growth due to mitigation policies...". (Government of UK)	OK but use "...lower demand and prices and lower GDP growth due to mitigation policies...". reason: negative effects on growth may be misunderstood as reductions in GDP.
SPM-437	A	12	15	12	15	It is suggested to substitute "Annex I policy decisions" with "policy decisions".. (Government of Austria)	OK, this fits better with A419
SPM-438	A	12	15	12	15	I would not call this a "spill over" effect. I would call spill over the dissemination in countries with no or weak carbon policies of better technologies resulting from their development in more carbon-constrained economies. (International Energy Agency)	See A420 with suggested new technology bullet.
SPM-439	A	12	15	12	16	Delete Annex I from this sentence. Spill over will result from non-Annex I policy decisions to mitigate emissions as well as decisions by Annex I countries. (Government of United States of America)	OK. See A437
SPM-440	A	12	15	0	0	Recent literature seemingly does not provide strong evidence for teh statement in the draft. Fairly limited research seems to have taken place since the TAR. Spill over effects on oil exporting countries will be limited if policies are optimised (targeting for instance carbon content or energy carriers). In particular spill over will depend on the development of a global carbon market. Therefore change into: "The modelled extent of this theoretical spill over depends strongly on assumptions related to the development of optimised global greenhouse gas mitigation policies incl.	Reject. New text too technical and raises too many new questions.

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						the global carbon market as well as on policy assumptions on the side of oil exporting countries inter alia diversification policies." (European Community)	
SPM-186	B	12	15	12	15	The authors need to provide an indication as why only Annex I policies will influence the extent of spill over. (Government of Australia)	The literature covered is on Annex 1 action.
SPM-441	A	12	17	12	21	Please explain the term Carbon leakage (Government of Netherlands)	See A433.
SPM-442	A	12	17	12	18	Leakage as a result of what? Without assumptions, this sentence has no meaning. (International Energy Agency)	See A433
SPM-443	A	12	17	12	17	Define the concept of "carbon leakage" (Government of Sweden)	See A433
SPM-187	B	12	17	12	21	Suggest redraft to "Most equilibrium modelling support the conclusion in the TAR of economy wide leakage from Kyoto action in the order of 5-10% {we can't see a reference to 20% in the text of chapter 11 though it is in the ES}. However, realistically, this is likely to be lower because several factors favour local production. Findings from sectoral analysis of the effects of the EU Emissions Trading Scheme also indicate lower levels of economy-wide leakage and find that competitiveness effects on energy-intensive sectors are not significant. [11.7, and Ch 11 ES]" (Government of UK)	OK. Add "from Kyoto action" after "leakage". The 5-20% is a TAR conclusion. See A451
SPM-188	B	12	18	12	18	The authors need to explain the assumptions upon which the figures of 5-20% economy wide leakage were calculated, (e.g. are these figures based upon the implementation of the Kyoto Protocol?). (Government of Australia)	See B187
SPM-189	B	12	18	12	18	Suggest "...leakage from Kyoto action". Reason: the 5-10% rates are from studies of Kyoto. More stringent action could	See B187

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						lead to higher leakage rates. (Government of UK)	
SPM-444	A	12	19	12	21	<p>Strike the sentence beginning with “Findings from ...” and insert in its place: “Findings from sectoral analysis of the effects of the EU Emissions Trading Scheme indicate lower levels of economy wide leakage, at least in the short term. However, leakage rates rise with higher allowance costs, and at 50 US\$/t CO2 can lead to potentially greater leakage.”</p> <p>The ETS was only instituted recently and there is general agreement that too many allowances were issued. Has the ETS even been in operation long enough to see an effect, and has the price of carbon been high enough to induce leakage? This is a legitimate question because the discussion in 11.7 states: “Szabo et al. (2006) report production leakage estimates of 29% by 2010 for cement with an EU ETS allowance price of about 50 US\$/tCO2 using a detailed model of the world industry. Leakage rates rise the higher the allowance price. More generally, Reinaud (2005) surveys estimates of leakage for 20 energy-intensive industries (steel, cement, newsprint and aluminium) with the EU ETS. She comes to a similar conclusion as Sijm et al. (2004) and finds that with the free allocation of CO2 allowances ‘any leakage would be considerably lower than previously projected, at least in the near term.’ (p. 10). However, ‘the ambiguous results of the empirical studies in both positive and negative spillovers warrant further research in this field.’ (p.179).”</p> <p>Why would it surprise anyone that free allocation of CO2 allowances would reduce potential leakage, especially when that allocation was considered too generous? And there is certainly some ambiguity in these studies (Reinaud). The results reported here indicate that the higher the cost of carbon, the greater the potential for leakage. This is</p>	See A451. There are too few studies in the literature to conclude, with evidence, that higher carbon prices will lead to higher leakage. The outcome will depend on the modelling assumptions. Szabo’s estimate is for one sector, cement, and for a specific set of assumptions.

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						important because a good portion of the SPM up to this point concerns itself with a cost of CO2 in the 50 to 100 US\$/t range. It seems, then, the more pertinent finding is that of Szabo. (Government of United States of America)	
SPM-445	A	12	19	12	19	Replace "are" with "were". (International Atomic Energy Agency (IAEA))	OK
SPM-446	A	12	19	12	21	It is suggested to delete "any findings from sectoral analysis of the effect of the emissions trading scheme" because of the significant overallocation of EU-Allowances in the first commitment period. (Government of Austria)	See A451
SPM-447	A	12	19	12	21	Is it possible to draw scientific conclusions on data from a system that has been operational for only two years? (Government of Sweden)	See A451
SPM-448	A	12	19	12	21	Delete this sentence or add "due to very loose allocation." (Government of Japan)	See A451
SPM-449	A	12	19	12	21	Delete the whole sentence from "Findings.....", because 1) EUETS is not an economy wide trading scheme; 2) EUETS allowances are excessive in some energy intensive industries, so there is no value to analyze the leakage. (Government of China)	See A451
SPM-450	A	12	19	12	19	Change "if low-emissions technologies" to "if competitive low-emissions technologies" to indicate that the technologies being diffused are at least roughly comparable in cost to older technologies. (Government of United States of America)	OK
SPM-18	C	12	19	12	21	The CO2 caps of the EUETS were set pragmatically to the levels comfortable and acceptable to the industry. If the caps were set unrealistically stricter, the leakage would be a real issue. The statement here gives the impression that ETS is free from leakage. However, it is not so. It is better delete	Check ch 7 and 11

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						the statement. (Government of Japan)	
SPM-451	A	12	20	0	0	The sentence "Findings from sectoral analysis of the effects of the EU Emissions Trading Scheme indicate lower levels of economy wide leakage" is an overstatement, compared to its source (Chapter 11.7). Having looked at the source, this sentence would more accurately read: "Findings from sectoral analysis of the effects of the EU Emissions Trading Scheme indicate that, in practice, carbon leakage is unlikely to be substantial because of a range of factors." (European Community)	OK re-draft sentence to "Findings from sectoral analysis of the effects of Phase 2 of the the EU Emissions Trading Scheme indicate that, in practice, carbon leakage outside the EU is unlikely to be substantial because of free allocation, exemptions and other factors."
SPM-452	A	12	20	12	21	replace "lower levels of economy wide leakage" with "that economy wide leakage is of much lower relevance." (Government of Germany)	See A451
SPM-190	B	12	21	12	21	It would be of assistance to policy readers if the authors could provide the figures for economy wide leakage in the EU, as a result of the EU ETS. The authors also need to explain if their finding on economy wide leakage relates to the EU, or globally. (Government of Australia)	See A451
SPM-191	B	12	22	12	22	Suggest that a positive message on technology spill-over be included based on Ch 11 (Government of UK)	OK See A420
<b>PARAGRAPH C8</b>							
SPM-453	A	12	23	12	26	We suggest to describe each renewable on its own (Government of Sweden)	Reject, no space in SPM to do that
SPM-454	A	12	23	12	25	This sentence is misleading. Potential for emission reductions will depend on the source of new supply. Change to "LOW-CARBON OR CLEAN FOSSIL FUEL energy supply investments..." and "achieve GHG emissions reductions COMPARED TO BASELINE SCENARIOS". Add renewable energy and energy efficiency after "policies	Reject first change (changes the meaning); OK second addition



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						that promote". (Government of Canada)	
SPM-455	A	12	23	13	8	This section is rather unbalanced. There is an emphasis on energy security, but what about development benefits and objectives of providing modern energy services to all? (Government of Nepal)	OK, add this point to end of headline
SPM-456	A	12	23	12	26	The sentence is extremely hard to understand on a first reading. It would help if it were easy to comprehend the first time through. (International Atomic Energy Agency (IAEA))	See #B192
SPM-457	A	12	23	13	8	Section C.8: This section makes the claim that new energy supply investments in developing countries, upgrades of energy infrastructure in developed countries, and policies that promote energy security contribute to, among other things, wealth creation and employment. The supporting bullets for this section make no further reference to the wealth creation and employment benefits of these investments, and do not provide information on where these claims are supported within the chapters. Searching the chapters, I could not find text supporting the wealth creation claim. Searching for the text that supports the employment co-benefit claim, I found in chapter 4, page 89, lines 14 – 21: Increased net employment and trade of technologies and services are useful co- benefits given high unemployment in many countries. Employment is created at different levels, from research and manufacturing to distribution, installation and maintenance. Renewable energy technologies are more labour intensive than conventional technologies for the same energy output (Kamman et al., 2004). For example solar PV generates 5.65 person-years of employment per 1 million US\$ investment (over 10 years) and the wind energy	OK to drop “wealth creation”, but reject dropping “employment” because that is covered in report <del>(this last point is still under discussion)</del> . Add respective chapter references that are mentioned in comment. <a href="#">[employment statement is supported in Ch 4 (RE, EE and others), CH 11; it varies across the options. We keep statement on employment in]</a>  See also US comment on third bullet (#A477)

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						<p>industry 5.7 person-years. In contrast, every million dollars invested in the coal industry generates only 3.96 person-years of employment over the same time period (Singh &amp; Fehrs., 2001).</p> <p>And, chapter 6, page 45, lines 35 – 39: Most studies agree that energy-efficiency investments will have positive effects on employment, directly by creating new business opportunities and indirectly through the economic multiplier effects of spending in other ways the money saved on energy costs (Laitner, 1998; Jochem and Madlener, 2003).</p> <p>And chapter 7, page 47, lines 30 – 37: Economy-wide impact studies (Sathaye, et al, 2005; Phadke, et al, 2005) show that in developing countries, like India, adoption of efficient electricity technology can lead to higher employment and income generation. However, the lack of empirical studies leads to much uncertainty about the SD implications of many mitigation strategies, including use of renewables, fuel switching, feedstock and product changes, control of non-CO2 gases, and CCS. For example, fuel switching can have a positive effect on local air pollution and company profitability, but its impacts on employment are uncertain and will depend on inter-input substitution opportunities.</p> <p>And chapter 11, page 39, lines 6 – 10: Climate policy proposals in the U.S. have been put forward by the states. Analysis of a package of 8 efficiency measures using a CGE model (Roland-Holst, 2006) reduces GHG emissions by some 30% by 2020, about half of the Californian target of returning to 1990 CO2 levels by 2020, with a net benefit of 2.4% for the state’s output and a small increase in employment (Hanemann et al., 2006).</p> <p>While these references within the chapters do support the</p>	

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						<p>idea that climate mitigation policies may have employment co-benefits, there are enough other instances in the literature of climate mitigation policies having a negative impact on employment that it might not be correct to claim high agreement, much evidence on this point.</p> <p>Examples in the literature of studies of climate mitigation policies that show negative impacts on employment include: Smith, A, P. Bernstein, D. Montgomery. (2003) “The Full Costs of S.139, With and Without its Phase II Requirements,” Charles River Association</p> <p>Energy Information Agency. (2003) “Analysis of S.139, the Climate Stewardship Act of 2003.”</p> <p>Energy Information Agency. (2007) “Energy Market and Economic Impacts of a Proposal to Reduce Greenhouse Gas Intensity with a Cap and Trade System.”</p> <p>Additionally, many of the CGE models that have been used to analyze climate policies are full-employment models. While these models can not inform us about the changes in unemployment due to a climate policy, they can tell us about the labor – leisure choice and changes in labor supply. It is commonly found in this type of model that a climate policy will decrease labor supply (increase leisure demand). For a good discussion of this effect, see:</p> <p>D. Jorgenson, R. Goettle, P. Wilcoxon, M.S. Ho. (2000) “The Role of Substitution in Understanding the Costs of Climate Change Policy,” Pew Center on Global Climate Change report.</p> <p>(Government of United States of America)</p>	
SPM-459	A	12	23	12	26	<p>Reword beginning of sentence to read: "New energy supply investments, upgrades of energy infrastructure, and policies that promote energy security, can, in many cases," This addresses the point that it is not clear at all that energy security and climate change mitigation are necessarily</p>	<p>OK to add “can, in many cases” (see also B193, Australia)</p>

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						compatible, especially for those countries with large coal reserves. Fuel switching from coal to gas in the power sector might be good for CO2 emissions, but bad for energy security. There needs to be recognition of the possibly tension between mitigating CO2 emissions and achieving a measure of energy security, especially in light of different energy resource endowments (Government of United States of America)	
SPM-460	A	12	23	13	10	A wide range of energy supply mitigation options is available in the short to medium time frame (high confidence). Implementation will be in the form of a portfolio of options: improved supply efficiency, renewable energy (particularly biomass), fuel switching from coal to gas, advanced nuclear power, and CO2 capture and storage (CCS) in combination with coal or 5 gas-fired installations This is not completely consistent with the factual material contained in the full Report. Namely 4.3, 4.3.1 Fossil fuels, 4.3.2 Nuclear energy, 4.3.3 Renewable energy. So we propose rearrange the points, i. e. "A wide range of energy supply mitigation options is available in the short to medium time frame (high confidence). Implementation will be in the form of a portfolio of options: improved supply efficiency, fuel switching from coal to gas, advanced nuclear power, renewable energy (particularly biomass), and CO2 capture and storage (CCS) in combination with coal or 5 gas-fired installations" (Government of Russian Federation)	UNCLEAR where the comment is related to
SPM-192	B	12	23	12	27	We propose that this very long sentence is simplified and divided into two sentences - for example as follows: "New energy supply investments in developing countries, upgrades in developed countries and policies that promote energy security, create opportunities to achieve GHG emission reductions. In addition this can provide co-benefits such as	OK Taking into account A454, A455,A457A459, sentence proposed is: "New energy supply investments in developing countries, upgrades of energy infrastructure in developed

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						air pollution abatement, balance of trade improvement, wealth creation and employment (high agreement, much evidence)." (Government of Norway)	countries, and policies that promote energy security, can, in many cases, create opportunities to achieve GHG emission reductions compared to baselines. Additional co-benefits are country specific but often include air pollution abatement, balance of trade improvement, provision of modern energy services to rural areas and employment." (ch 4 still had a few other points that are unclear)
SPM-19	C	12	24	0	0	This umbrella looks too much positive. It assumes "a priori" a definitely honest technology transfer and affirms facts which implementation may well be no such positive as hinted. To be more near the truth, as shown by many investments made in developing countries, the umbrella shall read as follows: New energy supply investments in developing countries could upgrade their energy infrastructure, and install / enhance policies that may promote energy security, create opportunities to achieve GHG emission reduction, and provide co-benefits such as air pollution abatement. The past experience, gathered in developing countries, does not show much of balance of trade, and the employment rate normally increases during the installation phase. Modern automated factories and systems tend to reduce personnel at all levels. (Government of Argentina)	Check ch 4
SPM-461	A	12	25	12	26	Delete the list of co-benefits and replace with (lines 25-28, p. 88, Section 4.5): "such as air pollution abatement, energy-supply security, technological innovation, reduced fuel cost, and reduced urban migration." (eliminating "employment"	See # A457

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						from the language in Section 4.5). The co-benefits of "balance of trade improvement, wealth creation and employment" are not substantiated in the supporting chapters. The supposed benefits are, in most cases, merely a transfer between regions and sectors rather than a general acceleration in global growth. The mitigation policies will have costs and are unlikely to result in a win-win. For example, Russia may see positive "co-benefits" in increased agricultural productivity because of carbon offset payments, but other regions will see a decrease in agricultural productivity -- this is a negative co-benefit that should be acknowledged. (Government of United States of America)	
SPM-193	B	12	25	12	25	Editing: replace "to" with "can". (Government of Australia)	See #A459
SPM-194	B	12	26	12	26	What reference/evidence is there for balance of trade improvements, wealth creation and employment. The authors should provide some justification for this statement in the SPM. (Government of Australia)	Reject, justification is in the chapters
SPM-458	A	12	28	12	33	Section C.8: The message in the first bullet that "widespread diffusion of low-carbon technologies may take decades" is key for two reasons: one, it explains why some technologies are not available by 2030, and two, it is one of the central reasons why tight stabilization targets are expensive. The first point should be clearly made under Section C.8 and the second should be made in Section D.18, starting on line 27. (Government of United States of America)	Reject this point in para 8, because not the issue here.
SPM-462	A	12	28	12	33	This paragraph is hard to understand, language could be clearer (Government of Netherlands)	See #A464, A466
SPM-463	A	12	28	12	33	The second sentence needs to be modified with suitable	See #470

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						qualifications, or dropped. Net additional investments ranging from negligible to less than 5% - how is this possible? For which low carbon technologies? (Government of Nepal)	
SPM-464	A	12	28	12	29	The importance to include low-carbon technology into that near-term \$20 trillion investment is not clear, thus we suggest the following revised text: "Future energy infrastructure investment decisions, expected to total over US\$20 trillion between now and 2030 will affect GHG emissions in the long-term, because the long lifetimes of energy and other infrastructure capital stock means that widespread diffusion of low-carbon technologies may take many decades. The implementation of low-carbon technologies must be pushed forward in short order, through the removal of barriers and creation of structures that favour investment in low-carbon technologies, to prevent lock-in of carbon intensive technologies." (Government of Canada)	Ok, first sentence; try simplify and shorten second proposed sentence Text could be: "Future global energy infrastructure investment, expected to total over US\$20 trillion between now and 2030, will have long term impacts on GHG emissions, because of the long life-times of energy plants and other infrastructure capital stock. The widespread diffusion of low-carbon technologies may take many decades, even if early investments in these technologies are made attractive."
SPM-195	B	12	28	12	31	The first sentence of this dot point is poorly drafted and could be improved for greater clarity suggest that it is replaced with the following: "Near-term future energy infrastructure investment decisions (projected investment until 2030 is at least 20 trillion US\$) will have long term impacts on GHG emissions because long life-times of energy and other infrastructure capital stock means that widespread diffusion of low-carbon technologies may take (insert a more specific timeframe)". (Government of Australia)	See #A464
SPM-196	B	12	28	12	28	Suggest "... (projected global investment till 2030..." (Government of UK)	See #A464
SPM-465	A	12	29	12	29	..., because the long lifetimes (Government of Austria)	See #A464

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-466	A	12	31	12	31	What is meant by "lower carbon scenarios" and in this sentence? Please provide a range. (Government of United States of America)	See #B197, B199
SPM-467	A	12	31	12	33	We have no idea what this sentence is trying to say in terms of the previous sentence on energy infrastructure (which is confusing itself). (Government of Canada)	See #B197, B199
SPM-468	A	12	31	12	33	The sentence on redirection of investments is unclear. Please be more specific. How does this compare to the WEO 2006 calculations (if comparable at all)? (European Community)	See #B197, B199
SPM-197	B	12	31	12	33	This sentence does not accord closely enough with the finding of chapter 11 (upon which it is presumably based). Suggest that this sentence is deleted and replaced with the finding drawn from Chapter 11 page 67: "Initial estimates for low-carbon paths consistent with the returning global CO2 emissions to present levels involve a large redirection of investment, with net additional costs (based on a limited set of studies) likely to be less than 5-10% of the total investment required, and possibly negligible". (Government of Australia)	see#B199, because the suggestion given here leads to complicated sentence
SPM-198	B	12	31	12	31	Suggest quantify the number of decades for precision. (Government of UK)	Reject, precision cannot be given
SPM-199	B	12	31	12	33	"Initial estimates for lower carbon scenarios show a large redirection of investment, with net additional investments ranging from negligible to less than 5%." At first reading this seems partly self contradictory. Is the meaning "Initial estimates show that achieving lower carbon scenarios will require a large shift in the pattern of investment, though the net additional investment required ranges from a negligible amount to about 5%" (Government of UK)	Ok, modify sentence with this reformulation as basis; take also #B197 and A470 into account. Text could be : "Initial estimates show that returning global emissions to 2005 levels by 2030 will require a large shift in the pattern of investment, though the net additional investment required ranges from a negligible amount to



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
							about 5-10 %."
SPM-469	A	12	32	12	32	What is meant by "a large redirection of investment"? To what? Lower-emitting technologies? (Government of United States of America)	See #B199
SPM-470	A	12	32	12	33	This sentence should read "...with net additional investments ranging from negative to less than 5%". For instance, the WEO 2006 Alternative Policy Scenario shows a significant net economic benefit as compared with the Reference Scenario, i.e., at WEO 2006, p. 195, figure 8.1 and accompanying text - (IEA 2006b) - it is also the source of the 20 trillion figure used earlier in the same paragraph, so it seems useful to include reference to its findings here. (Greenpeace International)	OK
SPM-200	B	12	32	12	32	The authors need to explain in a footnote, to what technologies the large redirection of investment will be moving towards. (Government of Australia)	Reject, it is not the purpose of this para to discuss specific technologies; focus is on investment patterns
SPM-201	B	12	32	12	32	Suggest redraft "...large redirection of investment, although net additional costs range from negligible..." (Government of UK)	See #B199
SPM-471	A	12	34	12	36	The SPM is largely silent about the implications of achieving the MDG's. In particular, bullet #2 conveys the impression that end-use efficiency may be a substitute for increasing energy supply – clearly this cannot be the case for the large segments of the population in developing countries that have no access to modern energy services at the moment. (Government of Nepal)	See #A455
SPM-472	A	12	34	12	35	The authors indicate energy efficiency is "cheaper", is there any comparative or ratio as per it effectiveness or quantities achieved (e.g. per dollar invested) in relation to investing in	Ok, to use "cost effective" Text becomes: "It is often more cost-effective to invest ...."

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						additional supply? Proposed Revision - "It is often more cost-effective to invest in end-use....." (Government of Canada)	
SPM-473	A	12	34	12	36	Move this bullet from Section C.8 and move to Sections C.11 and C.12, where it fits in a better context. (Government of United States of America)	Reject, it is important to show that energy supply is not disconnected from demand
SPM-202	B	12	34	12	34	The authors should provide a timeframe statement for this dot point. Suggest the start of the sentence is prefaced with a clause such as "In the near-term, it is often cheaper....." (Government of Australia)	Reject, this is not only relevant for the short-term
SPM-474	A	12	35	12	37	if it can be stated that efficiency improvement "has" a positive effect on energy security and employment (l. 35), it should also be possible to state "renewable energy has a positive effect" in line 37. (Government of Germany)	Reject, this is already in the text of the third bullet
SPM-203	B	12	35	12	36	We suggest to add after energy security, "local and regional air pollution abatement" Justification: improved end-use energy will usually also reduce emissions of air pollutants, as stated in a.o. 4.5.2 and 6.6.1. (Government of Norway)	OK, add suggested text after "energy security"
SPM-475	A	12	36	12	37	In its present form bullet 8 is biased and incomplete. Chapter 4 looks at fossil fuels (4.3.1), nuclear (4.3.2) and renewables (4.3.3) of which nuclear is not mentioned in bullet 8 although, according to Fig 4.27 it has one of the lowest external costs and according to Table 4.19 it has by far the largest mitigation potential and the second lowest (after hydro) median mitigation cost. Hence the following bullet should be added after page 12 line 36: "Energy security and climate change concerns, high gas prices as well as regional and local air quality problems have revived interest in nuclear power in Annex I countries and raised interest in many Non-Annex I countries as well. Nuclear electricity	Ok, but add nuclear to last bullet instead

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						could provide about 18% of the total electricity supply in 2030 at carbon prices less than US\$20/tCO <sub>2</sub> -eq." [4.3, 4.4, 11.3, 11.4, 11.5] (International Atomic Energy Agency (IAEA))	
SPM-476	A	12	37	13	2	Please clarify if renewable energy/renewable electricity include large hydroelectric facilities. Suggested text: "Renewable energy resources, such as hydroelectricity, wind, biomass, solar, geothermal, and ocean power, can have a positive effect on energy security, employment and on air quality." (Government of Canada)	OK, add footnote
SPM-477	A	12	37	12	37	Delete "employment." Employment may simply be a transfer with no net effects across sectors (e.g. renewable energy may see an increase in employment but more traditional forms of energy may see a decrease in employment). Typically, these effects are relatively small (Jeeninga 1999), are often in partial equilibrium contexts (Hanneman 1006, in CA), and rely on revenue-recycling to find a positive effect on employment (which implies it happens through reducing pre-existing tax distortions and not through job creation - Meyer and Lutz 2002). The studies cited in 11.8.2 suggest that employment should not be considered as a general co-benefit. (Government of United States of America)	See #A457 Reject, because there is ample material in the report (ch 4) (this point is still under discussion; see also A457) [same point as 457, we keep employment statement in ]
SPM-478	A	12	37	12	37	Change "can" to "will" to be consistent with the literature and with usage of "will" elsewhere in the SPM (Government of Germany)	OK, but say "has" as in energy efficiency bullet
SPM-479	A	12	37	12	39	Can we tighten up renewable energy ... "30-35% at a range of \$20-\$100/tonne", it is the 20-100 range that seems quite large. (Government of Canada)	OK, rephrase as "at carbon prices between 20 and 100 US\$/tCO <sub>2</sub> eq"; see See also #A481C481
SPM-204	B	12	37	13	2	The renewable energy figures seem high. The authors should	Reject, this is result of assessment in

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						explain whether they account for baseload supply issues and ensure consistency with the underlying report. (Government of Australia)	Ch 4
SPM-480	A	12	38	12	38	Suggest adding "initial capital" before "costs relative". (Government of United States of America)	Reject, is not based on capital costs but on costs per tonne of CO2eq avoided
SPM-481	A	12	38	13	1	Replace sentence with "Given costs relative to other supply options, renewable electricity (including hydroelectric generation) can have a 30- 35% share of the total electricity supply in 2030 at carbon prices of <US\$ 50/tCO2-eq." as supported by line 43, p. 77 of Ch. 4: "For costs < 50 US\$ /tCO2-eq avoided, renewable energy generation increases to 10,673 TWh /yr by 2030 giving a 33.7% share of total generation." (Government of United States of America)	<del>see also #A479 Ch4 suggests (based on ch 4 text): "... renewable electricity (including hydropower) can have a 35% share of the electricity supply in 2030 at carbon prices up to US\$50/t CO2 eq"</del> This is not in line with CH 11 text: <b>DISCUSS</b> <a href="#">Accept</a>
SPM-482	A	12	38	12	8	Insert the words "including hydropower" after "renewable electricity". (International Atomic Energy Agency (IAEA))	OK, See #A476
SPM-483	A	12	38	12	38	Indicate what is meant by "renewable electricity": hydro, etc. (Government of Switzerland)	OK, See #A476
SPM-205	B	12	38	13	1	It would be of assistance if the authors could detail what they expect the biggest renewable energy component of the 30-35% renewables share will be in 2030. (Government of Australia)	Reject, too much detail for SPM
SPM-405	A	12	40	0	0	Footnote 7 should be as follows: 20 trillion = 20 000 billion = 20 E+12 (Government of Finland)	See #A484
SPM-484	A	12	40	0	0	Footnote 7 reads 20 trillion = 20 000 billion = 10EXP12. It should read = 20*10EXP12. (the "20" is missing) (Government of Sweden)	<b>OK</b>
SPM-485	A	12	40	0	0	Footnote 7 need correction to read 20 trillion=20000 billion = 20x10^12	See #A484

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of United States of America)	
SPM-486	A	12	40	0	0	Footnote 7 : correct: 20 . 10**12 (Government of Switzerland)	See #A484
SPM-487	A	13	3	13	3	Write: "... recent increases in natural gas prices, ..." (Government of Switzerland)	OK, add "natural"
SPM-488	A	13	3	13	8	The statement about building "CCS ready" plants needs to be qualified by an indication of the range of additional costs associated with "CCS ready" plants. Further, the statement conveys the impression that there are no outstanding scientific or technical issues associated with CCS and carbon storage (geological or ocean) in particular. This is not the case – there are many open questions related to long-term stability, monitoring, measurement & verification. (Government of Nepal)	<b>DISCUSS ; Take into account in reformulating bullet</b> Proposed replacement of 2 sentences in line 4-8: "Use of CCS on new coal-fired power plants will depend on technical, economic and regulatory developments. Whether retrofit of CCS on conventional power plants or CCS-ready built power plants is more cost-effective depends on economic and technical assumptions."
SPM-489	A	13	3	13	3	Suggest adding "natural" before "gas" for clarification. (Government of United States of America)	Ok, See #A487
SPM-490	A	13	3	13	8	Rewrite bullet: "Estimates of the role CCS will play over the course of the century to reduce GHG emissions vary. It has been seen as a "transitional technology", with deployment anticipated from 2015 onwards, peaking after 2050 as existing heat and power plant stock is turned over. [p. 50, line 12, Ch. 4] The degree to which CCS is economically attractive and deployable on a broad scale will have an impact on how quickly new coal plants are equipped with CCS which will impact future GHG emissions." (Government of United States of America)	<b>DISCUSS ; Take into account in reformulating bullet ; see A488</b>
SPM-491	A	13	3	13	8	It is noted that there is a significant of a "lock-in" into high carbon technology because cold plants with CCS-technology probably will be planned for a different technology in order	<b>DISCUSS ; Take into account in reformulating bullet , see A488</b>

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						to have a high energy efficiency. (Government of Austria)	
SPM-492	A	13	3	0	0	Add bullet to Section C.8, as follows: "Nuclear energy, already about 7% of total primary energy, could make an increasing contribution to carbon-free electricity and heat in the future. It has the potential for an expanded role as a cost effective mitigation option but <b>the problems of potential reactor accidents, nuclear waste management and disposal, and nuclear weapon proliferation will remain as constraints</b> to be managed." [See line 11, Chap. 4, p. 4 and line 5, Chap. 4, p. 30] Also suggest including 15 - 20% market share estimate for 2030 for <20 US\$/tCO2-eq. from p.77 of Ch. 4. (Government of United States of America)	Ok, but work nuclear into last bullet by adding "nuclear power and" after "interest" in line 4 and adding the following sentence after the first sentence: "Nuclear power could make an increasing contribution to mitigation, but the problems of potential reactor accidents, nuclear waste management and disposal, and nuclear weapon proliferation will remain as constraints"
SPM-493	A	13	3	13	5	A critical issue is whether choices are made to actually build these coal plant or not or whether to go for efficiency or renewables instead and this should be said here. (Government of Germany)	Reject, this bullet is starting from the fact that there is a renewed interest
SPM-494	A	13	3	13	4	"Due to increased energy security concerns and recent increases in natural gas prices, there is growing interest in new, more efficient, coal-based power plants." (Government of Canada)	OK, See #A487
SPM-206	B	13	3	13	3	Suggest more accurate to redraft as "Due to increased energy security concerns and the increases in gas prices in 2004-2006, there is..." (Government of UK)	CHECK if wording 2004-2006 is in line with chapter 4 <a href="#">REJECT chapters does not give specific annual costs for gas – only trends</a>
SPM-495	A	13	4	13	5	Instead of "new coal power plants", can a specific term be used specially in reference to specific technologies (Government of Nepal)	Reject, details of coal plants not for SPM
SPM-496	A	13	4	13	5	Change the sentence starting from "A critical..." as below; Installation of CCS is a effective measure for coal based	DISCUSS ; Take into account in reformulating bullet , see A488

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						power plants to decrease GHG emissions for future and it is important that how quickly new coal plants are going to be equipped with CCS. Rationale: The original description is misleading as it gives an impression that CCS is the only solution for coal based power plants to decrease GHG emission. (Government of Japan)	
SPM-497	A	13	5	13	5	line should read, "...GHG emissions is if, and how quickly, new coal plants are going to be equipped with CCS." (Greenpeace International)	DISCUSS ; Take into account in reformulating bullet see A488
SPM-498	A	13	5	13	7	It is unclear what the differences are between CCS ready, retrofitting or new plants integrated with CCS. (European Community)	DISCUSS ; Take into account in reformulating bullet see A488
SPM-499	A	13	5	13	6	In addition to "economic and technical assumptions", does not the speed with which coal plants would be equipped with CCS also depend on policy signals? (Government of Canada)	DISCUSS ; Take into account in reformulating bullet see A488
SPM-500	A	13	5	13	8	I would suggest deleting the sentence that makes the rapidity of new coal plants being equipped with CCS mainly dependent on whether building CCS ready plants is more cost-effective than other options. Available information suggests little room for the CCS ready plant concept. How quickly new coal plants will be equipped with CCS depends more on how rapidly the cost of CCS and the price of carbon from mitigation policies will meet - or how rapidly mandatory obligations will be made with respect to CCS in new plants. (International Energy Agency)	DISCUSS ; Take into account in reformulating bullet see A488
SPM-501	A	13	5	13	5	Define CCS - "Carbon Capture and Storage" - the first time it is used (actually used first in Table SPM 1). This term is not defined until page 17. Although SRCCS is defined in the introduction on page 3, the acronym CCS should be defined	OK, but only in table 1



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						the first time it is used in the text. (Government of Canada)	
SPM-502	A	13	5	13	8	Add the following sentence after "It depends on economic and technical assumptions..." Installation of CCS also needs to take into account various factors such as technical maturity, overall potential, regulatory aspects, environmental issues and public perception [SR CCS 2005 SPM Page3 Para 1] " Rationale: The whole paragraph gives a wrong impression as there still remain lots of issues to be considered other than cost before CCS become widely used. (Government of Japan)	DISCUSS ; Take into account in reformulating bullet see A488
SPM-503	A	13	5	13	9	Add "geological" to "economic and technical assumptions". Is there an examination of the projected impact of the suite of "clean coal" (clean burning) technologies such as Integrated Gasification Combined Cycle (IGCC) type technologies? (Government of Canada)	DISCUSS ; Take into account in reformulating bullet see A488
SPM-207	B	13	5	13	5	First mention of CCS should be defined, e.g. "Carbon Capture and Storage (CCS)" (Government of UK)	Reject, already done in table 1
SPM-208	B	13	6	13	7	The current sentence is unclear and understates the influence of factors other than economics and technology on the deployment of CCS. It would be better to say that deployment will be influenced by these factors. Suggest that the authors replace: "It depends on economic and technical assumptions whether building "CCS ready" plants is more cost-effective than retrofitting plants or building a new plant integrated with CCS. (4.2, 4.3, 4.4)" with: "Economic and technical assumptions will influence future investment decisions concerning the optimum combination of retrofitting older plants, building 'CCS	DISCUSS ; Take into account in reformulating bullet see A488



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						ready' plants or constructing new plants integrated with CCS" (Government of Australia)	
<b>PARAGRAPH C9</b>							
SPM-504	A	13	10	13	11	The term "low carbon alternatives" in this context is misleading as the conclusion does not apply to natural gas and not necessarily to CCS. Should be specified, in particular clarified, that it does not necessarily apply to CCS. (Government of Germany)	Reject, because "low-carbon alternatives" can be anything
SPM-505	A	13	10	15	2	The headings from these to pages (which appeared in the SOD) should be replaced to highlight the different sectors being referred to. As is, the order of the statements and their relevance to this section is not as clear as when the headings were present. (Government of Japan)	Reject, it is clear from the paragraphs which sector is being discussed. For paragraph 9 this will be solved by moving the para into para 8 as a bullet, dropping reference to CCS
SPM-506	A	13	10	13	10	Please replace here "fossil fuels" with "conventional oil resources", as the following sentence opposes these "fossil fuels" with oil sands, oi shales, heavy oils and synthetic fuels from coal and gas" (International Energy Agency)	<b>Move the para into para 8 as one but last bullet, dropping reference to CCS</b> Text could become: "The higher the market prices of fossil fuels, the more low-carbon alternatives will become competitive, although price volatility will be a disincentive for investors. Higher priced conventional oil resources on the other hand, may be replaced by high-carbon alternatives such as from oil sands, oil shales, heavy oils and synthetic fuels from coal and gas."
SPM-507	A	13	10	13	14	Is this primarily about transportation fuels? In that case, it is better considered as a part of the next point (#10), which looks at transportation (Government of Nepal)	Reject, this is part of energy supply

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-508	A	13	10	13	14	Delete the whole paragraph. Because there should be a balance here. Given so many cost-effective mitigation technologies available at this moment, there is no need to emphasize CCS by two paragraphs, when this is still a uncertain, costly and risky option (Government of China)	Move the para into para 8 as a bullet, dropping reference to CCS; see text in #A506
SPM-20	C	13	10	13	15	Regarding this statement, a step is missing. Competitiveness is being solved with the use of lower quality fossil fuels, including coal. This happens today in developing countries. Maybe this intermediate step may dye-out in the future, but not in the near one. Therefore, this statement needs adjustment. (Government of Argentina)	Check ch 4
SPM-509	A	13	11	13	14	This misses an option of not investing in such technologies bet expanding renewable fuel supply options and increasing end use efficiency. The competitiveness point only really applies if carbon prices are low and are not increasing (Government of Germany)	OK, By adding “market” before prices as suggested in #B211 this is taken care of
SPM-510	A	13	11	13	11	line should read, "...although price volatility will be a disincentive for investors in fossil fuel technologies in general." (Greenpeace International)	Reject, this text want to point to price volatility of fossil fuels being a disincentive to invest in low carbon alternatives
SPM-511	A	13	11	13	14	Change the sentence starting from "On the other hand..." as below; "On the other hand, oil shales, heavy oils, and synthetic fuels from coal and gas will also become more competitive as transportation fuels, In this case, production plants equipped with CCS could decrease GHG emissions." Reason: Equipping production plants with CCS may be efficient in decreasing GHG emissions, but the word "unless" in line 13 may be misleading because it gives an impression or draws the idea that CCS is the only means to decreasing GHG emissions.	Move the para into para 8 as a bullet, dropping reference to CCS; see text in #A506

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Japan)	
SPM-209	B	13	11	13	11	The authors need to explain their assertion that price volatility for low-carbon energy sources is more of a disincentive to investors than price volatility in fossil fuels. (Government of Australia)	Reject, price volatility of low-carbon energy sources is not a real issue
SPM-210	B	13	11	13	11	Replace "On the other hand" with "Higher carbon energy sources such as oil sands...." to provide more meaningful commentary for readers. (Government of Australia)	Move the para into para 8 as a bullet, dropping reference to CCS; see text in #A506
SPM-512	A	13	13	13	14	This concept is important but text must be improved for clarity. The CCS production plants caveat needs to be clearer. Suggest separate sentence at end : "However, these emissions can be reduced if power plants are equipped with CCS." (Government of Canada)	Move the para into para 8 as a bullet, dropping reference to CCS as suggested in #A508
SPM-211	B	13	13	13	13	Need to indicate what is driving the increase in the prices of fossil fuels. If the fossil fuel price is increasing as a result of a carbon tax, then the competitiveness of highly emissions intensive alternative liquid fuels such as oil sands would also decline. (Government of Australia)	OK, add "market" before "prices" in line 10
<b>PARAGRAPH 10</b>							
SPM-513	A	13	15	13	35	Why is not navigation included in this section? (Government of Sweden)	Reject, no significant messages to report
SPM-514	A	13	15	13	34	The summary for the transportation sector fails to provide the big picture. No figures on road transport current or future CO2 emissions contribution is given despite of its overwhelming share - 74% of total transport CO2 emissions. I strongly suggest that the relative figures of the contribution from the various transport modes and their expected growth rates be included. Currently the SPM only singles out growth figures for global aviation but without providing its	See # A539

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						current and future contribution when compared with other transport modes. Without policy intervention, what is the growth rate expected for road, rail and maritime transport? Are the mitigation policies envisaged in the medium term sufficient to halt their emissions growth? A more balanced summary of the mitigation potential of all transportation modes is required for this section of the SPM. Therefore, I suggest the inclusion of text addressing the questions highlighted above or the deletion of lines 29 to 31 from page 13. (ICAO)	
SPM-515	A	13	16	13	33	Urban design initiatives are not mentioned but warrant inclusion. (Government of New Zealand)	CHECK ch 5 if this could be included in third bullet
SPM-516	A	13	16	13	17	This sentence does not say much. It's an improvement over previous versions that stated wrongly that transport emissions were the fastest-growing in end-use sectors, as buildings was first when emissions from power production was duly attributed to buildings for their share in consumption. So transport comes next, ie second, but second out of tree. Why not simply say transport sector comes second after buildings (emissions from electricity included) with respect to emissions absolute numbers and growth rates? (International Energy Agency)	Reject, it is not the intention to focus on ranking
SPM-517	A	13	16	13	33	Freight accounts for over a third of energy use in the transport sector, yet it is not mentioned in this section or included in mitigation potential. Suggest adding a statement on freight emissions: "Freight transport by truck and ship accounts for about a third of transportation energy demand [table 5.1] and demand is expected to grow." (IPIECA (Non-Governmental Organisation))	OK, but since no reliable estimates of mitigation potential of freight transport (heavy duty vehicles) in the chapter, only add a few words to first bullet that freight traffic potential is not available

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-518	A	13	16	13	17	Change the second sentence in bold to read: "There are multiple mitigation options, but their effect may be limited due to growth in the sector and the influence of consumer considerations." Reason: Chapter 5 does not make a general statement about barriers. (Government of United States of America)	CHECK ch 5 if indeed no basis for statement on barriers
SPM-212	B	13	16	13	17	The sentences should include the fact that there are many measures with negative costs and that there are many co-benefits (Government of Norway)	CHECK ch5 if justified
SPM-519	A	13	17	13	17	This sentence is not very good either. There are multiple options for mitigation, not all being faced by the same barriers, but that's about similar to other sectors, at least buildings! It would perhaps be more useful to note that although there are multiple options for mitigation, full decarbonisation of the transport sector looks more difficult and farther in the future than for other sectors. (International Energy Agency)	See #A518
SPM-520	A	13	18	13	22	This paragraph is quite vague (not transparent) as to what actually would be the primary vehicle changes that would lead to "Improved vehicle efficiency" and what would be "consumer considerations". If the negative cost options are primarily the use of smaller and/or lower performance vehicles, then this should be explained and this would make the consumer considerations obvious. (IPIECA (Non-Governmental Organisation))	Reject, too detailed for SPM
SPM-521	A	13	18	13	22	This paragraph deals with "measures" and might be better placed in the section on policies and measures where what is meant (e.g. vehicle standards?) can be explained more carefully. (IPIECA (Non-Governmental Organisation))	Reject, this is about technological options
SPM-522	A	13	18	13	22	Rewrite the first part of the first sentence: "Many studies	See #A523

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						show there are substantial vehicle efficiency gains available at minimum or net negative costs due to improved vehicle efficiency measures, but the market potential is much lower than the economic potential due to the influence of other consumer considerations, such as vehicle performance and weight." [See Section lines 20-22, p. 53, Chapter 5] (Government of United States of America)	
SPM-523	A	13	18	13	18	Please clarify whether "to a large extent" refers to the benefits being large, or to there being benefits in most cases. (Government of New Zealand)	OK, change into "Improved vehicle efficiency measures, leading to fuel savings, in most cases have a net benefit (footnote 8)"
SPM-524	A	13	18	0	0	Add as a first bullet: "Fuel economy regulations have been effective in slowing the growth of GHG emissions, but so far growth of transport activity has overwhelmed their impact." [See lines 7-8, p. 6, Chapter 5]. (Government of United States of America)	Reject, policies are treated in section D
SPM-525	A	13	18	13	18	"benefits" would be a better term to use than "net negative costs" as it is clearer to the policymaker reader (Government of New Zealand)	OK, use "benefits" but then retain a (modified) footnote
SPM-213	B	13	18	13	33	We propose inclusion of text about results from the report concerning ship transport. (Government of Norway)	Reject, findings of chapter do not warrant statement in SPM
SPM-526	A	13	20	13	22	What does this sentence mean? People already pay fuel costs, thus "market forces" lead to the current level of emissions. If you want to talk about price elasticity, please do so, but then do not forget to distinguish short term elasticities, which are low, and long term elasticities, which are important, as shows the big difference (and bigger before the CAFE standards were set up) between car efficiency in the US and in countries with higher, decade-long, fuel taxes. (International Energy Agency)	OK with #B215 insertion of "rising" before "fuel costs" this problem is solved
SPM-527	A	13	20	13	20	This would appear to be an important point so it would be	CHECK ch 5 what are the main

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						helpful to identify here, very briefly, what the "other consumer considerations" are. (Government of New Zealand)	contributors
SPM-528	A	13	20	13	22	Is the statement that market forces alone are not expected to lead to significant emission reductions useful to policy makers? Would it not be better to indicate what, in terms of policy interventions, that are needed to counter the trend? (Government of Sweden)	Reject, this is here to clarify that rising oil prices are not going to do the job; that is useful for policy
SPM-529	A	13	20	13	20	Explicit "market forces": which ones, which policies and measures ? (Government of Switzerland)	Reject, market forces is not the same as policies and measures
SPM-214	B	13	20	13	20	An example of "other consumer considerations" would provide readers with further important guidance. (Government of Australia)	See #A527
SPM-215	B	13	21	13	21	Insert "rising" before "fuel costs". (Government of Australia)	OK
SPM-530	A	13	23	13	27	It could be more instructive to note that, in accordance with [5 ES]: "...technology research and development is essential to create the potential for future, significant reductions...This holds, amongst others, for... ..advanced biofuel conversion.." This would be more constructive than referring to a general projection. (Government of Sweden)	CHECK ch 5 if one additional sentence can be formulated on potential beyond 2030 and need for further R&D
SPM-531	A	13	23	13	26	Bullet should mention projections beyond 2030. (Government of United States of America)	See #A530
SPM-532	A	13	23	13	24	Add "used" after "biofuels." (Government of United States of America)	OK
SPM-533	A	13	23	13	24	"US\$ \25 /t CO2" is it a global average, is it possible to give separately for developing and industrialized countries? (Government of Nepal)	CHECK ch 5
SPM-534	A	13	24	13	26	The reference to such high global penetration of biofuels at such limited costs seems too strong, certainly given the fact	CHECK ch 5

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						that it is qualified at low agreement, limited evidence in chapter 5. (European Community)	
SPM-216	B	13	25	13	26	It would be of assistance if the authors could explain why they have singled out biofuels from cellulosic biomass for special mention. (Government of Australia)	OK, explain the fact that cellulosic biofuels are expected to provide large potential in future
SPM-535	A	13	26	13	26	Suggest to add a sentence about effects of large scale biofuel use on land use (Government of Netherlands)	Reject, is covered in paragraph 13
SPM-536	A	13	27	13	29	insert "may" prior to "offer." (Government of United States of America)	Reject, already the word "opportunities" and "depending on local conditions" is mentioned
SPM-537	A	13	27	13	28	Change the sentence to "Modal shifts from road transport to rail, public transport systems and non-motorised transport offer additional opportunities for greenhouse gas mitigation. The mitigation potential should be addressed in detail in future reports". [5.3.1.3] (the special conditions in the U.S. should not be underscored by the words "depending on local conditions") (Government of Germany)	OK., but without second sentence
SPM-538	A	13	28	13	28	Suggest deleting "depending on local conditions". In chapter 5 the only "exception" is the US but this is very much debatable; any policy that could lead to a greater rate of occupancy in existing US buses would on the contrary provide greater benefits than anywhere else. (International Energy Agency)	CHECK ch 5 if this would be justified
SPM-539	A	13	29	13	31	Strike bullet and replace with "CO2 emissions from global aviation are currently 2% of total global GHG emissions and are expected to rise at around 3-4% per year. Mitigation potential in the medium term includes recently introduced more efficient aircraft and improved operations that will	OK, but add wording about non-CO2 as suggested in # 540 (bracketed text after 2%)



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						slow, but not reduce the growth in emissions." (Government of United States of America)	
SPM-540	A	13	29	13	29	Please mention the importance of additional greenhouse effects from aviation besides CO2 (Government of Germany)	Ok, see also # A539
SPM-541	A	13	29	13	31	It is noted that also the aviations sector might use biofuel technology. (Government of Austria)	Reject, not enough basis in chapter
SPM-542	A	13	29	13	29	Comment: it is irrelevant whether emissions are from global, continental or national aviation. We therefore suggest to delete "global" or move it in front of "CO2". (Government of Netherlands)	OK
SPM-217	B	13	29	13	29	Suggested redraft of this statement to acheive the following: (a) Delete the phrase "Without policy intervention" as this is not a construction used elsewhere in the SPM; (b) to include the current contribution of aviation emissions to global GHG emissions (2% total anthropogenic CO2 emissions); (c) clarify the distinction between global aviation and civil aviation (used in the TS) (d) the authors should also consider adding the following from the TS for completeness: "The fuel efficiency of civil aviation can be improved through a variety of means including technology, operation and management of air traffic. Technology developments might offer a 20% improvement in fuel efficiency over 1997 levels by 2015, with a 40-50% improvement likely by 2050". (Government of Australia)	OK, but simpler version in #A539 preferred (these proposals too detailed for SPM)
SPM-218	B	13	29	13	30	It might be relevant to include the timeframe for which the expected rise at 3-4% is relevant (is it till 2030?) (Government of Norway)	CHECK ch 5
SPM-543	A	13	30	13	30	The words "efficiency improvements" do not reflect the range of actions in this sector; explicit the list of possible measures	See #A539

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Switzerland)	
SPM-544	A	13	30	13	31	The sentence states that only fuel efficiency is an option, i.e., implying that internalizing environmental costs for aviation cannot lead to mitigation in the medium term. Is this really what [5] says? (Government of Sweden)	CHECK ch 5 if more can be said
SPM-545	A	13	30	13	30	Please provide more detail on what efficiency improvements are referred to. Only fuel efficiency or others such as capacity utilization, routing, etc.? (Government of Canada)	See #A539
SPM-546	A	13	30	13	30	In the medium term renewable source jet kerosene is also an option and is already being trialled. This needs to be mentioned as it would reduce the direct CO2 effects of aviation based in jet turbines (Government of Germany)	See #A541
SPM-219	B	13	30	0	0	Add “for CO2” after “Mitigation potential (Government of Belgium)	OK
SPM-220	B	13	31	0	0	Add new sentence at end of this bullet (adapted from TS page 36): “As the total climate effect of aviation (due to CO2, NOx and condensation trails, but excluding enhancement of cirrus clouds) is estimated to be about 2 to 4 times greater than that of aviation’s CO2 alone, the environmental effectiveness of mitigation policies for aviation may be enhanced by considering additional technological and operational measures focused on reduction of non-CO2 gases [5.2]” (Government of Belgium)	OK, but shorten/simplify
SPM-547	A	13	32	13	33	This sentence is very prescriptive and also likely often wrong. It is true that there are cobenefits from mitigation policies and it may be true that CO2 reductions will follow from policies that reduce traffic congestion, air pollution from transport etc but it is not so that in the future reductions	OK, say “often are”

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						"will" come in this area from the pursuit of these latter objectives. Reformulate. (Government of Germany)	
SPM-221	B	13	32	13	33	Personal safety might also be included as a co-benefit. (Government of Norway)	Reject, no basis in chapter
SPM-548	A	13	34	0	0	Add a final bullet to this section: "Assessment of mitigation potential in the transport sector through 2030 is highly uncertain because it depends on future fuel prices and R&D outcomes, and because available studies are limited in number and scope." [lines 45-47, p.5, Chapter 5] (Government of United States of America)	Reject, no reason to single out transport sector; all potential estimates are depending on assumptions about future energy prices
<b>PARAGRAPH 11</b>							
SPM-549	A	13	35	13	44	The idea of net negative costs appears again. It obscures the fact that there is a large gap between economic and market potential, and the fact that technology availability and financing remain real barriers to the adoption of these EE options. It is recommended that this entire section should be dropped, or modified rather substantially. (Government of Nepal)	OK, replace text on net negative costs at the end of footnote (8) by : "net negative costs" means that mitigation at a carbon price of zero results in benefits." <b>Still under discussion</b> <a href="#">[see definition chapter 2; Kirsten, Olav &amp; Mark will work on this]</a>
SPM-550	A	13	35	13	37	Change "net negative cost" to "low cost" or "cost-effective". Chapter 6 does not say these opportunities are available at net negative costs. It says: "Globally, approximately 29% of the projected baseline emissions by 2020 can be avoided cost-effectively through mitigation measures in the residential and commercial sectors (high agreement/ much evidence)" (see lines 15, 35, and 39, section 6.5, p. 39). Replace the first summary sentence with "Energy efficiency options for new and existing buildings can achieve substantial reductions in CO2 emissions cost-effectively using mature technologies that already exist widely and that have been successfully used." (see lines 19-23, p. 31, section	Reject, ch 6 used the term cost-effectively in connection with a zero carbon price; it is clearer to stick to "net negative costs" <b>Still under discussion</b> <a href="#">[see definition chapter 2; Kirsten , Olav &amp; Mark will work on this]</a>

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						6.4) (Government of United States of America)	
SPM-551	A	13	36	13	36	There is a reference to footnote 6 (from previous page), but it probably should be reference to footnote 8. (Government of Finland)	OK, confusion to be solved, because reference to footnote 6 is meant; solution: move footnote to appear after "options" in line 35
SPM-552	A	13	36	13	36	Reference to footnote 6 should probably be substituted by reference to footnote 8. (Government of Austria)	OK, see #A551
SPM-553	A	13	36	13	36	Footnote 6 does not support the statement that reductions have negative costs. Move reference to footnote 6 to 'emissions(6) at negative cost (8)'. Add reference to footnote 8. (European Community)	See #A551 (confusion)
SPM-554	A	13	38	13	38	Most everything else up to now has been pegged to 2030, yet this sentence pegs avoided emissions reductions to 2020. Adjust to 2030. (Government of United States of America)	Accept. The chapter also refers to 2030 and references 31% savings
SPM-555	A	13	39	13	39	Delete "More than half of this potential is in developing countries". Is obvious and does not seem relevant here. (Government of Germany)	Reject, this is relevant and in line with chapters
SPM-556	A	13	40	13	40	The statement "can reduce mortality" actually refers to cook stoves. This should be made clear as well in the definition of the category of buildings which goes beyond the building itself, to the lighting and appliances contained within buildings. (IPIECA (Non-Governmental Organisation))	See #B223
SPM-557	A	13	40	13	41	The causality of this observation, as it is currently written, is obscure. In the main report three main reasons why energy efficiency in buildings may reduce health problems in developing countries are explicitly brought forth: urban outdoor pollution, indoor environment (pollution and	See #B223

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						moisture problems) and (energy) poverty. They ought to be reflected in the SPM. "Health" is more appropriate than "mortality". Cooking in developing countries, accounting for 5% of global GHG emissions (World Energy Assessment, p. 73) should be explicitly noted. This problem will not go away with a carbon tax. Again, the reader is left with a problem description but no analytical information on what actually needs to be done. (Government of Sweden)	
SPM-558	A	13	40	13	40	Suggest to add the word "human" before "mortality" (Government of Mexico)	See #B223
SPM-559	A	13	40	13	41	Replace "can reduce mortality" with "may result in substantial health-related benefits (including reduced mortality)." (Government of United States of America)	See #B223
SPM-560	A	13	40	13	41	"how will energy efficient buildings reduce mortality in developing countries. What about mortality rate in industrialised countries? In someway or the other, energy efficient buildings in developing countries will also influence the mortality in developed countries" (Government of Mauritius)	See #B223
SPM-222	B	13	40	13	41	For policy readers this finding is a little hard to grasp. The authors should explain that in developing countries energy efficient buildings reduce mortality by reducing indoor air pollution and weather-related mortality. (Government of Australia)	See #B223
SPM-223	B	13	40	13	41	We propose to insert " can improve indoor and outdoor air quality" after "of CO2 emissions" . Justification; This will make it easier to understand why energy efficient buildings can reduce mortality in developing countries. It is also more consistent with 6.6.and 6.7. (Government of Norway)	OK, in combination with dropping "developing countries"(see #A561)

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-224	B	13	40	13	42	It should be added that heating of buildings only requires low valuable energy. High valuable energy like electricity can be avoided consumed to heating directly, but used in heat pumps for energy recovering from water, outdoor air, ventilation air and heated wastewater (Government of Norway)	Reject, too detailed for SPM
SPM-225	B	13	40	0	0	Suggest adding "also" "...while limiting the growth of CO2 emissions, can also reduce..." (Government of UK)	OK
SPM-21	C	13	40	0	0	The bullet under lines 40 to 41 call for an amendment. In fact, today and for the near future, poverty in developing regions tend to increase, practically at the rate of the population growth. This would be so for so many years from now. Therefore, today´s ideal approach to energy efficient buildings in developing countries will be delayed. A solution will be to replace could instead of can, in line 40. (Government of Argentina)	See B223 and A561
SPM-561	A	13	41	14	41	Delete "in developing countries". The statement is true for both developed and developing countries, and there is no sense to only address the latter. (Government of China)	OK, but drop mortality
SPM-562	A	13	42	13	44	Cut "realize the economic" and "potential" and just leave the word "mitigation" in order to simplify. (Government of United States of America)	OK
SPM-226	B	13	42	13	42	The authors need to explain what (at least some of) the "many barriers" to the realisation of the economic potential of the building sector are. (Government of Australia)	OK to add "such as ..." (text still under discussion)
SPM-563	A	13	43	13	44	This bullet singles out one policy out of a subset of identified cost-effective policies. Please rewrite to make it a broader statement by deleting "instruments encouraging private initiative can limit public expenditures."	the problem here is that table SPM2 goes deeper into effective policies for the building sector, so we do not want to repeat that in the text of para 11.

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of United States of America)	Solution could be to drop last part of sentence, elaborate on the barriers and refer to table 2 for the policies. Then the remark about private initiatives can be worked into the right hand column of table 2. (still under discussion)
SPM-227	B	13	43	13	44	The finding that instruments that encourage private expenditure in the building sector can limit public expenditure is not clearly articulated in Chapter 6, as such the authors should consider its inclusion in the SPM. (Government of Australia)	see #A563
<b>PARAGRAPH C12</b>							
SPM-564	A	13	46	13	46	We suggest "industry sector" should read "industrial sector". (Government of New Zealand)	OK
SPM-565	A	13	46	14	10	Section C.12: There are a number of key points from Chapter 7 that are not reflected here. Two that should be added are: (1) "The slow rate of capital stock turnover, lack of financial and technical resources, and limitations in the ability of firms to access and absorb information are key barriers to full use of available mitigation options (high agreement/ much evidence)" (line 25, p. 6, ES of Chapter 7). (2) "While existing technologies can significantly reduce industrial GHG emissions, new and lower cost technologies will be needed to meet long-term mitigation objectives" (line 5, p. 7, ES of Chapter 7). (Government of United States of America)	OK to add first bullet; Reject second bullet, because this is a statement that is made elsewhere in general, since it applies to all sectors
SPM-566	A	13	46	14	6	Although both industrialized and developing countries are mentioned, the text has an emphasis on developing countries. The text needs to balance that with emphasis on developed country actions being needed too so all large emitters are included.	OK, text will be balanced by modifying text of first bullet and replacing second bullet

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of New Zealand)	
SPM-228	B	13	46	13	46	The authors should provide a footnote in the SPM on the scope of inclusion in the industry sector. (Government of Australia)	Reject, why single out industrial sector?
SPM-22	C	13	46	0	0	The majority of large industrial enterprises established in developing countries depend from foreign companies / stakeholders. Experience shows that, in addition to preserve their countries from the pollution effects, these groups select developing countries which environmental regulations are more than soft and, in a great number of cases, are also abused, to obtain larger benefits through such lack of constrains and because of low salaries. Therefore, te responsibility shall be not attributed to developing countries but to non-scrupulous stakeholders. A minor adjustment may put things in order. (Government of Argentina)	Check ch 12
SPM-567	A	13	47	13	47	Should be "... 50% are ..." and not "... 50% is ..." since it is industries (plural). (Government of New Zealand)	OK
SPM-568	A	13	47	13	47	Delete ", of which more than 50% is located in developing countries". Is obvious and does not seem relevant here. Or to be balance one should note how much of the energy intensive goods are consumed by developed/developing countries (Government of Germany)	Reject, is policy relevant, because policy approach to mitigation in developing countries is different
SPM-229	B	13	47	13	47	The authors need to clarify whether 50% of the mitigation potential of the industry sector is located in developing countries, or 50% of energy intensive industries are located in developing countries as presently this is not clear. (Government of Australia)	OK, reformulate to : "...industries. These industries are for more than 50% located ..." Additional suggestion from ch 7 not followed to add that >50% of mitigation potential is also in developing countries. Reason: nobody



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
							asked for that
<b>FOOTNOTE 8</b>							
SPM-569	A	13	48	13	48	Footnote 8: it would be helpful to add text about the implementation barriers and demand considerations that are not captured in the cost estimates and are some of the reason for not adopting negative cost options. (Government of United States of America)	Reject, because in para 4 wext will be added in bullet about policy challenges and footnote will appear there first and in para 110 adequate attention is given to barriers
SPM-230	B	13	50	13	50	Footnote 8: The term "net negative costs" was first used on page 8 at line 14. This footnote should be moved to reflect this. (Government of Australia)	OK, move footnote tp pge 8, line 16 and refer here again to this note
<b>Para 12 continued</b>							
SPM-231	B	14	1	14	2	This statement suggests that competition has particular effect on mitigation decisions for this sector. However, this is not a key finding that seems to come out of the executive summary of Chapter 7, and indeed, in the executive summary of Chapter 11 it is stated that (regarding energy-intensive sectors) "as far as existing mitigation options actions... are concerned, the empirical evidence seems to indicate that competitive losses are not significant". Therefore, we suggest this sentence is replaced with keys message of Chapter 7, that "Full use of available mitigation options is not being made in either industrialized or developing nations (high agreement/much evidence), and a policy environment that encourages the implementation of existing and new mitigation technologies could lead to lower GHG emissions (medium evidence/medium agreement) [ES, Chapter 7]." (Government of UK)	Ok, replace second sentence in headline by first part of suggested text (to ...developing countries")
SPM-570	A	14	3	14	6	It is suggested to realize modifications in the paragraph redaction in the following manner: " Many industrial facilities in developed countries and	Reject, suggestion not in line with chapter text

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						some developing countries are new and include the latest technology with the lowest specific energy use. However inefficient facilities prevail in the majority of developing countries and some areas in industrialized countries " (Government of Cuba)	
SPM-571	A	14	4	14	4	Replace "lowest specific energy use" with "lowest specific emission rates" (see line 33, p. 9, section 7.1) or with "latest technology" (see line 6, p. 61, section 7.11). (Government of United States of America)	OK, change to "lowest specific emissions" as in chapter
SPM-232	B	14	4	14	6	This dot point does not provide a complete picture of industrial facilities in developed and developing countries. Suggest that the construction in the TS (page 50 line 31) is used "Many facilities (for aluminium, cement and fertiliser industries) in developing nations are new and include the latest technology with lowest specific energy use. However, as in industrialized countries, many older, inefficient facilities remain". (Government of Australia)	Reject, existing text is better (less detail)
SPM-572	A	14	7	14	10	What is the purpose of this point? What is the message? There is no analytical information in this observation. (Government of Sweden)	See #B233
SPM-573	A	14	7	14	7	Add as an additional bullet point "Common pay back times for investments into energy efficiency measures are short in most industries resulting in significant and well understood low-cost emission reduction potentials." (Government of Germany)	Reject, chapter does not discuss payback times
SPM-233	B	14	8	14	10	This dot point is an example of the eclectic choices the authors have made when including sectoral findings in the SPM. While the differences between the capacities of large companies and SMEs is important, for the bulk of policy readers it is more important to have information on the key categorisation of mitigation options in the industry sector.	OK, delete (see also A572 Sweden). Reject the proposed replacement, because this duplicates the material in table SPM 1

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Suggest that this dot point is replaced with a point based on Chapter 7 (page 5 lines 40-51): "Options for mitigating GHG emissions from the industrial sector can be divided into three categories: Sector-wide options, (e.g., more efficient electric motors and motor-driven systems; high efficiency boilers and process heaters; fuel switching; and recycling); Process-specific options, (e.g., the use of the bio-energy contained in food and pulp and paper industry wastes and control strategies to minimize PFC emissions from aluminium manufacture); and Operating procedures, (e.g., control of steam and compressed air leaks, reduction of air leaks into furnaces, optimum use of insulation, and optimization of equipment size to ensure high capacity utilization)". (Government of Australia)	
SPM-574	A	14	10	14	10	It is not only the case in developing countries, therefore write: ".. in many countries." (Government of Switzerland)	See #B233 (bullet deleted)
<b>PARAGRAPH C13</b>							
SPM-577	A	14	12	14	12	Write: "... a significant contribution to reducing GHG emissions and to increasing soil ..." (Government of Switzerland)	Reject, emission reduction potential is small
SPM-579	A	14	12	14	23	Section C.13: It would be helpful if the paragraph included a bullet about how we will get to tradable quantification of these types of mitigation activities given the various implementation issues (e.g., MMV, uncertainty). (Government of United States of America)	Reject, chapter has no basis for such a statement
SPM-580	A	14	12	14	13	Section C.13: Is there really "much evidence" for the header statement? The chapter relies heavily on a few studies. (Government of United States of America)	See A585
SPM-582	A	14	12	0	0	Section C.13: An important point raised in the ES of Chapter 8 should be added as a bullet: " A practice effective at	OK. add the latter part of the sentence as a new bullet point: "there is no

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						reducing emissions at one site, may be less effective, or counter productive elsewhere. Consequently, there is no universally-applicable list of mitigation practices; practices need to be evaluated for individual agricultural systems." (lines 12-13, p. 4, ES of Chapter 8) (Government of United States of America)	universally-applicable list of mitigation practices; practices need to be evaluated for individual agricultural systems and settings".
SPM-583	A	14	12	0	0	Section 13: This section needs to distinguish the difficulties, and the lack of an economic mitigation potential, for ruminant methane emissions from pastoral agriculture. There is otherwise the misleading impression that agricultural mitigation is relatively straightforward across agriculture as a whole. (Government of New Zealand)	Reject; we cannot list all problem areas in mitigation; and anyway we do not focus on non-CO2 emission reduction
SPM-584		14	12	14	24	I agree that soil carbon can plays an important role in GHG reduction. However, the carbon content in soil may be largely affected by temperature and moisture, at this stage there is not a concurred view whether the soil carbon will be increased or decreased by climate change. So, "high agreement" would be leveled down and this is already mentioned in line17 with contradiction to the premise of line 12. (Government of Korea)	See #A585
SPM-585	A	14	12	14	14	delete in line 14 "high agreement, much evidence" include instead " "medium agreement/limited evidence" according to executive summary of chapter 8 line 44, page 3 and according to high error bars in SPM6, and include information from lines 17/18 in bold text to have a balanced sujmary, Therefore suggest, reordering reference to soils and bioenergy and adding a sentence, so it would read: "agricultural practicises can make a significant contribution to bioenergy and to increasing soil sinks, however, the long-term mitigation potential of increasing soil sinks is uncertain	OK, should indeed be "medium/medium"; Reject adding second bullet in heading, because of other comments to add thing to haeding; bullet 1 and 2 will be combined.

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						due to the uncertain impact of climate change on soil carbon stocks." (Government of Germany)	
SPM-586	A	14	12	14	35	Comment: we miss information about peatland degradation in one of these two bullets (Government of Netherlands)	Reject, chapter has no basis for statement
SPM-587	A	14	12	14	13	Change to "Agricultural practices can make a significant contribution to reducing GHG emissions through enhanced soil sinks and bioenergy, and are cost competitive with non-agricultural mitigation options for achieving long-term climate objectives." (line 32-33, p. 3, ES of Chapter 8) (Government of United States of America)	Ok to add wording on reducing emissions" to headline (also in light of other comments) Reject; costs of options already covered in fig SPM 6
SPM-588	A	14	12	14	13	Change "can" to "is likely to"; Change "high agreement, much evidence" to be "medium agreement, medium evidence". (Government of China)	See A585 on uncertainty Reject "likely", because we do not make statements on the probability of implementation
SPM-589	A	14	12	14	13	"Agricultural practices can make a significant contribution to emissions mitigation and removal by both increasing soil sinks at low costs and by contributing feedstocks to bioenergy. (Government of Canada)	OK, take into account in reformulation as suggested by #A587
SPM-234	B	14	12	14	13	We propose to change the sentence to "... significant contribution to increasing soil carbon storage..." (Government of Norway)	Reject, leads to confusion with CCS
SPM-235	B	14	12	14	23	This paragraph might appear somewhat confusing, since the concepts of "soil sinks" and "soil carbon management" probably are not very well known and might be confused with biological sinks. Emissions of CH4 and N2O from agriculture might also be relevant to mention in this context. (Government of Norway)	In bullet 1 "carbon sequestration" will be used; that will minimise confusion ON non-CO2, Ok to add bullet (and short reference in headline) see #A-581
SPM-576	A	14	14	14	16	First bullet: "About 90% of the mitigation potential", of which mitigation potential exactly (technical, economic,	OK, just add "economic" before "potential".

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						<20, <50, <100 US \$/t CO2 eq)? What are the certainties and can they be monitored? What is the role of non-CO2 GHGs in this sector? (European Community)	And "at prices upto 100 US\$/tCO <sub>2</sub> -eq"
SPM-578	A	14	14	14	16	What are the implications of soil carbon management for farm incomes and livelihoods of farmers? (Government of Nepal)	Reject, chapter has no basis for such a statement
SPM-590	A	14	14	14	16	The about 90% statement is unclear without definition of soil carbon management. Presumably it excludes energy crops (which not only can replace fossil fuels but also can build up soil carbon). A better sentence would read: "The agricultural sector has the potential to increase soil carbon sinks at a low cost by using appropriate agricultural practices but it can also produce biomass for energy. Soil carbon management and energy crop production can have strong synergies with..." It should also be noted that the soil carbon potential can easily be reversed. (Government of Sweden)	Reject, makes it more confusing; reversal point will be covered in combined bullet 1/2
SPM-591	A	14	14	14	14	Replace "management" with "sequestration (enhanced sinks)." (see line 47, p. 3, ES of Chapter 8) (Government of United States of America)	OK
SPM-592	A	14	14	14	16	Regarding the statement that 90% of the global mitigation potential comes from soil carbon management, this figure comes from Smith et al. (2007a) prominently featured in Chapter 8, and this number is in turn dominated by grazing land management (Fig. 8.4). It is unclear from Chapter 8 what Smith et al. (2007a) assume to be carried out under grazing land management (e.g., change in grazing intensity, conversion to grasslands, etc.); some grazing land management practices have co-effects on emissions of CH <sub>4</sub> and N <sub>2</sub> O. Therefore, the phrase "soil carbon management" should be clarified to include, for example: "soil carbon	OK, remove "90%" wording Reject point about dominance of "grazing land management" Uncertainty statement changed

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						management through changes in tillage and grassland conversion" --- if these indeed are the practices embedded in this large number. Would further recommend that "high agreement" be changed to "medium agreement", at least, because the 90% figure is coming from only Smith et al. (2007a), and is based largely on the potential for grazing lands, which are generally under less intensive management than croplands. (Government of United States of America)	
SPM-593	A	14	14	14	14	Comment: to avoid misunderstanding we suggest to insert "agricultural" before "mitigation potential". (Government of Netherlands)	Reject, this is paragraph on agriculture
SPM-594	A	14	14	14	14	Change "mitigation potential" to "technical mitigation potential for agriculture". (Government of United States of America)	Reject, but add "economic"
SPM-236	B	14	14	14	14	Insert "in the agriculture sector" after "mitigation potential". (Government of Australia)	See #A593
SPM-237	B	14	14	14	14	We propose to change the sentence to "About 90% of the mitigation potential in the agricultural sector..." (Government of Norway)	See #A593
SPM-238	B	14	14	14	17	It could be mentioned whether there is a trade-off between low-input farming like organic farming and carbon sequestration and biomass production (Government of Norway)	Reject. No basis for this in the chapter.
SPM-239	B	14	14	14	16	Suggest that this would be clearer if redrafted "Excluding bioenergy, about 90% of the mitigation potential arises from soil carbon management, which has strong..." (Government of UK)	OK
SPM-595	A	14	15	14	15	It is suggested to insert "management after agriculture" (Government of Austria)	Reject, is not an improvement
SPM-240	B	14	15	14	15	Insert "impacts" after "climate change". (Government of Australia)	Reject, it is vulnerability to climate change



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-596	A	14	17	14	19	What are the policy implications of the uncertainty and complexity mentioned in bullet #2? (Government of Nepal)	Reject, this is upto decision makers
SPM-597	A	14	17	14	19	This sentence does not seem to fully convey the risks arising from the more likely positive feedbacks from the land carbon cycle identified in WGI Chapter 7 eg section 7.3 and the in the WGI SPM and TS. The issue is covered quite carefully considered in Chapter 8, but the issue here is what happens after 2030 as soil sequestration taken up to this time, may indeed not be vulnerable if appropriate technological measures are pursued (as argued in the chapter), but warming after this time could lead to high levels of risk. This risk can be seen in relation to the effects of recent heatwaves in Europe, which are projected to become more frequent and which are not included in present assessment of mitigation potential. The key vulnerabilities identified in Table 8.9 and the assessment of WGI imply that the uncertain mentioned in this section is asymmetrically biased towards a potential for soil carbon stocks taken up in the next few decades to be released in part subsequently. (Government of Germany)	OK, combine bullet 2 with 1 and reformulate as follows: “Excluding bioenergy, a large proportion of the economic mitigation potential (up to 100 US\$/t CO <sub>2</sub> -eq.) arises from soil carbon sequestration, which has strong synergies with sustainable agriculture and generally reduces vulnerability to climate change. However, since soil sinks are reversible, their long-term potential is less certain due to the uncertain impact of climate change on soil carbon stocks.[8.4, 8.5, 8.8, 8.10]”
SPM-598	A	14	17	14	19	the potential of carbon sequestration in sustainable no-till systems which includes other components (also known as conservation agriculture) is much higher than stated and is actually not reflected in chapter 8.4; the ambiguity of this statement here results from a lack of understanding of the processes; the cited literature does also not reflect sources which are knowledgeable about the potential of these sustainable no-till systems (as conservation agriculture; check Don Reicosky/USA, Raul Ponce-Hernandez/Canada) and is mixing the effects with other reduced tillage options. Chapter 8.4 does not reflect the demonstrated chances for carbon sequestration under such systems, combined with the	Reject. Zero tillage is one of the options considered under the broad activity of "cropland management" so zero tillage is not mentioned explicitly in the SPM



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						reduction of emissions from fuel, input production and manufacturing and other GHG. (FAO)	
SPM-599	A	14	17	14	19	Could some brief examples be given of " different complex processes with opposing effects"? (Government of Canada)	OK, modify sentence; see A598
SPM-600	A	14	17	14	20	Climate change has the potential to affect not only agricultural soil carbon stocks, but also agricultural CH4 and N2O emissions. This potential effect on non-CO2 GHGs may also alter total agricultural mitigation potential and should therefore be noted. This is also consistent with section 8.5. This bullet should also state whether adaptation responses (e.g. water management, plant selection) could ameliorate negative feedbacks of climate change on soil carbon. (Government of United States of America)	Reject, Climate change potentially has a far greater impact on soil C (by reversing soil C sinks) than on other GHGs where emission reduction is permanent. Non-CO2 gas reduction is now in new bullet
SPM-601	A	14	17	14	19	Chapter 8 (e.g., Table 8.3 on p. 14) does not support this statement. Instead, Chapter 8 explains that major uncertainties are the future level of adoption of mitigation measures, the effectiveness of adopted measures, and the persistence of mitigation (see page 4 of the ES). Please delete or change to "due to future level and effectiveness of adopted measures and persistence of mitigation." (Government of United States of America)	See rewording in A597
SPM-241	B	14	17	14	17	It is unclear what the phrase "The net impact of climate change" means. The authors should consider its replacement with "The effect of climate change (e.g. global temperature rise)". (Government of Australia)	See rewording in A597
SPM-242	B	14	18	14	19	It would be of assistance if the authors could describe some of the complex processes alluded to (i.e. are the authors referring to non-climatic drivers like population growth; or	See rewording in A597

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						some biogeochemical processes?) (Government of Australia)	
SPM-575	A	14	20	14	23	The sustainability issue related to bioenergy should be addressed here such as for instance referred to in chapter 8.4.1.7 on Bioenergy. (European Community)	Take into account see A609
SPM-602	A	14	20	14	23	There is substantial literature regarding the possible cross-sectoral impacts of bioenergy and biofuel production, and competition for land & water with food & fiber. (Government of Nepal)	Take into account see A609
SPM-603	A	14	20	14	24	It is unclear what is meant by “how much bioenergy could be used in transport and energy supply”; is this referring to the cost or infrastructure or demand – suggest that if this phrase is included that it specify the meaning? As highlighted in section 8.4.5, water use is an additional constraint. Suggest adding “, settlements, and ecosystems, and the availability of water.” to the end of the last sentence (as is discussed in section 8.4). (IPIECA (Non-Governmental Organisation))	Take into account see A609
SPM-604	A	14	20	14	20	It is proposed to insert "use" after biomass for energy. (Government of Austria)	Take into account see A609
SPM-605	A	14	20	14	24	Bioenergy crops are oversold in their mitigation effect, since they offset the potential for carbon sequestration in the soil by removing carbon from stocks which would otherwise be considered residue and left on the field. Further is the conversion factor in most of the biofuels not very efficient considering the amount of fossil fuel invested and the amount of biofuel produced. Again here no-tillage systems would be a precondition to improve this efficiency, while under conventional tillage based cropping systems too much energy is wasted for the production of bioenergy. (FAO)	Take into account see A609

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-606	A	14	20	14	23	Agriculture – To modify the paragraph in the following manner: “There is a substantial potential to produce biomass for energy from crop residues and dedicated crops, but the size of its contribution to mitigation depends on how much bioenergy could be used in transport and energy supply, and on requirements of land for food production, that is the main task of agriculture in order to comply with population necessities” (Government of Cuba)	Reject, policy prescriptive
SPM-607	A	14	20	14	23	A few words on the sustainability of biomass production should be inserted here (Government of Switzerland)	Take into account see A609
SPM-243	B	14	20	14	23	Suggest that for clarity and comprehensiveness this dot point is replaced with the following: "There is a substantial potential to produce biomass for energy from crop residues and dedicated crops. The size of its contribution to mitigation depends on how much bio energy could be used in transport and energy supply, on requirements of land for food production and upon the net emissions effect of agricultural production factors". The authors should ensure that there is consistency in the representation of the size of the potential to produce biomass for energy from crop residues and dedicated crops. The TS notes that there are no accurate estimates of future agricultural biomass supply (TS:p59 10-26) and as such the authors also need to explain the use of the word substantial in the SPm, in this context. (Government of Australia)	Take into account see A609
SPM-244	B	14	20	14	23	Considerations as regards biological diversity might also be relevant in this context. (Government of Norway)	Reject, discussed in the chapter but too detailed for discussion here, especially considering the different findings for different energy crops /

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
							systems
SPM-23	C	14	20	0	0	The last bullet has to be linked to what is mentioned in para 14, in two critical issues. The boom of grains 's production has increased deforestation to unprecedented levels. The furtherance of agricultural land 's expansion not only will mean the necessary consideration regarding food or fuel pollution, or both, but a word of warning about deforestation. The Clean Development Mechanism must not be the justification for destroying biological diversity either. Therefore, a more correct text, correctly embracing these sustainability paradigms would be necessary for paragraphs 13 and 14. (Government of Argentina)	Check ch 8/9
SPM-608	A	14	21	14	23	Replace the sentence with the following three sentences: "There is a substantial potential to produce biomass for energy from crop residues and dedicated crops. However, the contribution of biomass to mitigation depends on what energy source it replaces and on how it is used (unprocessed for heat and/or electricity production or converted into liquid biofuels for transportation). The potential production of biomass from dedicated crops will largely depend on the requirements of land for food production." (Government of Sweden)	Take into account see A609

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-609	A	14	21	14	21	Please add the following text after "depends on:" "the relative prices of fuels and the balance of supply and demand." (line 19-20, p. 4, ES of Chapter 8) Please change the text to reflect this. Delete "how much bioenergy could be used in transport and energy supply." Add: "Consideration should be given to competing land uses (such as food production) and to environmental impacts when planning to use energy crops." (see lines 48 - 50, p. 20, section 8.4) (Government of United States of America)	Ok, reformulate, taking into account ..... as follows: <b>“Biomass from agricultural lands, as crop residues or dedicated crops, can be an important feedstock for bio-energy, but its contribution to mitigation depends on demand for bioenergy from transport and energy supply, on water availability and on requirements of land for food production. Widespread use of agricultural land for bioenergy may compete with other land uses and have other environmental impacts. [8.4, 8.8]”</b>
SPM-610	A	14	21	14	22	Bioenergy should be one word, as it was in line 13 on page 14. (Government of Canada)	OK
SPM-611	A	14	22	14	22	Water should be added here to land as one other critical factor. (International Energy Agency)	Take into account see A609
SPM-612	A	14	23	14	23	Text on peatland degradation is missing (Government of Netherlands)	Reject, chapter has no basis for statement
SPM-613	A	14	23	14	23	May also want to note the key factor of technology change and commercialization in this sector - particularly cellulosic ethanol. (Government of United States of America)	Reject, This issue is already mentioned in paragraph 10 on biofuels and here already many things are mentioned
SPM-581	A	14	24	0	0	Section C.13: Include a bullet on agricultural CH4 and N2O, which are the majority of current and projected baseline emissions from this sector. There is also significant potential to reduce these emissions, and these emissions are	OK, bullet will be added, as follows: <ul style="list-style-type: none"> <li>• Significant potential is also available from reductions in methane and nitrous oxide</li> </ul>

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						permanent reductions compared to the reversible benefits of soil carbon sequestration. Even if the non-CO2 mitigation potential appears to be much smaller compared to soil carbon strategies (the 90% figure at the global scale may be overstated for soil carbon), they may have advantages such as permanent reductions and in some cases (e.g., manure management CH4 capture) measurability. (Government of United States of America)	emissions, and such emission reductions are permanent. [8.4, 8.5]
<b>PARAGRAPH C14</b>							
SPM-615	A	14	25	14	35	What are the synergies with adaptation? (Government of Nepal)	Reject, detail in chapter
SPM-616	A	14	25	14	27	The last part of this bullet heading does not reflect the scale of risks to water and biodiversity from a carbon approach. It would be best to divide the bullet point into one dealing with deforestation reductions and the other dealing with carbon sequestration activities in the forest sector. Deforestation itself is not mostly a "forest sector" activity anyway. The risks to biodiversity and water from large scale afforestation and reforestation need to be covered in a separate sentence in 14. (Government of Germany)	DISCUSS if chapter has basis to say something about potential risks of carbon sequestration
SPM-617	A	14	25	14	35	Section C.14: It would be helpful if the paragraph included a bullet about how we will get to tradable quantification of these types of mitigation activities given the various implementation issues (e.g., MMV, uncertainty). (Government of United States of America)	Reject, chapter has no basis for such a statement
SPM-618	A	14	25	14	27	Reword sentence to read "Forest sector activities can significantly reduce emissions and increase removals by sinks at low costs, while creating synergies with adaptation and sustainable development." (Government of United States of America)	OK
SPM-619	A	14	25	14	35	Explicit mentioning of "deforestation" should be made in	UNCLEAR

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						addition to the exclusive reference to "forestry mitigation options" . (Government of Germany)	
SPM-620	A	14	25	14	26	Does increasing removals refer to carbon dioxide or does it include other GHG? (Government of Sweden)	OK, add "CO2" before "removals"
SPM-621	A	14	25	14	30	"what IPCC can do to insist on reforestation in the tropics....-international law, what about the developing countries which have to cut down trees to set up their industrial plants (Government of Mauritius)	UNCLEAR
SPM-245	B	14	25	14	25	To make it more clear in what way forestry can contribute to reducing emissions we suggest to add "from fossil fuels" after "to both reducing emissions" (Government of Norway)	Reject, that is not what is meant; it covers deforestation as well as bio energy
SPM-24	C	14	25	0	35	The changes suggested are in bold letter: ..."Properly designed and implemented forestry mitigation options that also take care of biodiversity will have substantial cobenefits in terms of employment, income generation, renewable energy supply and poverty alleviation. This would provide opportunities for expanding forestry projects under future modalities for the Clean Development Mechanism (CDM). [9.6, 9.7]" (Government of Argentina)	Check ch 9
SPM-25	C	14	25	14	35	Please, add environmental protection in the last part of the phrase "...synergies with adaptation and sustainable development" and some references to biodiversity, desertification, watershed protection should be mentioned in this 14° bullet point. (Government of Spain)	Check ch 9
SPM-614	A	14	28	14	28	Comment: to avoid misunderstanding we suggest to insert "in forestry" before "is located in the tropics".	Reject, this is forestry paragraph

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Netherlands)	
SPM-622	A	14	28	14	29	This bullet conveys far greater certainty than is merited by the literature (and discussion in Chapter 9). Insert the sentence: "Uncertainty exists regarding the mitigation potential of forests." The numbers presented are mischaracterized. Replace second sentence in the bullet with "About 65% of the medium estimate of total economic mitigation potential for the forest sector is located in the tropics, mainly in above ground biomass, and about 50% percent of the total may be achievable at a cost under 20 US\$/tCO2." (Government of United States of America)	Reject, the statement does not contain absolute numbers, but percentages and is therefore not sensitive to the uncertainty of the potential as presented in figure 6. Ok, to add "about" before the 65 and 50 numbers
SPM-623	A	14	28	14	28	First bullet: "Over 65% of the mitigation potential .. ", of which mitigation potential exactly (technical, economic, <20, <50, <100 US \$/t CO2 eq)? (European Community)	OK, add footnote that it is economic potential CHECK if these numbers are for potential < \$100/t
SPM-246	B	14	28	14	28	For clarity insert "from the forest sector" after "total mitigation potential". (Government of Australia)	Reject, this is the forestry paragraph
SPM-247	B	14	28	14	28	We propose to change the sentence to "Over 65% of the total mitigation potential in the forestry sector..." (Government of Norway)	See #A623
SPM-624	A	14	30	14	30	This statement implying that the sign of the projected effects of climate change on forests and their storage of carbon is uncertain appears radically inconsistent with section 9.5.1 "Climate impacts on carbon sink and adaptation", with the WGI Chapter 7 assessment of changes to carbon stocks in forest ecosystems and with the effects in systems found in Chapter 4 and 5 of WGII. Taken together these indicate a likely release of carbon from forest lands due to the combined of climate change (including extreme events and increased variability) and other factors. It needs to be	DISCUSS ch 9 (include WG I findings)



Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						rephrased to indicate that the likelihood is for carbon mitigation options to be less as consequence of projected climate change (Government of Germany)	
SPM-625	A	14	30	14	31	Take into consideration the agreed wording by WG II on the global sink in this century (Government of Switzerland)	See #A624 (presumably WG I is meant here)
SPM-248	B	14	30	14	30	For clarity insert "impacts" after "climate change". (Government of Australia)	Reject, it is climate change
SPM-249	B	14	30	14	30	This sentence is obscure - the text should clarify how climate change is going to influence mitigation in the forest sector. (Government of UK)	OK, to be clarified; see also #A624
SPM-626	A	14	32	14	35	This is from 9.1, but it is misquoted. Replace with "Since ancillary benefits tend to be local, rather than global, identifying and accounting for them can reduce or partially compensate the costs of the mitigation measures. Natural forests are a significant source of livelihoods to hundreds and millions of forest dependent communities." (see lines 12-14, p.50, and line 5-6, p. 52, section 9.7) (Government of United States of America)	Reject, too detailed for SPM
SPM-627	A	14	32	14	35	Suggest replacing this section with the following: "Properly designed and implemented forestry mitigation options that include afforestation, reforestation, appropriate forest management and reduced deforestation will contribute significantly to sequestering atmospheric CO2. Additional benefits include the improvement of employment opportunities in remote regions based on the management of natural resources, poverty alleviation, and renewable energy supply. This provides opportunities for expanding forestry projects under the Clean Development Mechanism (CDM)." (Government of Canada)	Reject, this bullet is only on the co-benefits

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-250	B	14	32	14	32	We propose to change the sentence to "... forestry mitigation options can have substantial..." This is more in line with lines 26-29 on page 23 (Government of Norway)	OK
SPM-628	A	14	34	14	34	Why is policymeasure and CDM mentioned here the first time? How about other CDM-projects? (Government of Sweden)	OK, Delete sentence
SPM-629	A	14	34	14	35	The sentence on the CDM appears policy prescriptive and should be removed. (Government of Germany)	See #A628
SPM-630	A	14	34	14	35	The last sentence in this paragraph is misleading and inappropriate. Suggest deletion (Greenpeace International)	See #A628
SPM-631	A	14	34	0	0	The first mention of CDM should not be in relation to forestry. CDM is much broader, and it is not the only option to encourage forestry. This mention is therefore misleading. Line 34 would be more neutral and representative as to mitigation options if it took the wording of the table on page 21 on "Forestry", and stated "This provides opportunities for expanding financial incentives to maintain and manage forests". (European Community)	See #A628
SPM-632	A	14	34	14	35	The co-benefits do not in themselves provide "opportunities" for expanding forestry projects under the CDM. It should also be noted that "The coverage of forestry and forest related projects is a contentious issue under the CDM" (Ch. 13, p. 50, row 16). Furthermore, "Despite... many possible positive side effects the pace with which forest carbon projects are being implemented is slow." (Ch. 9.6.6.5). Sentence should be revised. (Government of Sweden)	See #A628
SPM-633	A	14	34	14	35	Suggest moving CDM sentence to Table SPM-2; seems out	See #A628

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						of place here. (IPIECA (Non-Governmental Organisation))	
SPM-634	A	14	34	14	35	Suggest deleting last sentence as the point could be made more generally for any carbon market and could be said for any of the mitigation options in other sectors, not just forestry. (Government of United States of America)	See #A628
SPM-635	A	14	34	14	35	Delete the sentence starting with "This provides .." it is too narrowly focussed on CDM where currently only AR projects are allowed. Sustainable forestry is not limited to CDM!!! And negotiations are also not limited to AR CDM. (Government of Germany)	See #A628
SPM-251	B	14	34	14	35	Delete the final sentence of this dot point as it is policy prescriptive. (Government of Australia)	See #A628
SPM-252	B	14	34	14	35	Delete sentence beginning 'This provides...'. Reference to CDM is policy prescriptive since possibilities are wider than the CDM (Government of UK)	See #A628
SPM-636	A	14	35	14	35	It is noted that avoided deforestation projects usually have high costs per tonne carbon. (Government of Austria)	See #A628
SPM-637	A	14	35	14	35	Add to last sentence "or other financial mechanisms." (Government of Netherlands)	See #A628
<b>PARAGRAPH 15</b>							
SPM-638	A	14	37	14	43	The paragraph about Waste Management and their potentialities is poor, and very much reduced in large comparing it with other sectors, undervalued their importance It is proposed the following redaction: 15. Post-consumer waste sector is a small contributor to global GHG emissions (<5%), but can positively contribute	Reject, waste sector statements have to be limited in light of potential <b>(still under discussion)</b>

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						<p>to mitigation at low cost and promote sustainable development. For example, landfill methane recovery now accounts &gt;15% of CDM projects.</p> <ul style="list-style-type: none"> <li>• Improved public health and safety, pollution prevention, local energy supply (from landfill gas and incineration), and mitigation of GHG emissions are all important co-benefits of sustainable waste and wastewater management. Financial support is necessary in many developing countries, in order to solve mitigation problems.</li> <li>• Major technologies for mitigating GHG emissions from waste are mature and readily deployable, as landfill gas recovery, thermal and biological processes for waste and wastewater treatment. Recycling and waste minimization provide indirect GHG mitigation benefits via conservation of raw materials, and energy from waste offsets fossil fuel consumption.</li> </ul> <p>(Government of Cuba)</p>	
SPM-639	A	14	37	14	43	<p>Source reduction of waste and extended producer responsibility should be included as means of reducing waste generation. Line 40-41, should say "from landfill gas capture and utilization, anaerobic digestion of waste and waste incineration".</p> <p>(Government of Canada)</p>	<p>Reject "extended producer responsibility" too specific...  Ok to add short bulle on waste minimisation: t: "Waste minimization and recycling provide indirect mitigation benefits from avoided waste generation and the conservation of raw materials and energy"  .  OK to add "anaerobic digestion" to lines 40-41 as suggested but put after incineration OK</p>
SPM-253	B	14	37	14	43	<p>We think that the relevant gases and sources (CH<sub>4</sub> from decomposition and CO<sub>2</sub> from incineration?) should be mentioned explicitly.</p> <p>(Government of Norway)</p>	<p>OK, add to footnote 9:  Waste sector sources include landfill CH<sub>4</sub>, wastewater CH<sub>4</sub> and N<sub>2</sub>O, and CO<sub>2</sub> from incineration of fossil carbon.</p>

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
SPM-640	A	14	40	14	43	Turn the last portion of this bullet into a separate bullet: "Local availability of capital and the selection of appropriate and sustainable technology to fit local conditions are key constraints for waste and wastewater management in developing countries." (lines 19-21, p. 4, ES of Chapter 10) (Government of United States of America)	Ok to add separate bullet as proposed
SPM-641	A	14	40	14	43	Replace this bullet with "Existing waste management practices can provide effective mitigation of GHG emissions from this sector: a wide range of mature, environmentally-effective technologies are available to mitigate emissions and provide public health, environmental protection, and sustainable development cobenefits." (Government of United States of America)	OK
SPM-642	A	14	40	14	41	Add "anaerobic digestion" after "landfill gas", as this option has a large potential (e.g. anaerobic digestion of agricultural wastes, manure, waste water). (European Community)	OK, but see #A639 for placement
SPM-643	A	14	41	14	42	"not only financial obstacles exist in many developing countries, but also the technical knowhow in managing waste. Any sideeffects of landfill and incineration projects. (Government of Mauritius)	Reject, too detailed
SPM-644	A	14	42	14	42	Please specify "financial obstacles" (Government of Sweden)	Reject, is obvious
SPM-645	A	14	42	14	43	It is written: .....but financial obstacles exist in many developing countries. [10.3, 10.4, 10.5]. It is important to place this affirmation in all economy sectors or in a main general declaration for all documents. It is a real situation that developing countries don't count with necessary resources in order to make front to mitigation necessities (Government of Cuba)	Reject, this is about basic sanitation actions as part of sustainable development; that even here financial obstacles occur is worth mentioning; adding this to all mitigation paragraphs is not justified
SPM-254	B	14	44	14	44	We suggest to add an extra paragraph : • Waste reduction,	See A639 for suggested addition

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						reuse and recycling can reduce GHG emissions both directly and indirectly through energy savings, and avoidance of GHG generation. This is especially true for products resulting from energy-intensive production processes such as metals, glass, plastic, and paper (10.4.5) (Government of Norway)	
<b>PARAGRAPH 16</b>							
SPM-646	A	14	45	0	0	Section C.16: Some clarification is needed. The text reads like there is medium agreement that the mitigation potential of geo-engineering options are speculative and that no reliable cost estimates have been published. Based on the box in Annex 1, the appropriate description would seem to be "high agreement, limited evidence". (Government of United States of America)	OK
SPM-647	A	14	45	0	0	Section C.16: Add a sentence to note that many of these geoengineering approaches affect just a portion of the impacts, e.g. blocking sunlight may reduce overall temperature but does not reduce the acidification of the oceans. (Government of United States of America)	OK
SPM-648	A	14	45	15	2	Geo-engineering options, such as ocean fertilisation to remove CO2 directly from the air, or blocking sunlight by bringing material into the upper atmosphere, remain largely speculative, uncosted and with potential for unknown side-effects Again this is not consistent with the factual material of the full Report (e. g. ch. 11, part 11.2.3) Our proposal is to add several lines as follows: "25. Geo-engineering options, such as ocean fertilisation to remove CO2 directly from the air, or blocking sunlight by bringing material into the upper atmosphere, remain largely speculative, uncosted and with potential for unknown side-effects. <b>But there is a risk that the conventional mitigation options will not be</b>	Reject, policy prescriptive and too detailed

Section - Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						sufficient to achieve atmospheric stabilization. So there is acute need to research geo-engineering techniques for mitigating climate change, first off all Deflector System at Earth-Sun L-1 point, Stratospheric Reflecting Aerosols, Albedo Enhancement of Atmospheric Clouds, Iron fertilization of the oceans". We should stress the importance of the technique using stratospheric aerosols. Russian Academie of Sciense now has a special research project in this field (leader Prof. Izrael). (Government of Russian Federation)	
SPM-649	A	14	46	15	1	"remain largely speculative and unproven, and..." (Government of Canada)	OK
SPM-650	A	15	1	15	2	Suggest deleting last sentence. While the costs of some concepts have been estimated to be small, their effectiveness remains unproven, making the critique on the quality of cost estimation in a headline statement premature. (IPIECA (Non-Governmental Organisation))	Reject
SPM-651	A	15	1	15	2	Grammar: replace "with the risk of" with "may have." (Government of United States of America)	Reject, current text puts more emphasis on risk