Expert and Government Review Comments on the IPCC WGIII AR5 Second Order Draft – Chapter 16

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
34467	16					This is great! Though you could explore options to turn this table into a figure.	Noted.
34468	16					This is great! Though you could explore options to turn this table into a figure.	Noted.
34469	16					This is great! Though you could explore options to turn this table into a figure.	Noted.
34470	16					This is great! If methodologically correct, you might want to convert amounts in 2006 USD to 2010 USD to facilitate comparisons.	Noted.
34466	16					Why does this table exclude information on national funding entities in developed countries? Maybe put Table in section 16.8? Or provide information on both developed and developing country entities?	Rejected. The idea is to discuss the emergence of brand new instituitons in developing countries to cope with growing finance including potential through GCF
24214	16					Assessed Budget Contributions should be listed as one of the climate finance "sources" (AGF WS6, 2010)	Rejected. As explained in the text, the section focues on sources that also yield mitigation benefits due to page constraints.
30188	16					reference Justice (2009). I was involved in getting this report done i.e. so if possible can you add me in as editor. I wanted to make sure Sophie Justice got credit for doing the content, but the citation has been awkward because I 'alphabetised' the institutions.	Accepted and done.
25918	16					Scenario IEA/GEE includes climate policies (current policies). This must be reflected in column "Climate target 2100" or in any place of the table. This will explains the penetration of CCS in this Reference scenario. Or, this scenario must be removed from the category "Reference scenario"	Information is now aggregated in diagram 16.2 and 16.3
25919	16					To add scenarios by EMF22 and EMF24, as reported in Chapter 7.	Information is now aggregated in diagram 16.2 and 16.3
25914	16					To clarify the meaning of "not market data"	Addition was deleted
30466	16					Inclussion of percentages would increase understanding.	Rejected: Table was deleted.
30467	16					Since the table is too specific, I suggest to either reduce it or delete	Rejected: Table has been revised and explanation given as to why only these are included
22680	16					Chapter organisation: This chapter is not as well articulated as others in the set. Linkages between sections and sub items within sections are not well articulated. For example, and within 16.2 the sub section on global modelling results (line 17-36) could be better integrated into the discussion preceding it or the significance of its location made clearer.	Accepted. Chapter will be re-drafted in to a large extent to address this issue.
21359	16					Another general point (I guess most closely tied to the discussion of the energy system in 16.2.2 esp 16.2.2.2) relates to the interaction between the financial system and the energy system and the risk that may arise thereof as they both evolve. Both systems are being increasingly coupled as the electricity sector is 'financialised'. There are many decarbonisation transition pathways envisaged for the energy sector and each path has different financial implications. I explore some of these issues in Diaz-Rainey, I, Tulloch, D (2011) 'Financial risk, innovation and alternative pathways to decarbonising the energy system in 2050', Proceedings of ISPIM/Tudor Innovation for Financial Services Summit, Luxembourg, September and Available at SSRN	Rejected - not supported by the peer-reviewed published literature.
32336	16					Section 16.2.2.1 could be shortened considerably. A large amount of text is devoted to reciting the numbers from tables 16.2 and 16.3 (e.g. page 15, lines 3-8), which is unnecessary. The section also discusses the impact of climate policy on the energy system too lengthily (e.g. p. 15, l. 37-49; p. 16, l. 5-8; or p. 19, l. 1-6); this topic is covered already by Chapter 6. The text is occasionally inaccurate, ambiguous or pompous (e.g. "with the highest possible detail" or "ever growing demand of electricity" at page 14).	Noted.Consistency with Chapter 6 will be checked.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
25916	16					This section must be reviewed, using the information provided by Chapter 7. Moreover, several comments do not reflect well the reality of the modeling exercises.	Noted. Consistency with Chapter 7 will be checked.
20526	16					As noted above, this section is political rather than scientific or economic. While discussion of carbon pricing is appropriate in a chapter on mitigation, it is not useful in a chapter on climate finance. A carbon tax could certainly raise revenue for climate finance. But so could an income or consumption tax. Any country revenue source could be used as a source for public climate finance. There is little to be gained from having the AR5 identify how countries should go about raising revenue for public climate finance.	Rejected. As mentioned in the text, we only discuss revenues that also yield mitigation beenfits. The reference for the results are speficied in the text accordingly.
34464	16					Overall, you could assess more evidence on the effectiveness of instruments to reduce emissions/enhance sinks Much of your discussion focuses on the effectiveness of instruments for mobilizing capital. Providing more evidence on the effectiveness of this capital to (directly and indirectly) mitigate climate change seems relevant for policymakers.	Noted. But there is little evidence in this regard. However, we added sentence to address concern under 16.5.3
20527	16					This is a helpful section in identifying key differences between climate mitigation investments and other infrastructure investments. The challenges subsection is especially useful. As part of a broader call for research, it would be useful to carry out assessments of the effectiveness of various instruments discussed in this section.	Accepted. We added a sentence on the knowledge gap in 16.9
21357	16					Something the chapter could be more complete about is the role institutional investors could play in low carbon investment. Although there are numerous investor groups stating a concern about climate change (see page 3 of Diaz-Rainey et al 2012, below) this has not bridged the climate investment gap. A big reason for this is the concern that climate related investment is not consistent with investors Fiduciary Duty. In this paper we challenge that assumption in the context of EU ETS and cite an extended literature on this subject (including the "Freshfields' report"). see Diaz-Rainey et al. (2012) 'Institutional Investment in the EU ETS', Tyndall Centre for Climate Change Working Paper 156. This issue is clearly relevent to the barriers to climate investment (e.g p5 of chpt 16 and Section 16.4.2) and to the discussion of intitutional investors (p27)	Noted. Very interesting topic. However, due to page constraints, we opted to not discuss the role of each capital owner in detail.
24989	16					Suggest make it more clear that rebates are understood to also include CfD and arrangements other than just FIT	Rejected. Comment unclear. Rebates are not FiTs.
34465	16					Overall, you could assess more evidence on the effectiveness of institutions (and/or organisations) to reduce emissions/enhance sinks. Much of your discussion focuses on the effectiveness of institutions in mobilizing capital. Adding to this evidence on the effectiveness of this capital to (directly and indirectly) mitigate climate change would be very helpful for policymakers. In particular, evidence on the effectiveness of the Clean Development Mechanism and international climate finance (e.g. fast-start) seems policy-relevant at the intergovernmental level.	Noted. But there is little evidence in this regard. However, we added sentence to address concern under 16.5.3
33342	16					This section seems to concern public financing rather than institutional arrangements, perhaps this should be reflected in the price. The section could also include something about mainstreaming climate finance into ODA.	Rejected. The section addresses both public and private financing and the emerging institutions to deal with them. We have added one sentence about climate finance and ODA, but believe that mainstreaming climate into ODA is beyond the scope of the chapter.
33343	16					This subsection could also mention the involvement of institutions such as the G20, the MEF and the OECD.	Rejected. These are not funding institutions

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25923	16					This section repeats information already provided in other sections. This could be a place where to cut.	Rejected. The information on global arrangements is key to the section. In any case, the section has been shortend and condensed.
20529	16					This chapter is fuzzy and speculative. If the chapter is too long, this is a section that could be cut at little cost.	Noted. Section has been shorted and condensed.
22649	16					Is this sub-section needed? It is not related to climate finance.	Noted. We believe it is crucial to outline the main controversies in this field that also have an implication on finance decisions.
33345	16					I think the concept of resilience should be mentioned here.	Rejected. These concepts are discussed in WG3 and lie beyond our chapter.
24215	16					these two session can be integrated into one session	Rejected. The outline cannot be changed.
20195	16					Despite the title of this section there is no specific analysis of financing needed to facilitate transfer of technologies. Section 16.9 should indicate the need for studies to assess the costs of absorbing and adopting technologies and on the financing needed to boost the diffusion of environmentally friendly technologies.	Section 16.9 indicated the lack of information financing for R&D and mitigation technology diffusion and transfer.
21358	16					A related point is how investors are responding to carbon risk embedded within companies. This is related to concerns raised by the Carbon Tracker Initiative that there is a 'Carbon Bubble' (see http://www.carbontracker.org/). This concern stems from a belief that investors are not pricing into their valuation models the fact that many carbon intensive industries will ultimately not be able to utilise the resources that underpin their valuations (e.g. reserves of fossil fuels for oil companies). The concern from a financial and public policy perspective is that when this bubble bursts it will have a devastating impact on financial markets and pension assets. From a climate change perspective the sooner the bubble burst the better (as companies such as the oil majors will find it difficult or impossible to raise debate or equity capital for carbon intensive projects to the benefit of renewable and other green technology firms). The issue raises a number of interesting questions, most notably; do asset values respond to carbon risk? The following papers begin to shed some light on this question but more generally this is an area that needs further investigation and perhaps merits some comment in Section 16.9. This is ultimately about the relationship between primary and secondary markets. References (1) Mercer 2011. Climate Change Scenarios – Implications for Strategic Asset Allocation. London. (2) Griffin, P.A., Lont, D.H., Sun, Y. 2012. "The Relevance to Investors of Greenhouse Gas Emission Disclosures," UC Davis Graduate School of Management Research Paper No. 01-11. Available at SSRN (3) Bansal, R., Ochoa, M. 2011. "Temperature, Aggregate Risk, and Expected Returns," NBER Working Paper No. 17575	Noted. We believe this is beyond the scope of the chapter.
20530	16					Climate finance is an area where much has been written but little formal rigorous analysis has been done (that is slowly changing). Thus the acknowledgement of the gaps in knowledge and data in this section are welcome. This is a very important section both to encourage further research as well as to treat with caution any recommendations in this chapter.	Noted.
33347	16					I think this section also should mention the effects of the fragmentation of the international governance arrangements.	Unclear how this is linked to the research gap. Fragmentation is mentioned in 16.5
34480	16					Overall, your draft improved a lot when compared to the first order draft. Thank you for your efforts. Well done!	Noted. Thank you.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
34453	16					This Executive Summary compares favourably with those of other chapters. It provides concise and policy-relevant insights. At times, though, you should consider using a more balanced and 'scientific' language. What exactly is e.g. a "massive" scale-up of renewable energy investments? Moreover, please provide context to your numbers. How big is USD 350 billion? Please help the 'Executive' reader understand the scale of your evidence by e.g. providing comparisons across time and/or sectors.	Taken into account - Text was revised and non scientific language is now avoided. A figure of total global investments is included in 16.2.
34484	16					If you feel that there is a trade-off between providing details for key findings and respecting space constraints in your Summary, please focus on a small set of key findings and their details rather than provinding a paragraph on every topic that is covered in your chapter. The latter approach tends to produce assertions that are so 'comprehensive' and general that they are almost meaningless. Hence, selection seems warranted.	Taken into account - The number of key findings will be reduced and more detaile will be provided.
33948	16					need a paragraph to describle the prestent status of climate finance, for instance, how much in total,its new and additionality,banlance between adaptation and mitigation,the failure of the market et.al.	Noted. Information on total climate finance, on the additionality discussion and the share for mitigation and adaptation are provided in the chapter.
35336	16	0				This chapter disproportionally focuses on general financial issues, and fails to analyze the global financial investment demand taking into account the different circumstances between developing and developed countries. It also neglects the fact that the priorities of developing countries are sustainable development and poverty eradication. As a result, it makes this chapter irrelevant to the discussion of financing issues under the UNFCCC process. In regard to fulfilling the finance need of developing countries in climate change actions, only two pages at the end of the chapter are used to address this fundamental issue. It is suggested to elaborate more on this fundamental issue from the following aspects including the financing needs of developing countries, commitments made by developed countries in Cancun, resource mobilization of newly established financial mechanisms (namely Green Climate Fund), and transparency of providing Fast Start Finance and the implementation of medium- and long-term finance commitments made by developed countries.	Noted. Partly beyond the scope of our chapter. Chapter 4 addresses sustainable development and equity. This chapter seeks to strike the balance between developed and developing countries. Developing and developed countries specificities are treated throughout the chapter and not only in section 16.7 and 16.8.
35337	16	0				Discussion on technology transfer is insufficient in this chapter. Thus, it is suggested to add a systematic and coherent discussion on technology transfer to Chapter 16, focusing on financing TT.	Noted. Decision not to cover TT in general in chapter 16 was taken by cross-cutting group (since it is covered in other chapters). Chapter 16 is supposed to cover only financing for TT. However, we did not find sufficient literature on the financing part.
40949	16	0				Chapter (16) should include a section on impacts of response measures and spillovers as a cross-cutting issue. This Chapter focuses on investment and finance issues with no mentioning of “spillover” or impacts of “response measures”. Even under this finance focus, the chapter does not provide an assessment of the incidence and the extent of burden shifting associated with the different mode of climate finance particularly MBM and extent to which the burden actually falls on developing countries.	Taken into account in 16.5. Impacts of policies are addressed in chapters 13 and 14.

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40960	16	0				Chap 16 on cross-cutting investment and finance issues is also problematic. It presents a picture that large amounts of climate financing is flowing to developing countries, contrary to what developing countries themselves (the putative recipients) are saying (which is that climate financing flows are either minuscule or non-existent). It furthermore conflates as climate financing domestically-generated financing in developing countries, loans, FDI, together with developed country ODA flows as well as financing from multilateral institutions such as the World Bank and the GEF.	Noted. Chapter is based on available literature and data. Defintion used in the chapter is broader than public concessional finance provided to developing countries. Consideration of sub-sets of flows and uncertainties has been greatly improved in final draft.
40961	16	0				Chap 16 also has limited literature sources; too much focus on a discussion on FDI as compared to discussing barriers to the flow of finance to developing countries. Also there is a sweeping generalization with respect to what is required in terms of climate financing and climate actions in developing countries; and the generalization and use of assumptions that often reflect developed country conditions without addressing developing country circumstances. Furthermore, ; there is no discussion of how CBDR and equity can be reflected in terms of climate finance; there is no discussion on how financing flows from developed to developing countries can be effectively measured and verified; and there is no discussion on long-term climate financing needs beyond 2020.	Noted. We discuss issues relevant for all countries and provide summaries for developed and developing countries.Chapter 4 addresses sustainable development and equity. We note that MRV of finance is currently inadequate, as pointed out in 16.9. Long-term climate finance needs are addressed in 16.2.2.
24260	16	0				This new chapter on investments and finance issues is very welcome and useful! The use of "attract invetments" throughout the chapter is an important distinction which could deserve a clarification: frameworks and policies needs to be designed so as to attract investment for desired solutions and disincetivises harmful inveetments, as the major share of capital sits with private owners.	Noted/
24274	16	0				This review the net incremental costs, but the chapter does not address the total shifts in investments required, which is also an important figure, when considering the effort required to shift investments into appropriate technologies and sectors. The WEF estimates that shifts of around 5.7 trillion per year could be needed to stay below 2 degrees. http://www3.weforum.org/docs/WEF_GreenInvestment_Report_2013.pdf and http://insights.wri.org/news/2013/04/3-ways-unlock-climate-finance	Rejected. We do address shifts in investments in 16.2.2. We will review the references mentioned.
20229	16	0				Developing countries are afraid that the use of innovative financing such as Market Based Methods (MBM) will actually shift the climate finance burden from developed countries to developing countries. Please provide some discussion on the incidence of climate financing to inform this important issue.	Noted. Impacts of policies are addressed in chapters 13 and 14.
24207	16	0				This chapter doesn't have a clear definition of climate fiancne, and the general perception is that it discusses a wide range of issues related with fiancne in the context of climate change, but it doesn't have much discussion or finance issues pertinent to climate change negotiation.	Noted. Chapter does have a definition of climate finance - see Box 1.
32333	16	0				The topic of Chapter 16 is important, but would benefit greatly from brevity and improved quality of the text. The text is at times too verbose and wanders to topics that are not in the focus of the particular section/subsection, and occasionally some redundancy (e.g. page 15 lines 2 to 10). Clarity of the text could be improved (e.g. page 19, lines 35-37), and this includes rewording the "vis-a-vis" expressions. Some subsections present large amounts of numbers without citing the source in any way (e.g. pages 14, 15, 19, 20, 43 lines 39-42,). The balance of the subsections in the chapter could also improved. As an example, 16.2.2.1 is a fourth-level subsection but spans five pages (and includes to huge tables), whereas many other fourth-level subsections span less than one page. Better focus on the topic at hand, cutting of branches to other topics, and improved brevity and clarity of the text will help in reaching the page limit of the chapter.	Noted. We will improve the draft in this regard.

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32633	16	0				I may not be the only one who found my time too squeezed to do this chapter justice - it is a pity it comes at the end of the AR5 since its issues are so central. I dont have expertise to commetn on the international financial elements. The one comment I would offer is to have a closer look at the emerging debate (at least in Europe) on the potential contribution of Institutional investors in the financial situation we face after the credit crunch, and their dependence on a stable and credible poicy environment for low carbon investment. On this, see my final comment on the SPM.	Noted. Will look for other comment.
22243	16	0				Domestic resources for climate finance are being underestimated, many developing countries try to blend international and domestic resources.	We report data/numbers available and role of national entitites and national development banks.
22244	16	0				Governance and especially good governance should be elaborated more. See e.g.Schalatek (2012): Democratizing climate finance governance and the public funding of climate action or TNC (2012): Climate Finance Readiness. Lessons Learned in Developing Countries	Noted. Falls within the scope of chapter 15.
22245	16	0				Also elaborate on adequate planning processes in developing countries. Often government budgeting and planning cycles are obstacles to long term low carbon investment not only lack of financial resources.	Noted. Falls within the scope of chapter 15.
22246	16	0				Political frameworks and regulatory instruments for low carbon investment are not being discussed enough. The section on is FIT very brief and without differentiation. Several Non Annex I countries have introduced instruments such as FIT but often they are watered down by wrong pricing or inclusion of contradictory elements such as renewable portfolio standards (e.g. Philippines). The success of the German EEG (renewable energy law) has been attributed to the fact that it is very transparent and that fair conditions for independent power producers are guaranteed. This is not the case in many developing countries (see e.g. Indonesia) although national targets for renewable energy portfolios exist. The conditions for the effectiveness of these instruments should be elaborated more.	Noted. FITs are discussed extensively in chapter 15.
22247	16	0				fossil fuel subsidies in developing countries are not discussed, although their importance as barrier for low carbon development is been widely discussed. See e.g. the IISD global subsidies initiative and articles by e.g. Meadowcroft (Governing the transition to a new energy economy)	Noted. Fossil fuel subsidies are now mentioned at several places in the chapter. Will review the reference provided.
22248	16	0				MRV of finance is being left out, see e.g. Tirpak et al (2012): Monitoring the receipt of international climate finance by developing countries and relevant work carried out by the OECD.	We note that MRV of finance is currently inadequate, as pointed out in 16.9. We will review the literature provided.
22249	16	0				NAMAs are only very briefly mentioned, see e.g. ECN/Ecofys (2012): Financing Supported NAMAs, van Asselt (2010) and other relevant literature	Noted. Within the possibilities of our chapter allocation we will add more material on financing NAMAs in 16.5.
22250	16	0				sub chapters are not very well linked among each other, more synthesis needed.	Noted. It was tried to improve this coherence in the final version.
25906	16	0				The chapter proposes interesting ideas and analyses, but still sounds a bit too much like a list of ideas and numbers. It would deserve a better integration of information and clear messages. Mutual consistency of numbers should be verified.	Noted. We reviewed and summarized the literature.
20522	16	0				This is a difficult topic given the lack of high-quality academic research on the topic. The chapter authors have done a good job of assembling what information exists. In general, it would benefit from greater caution in drawing conclusions and stress the need for rigorous research on the topic. Having noted that, the authors are to be commended for their hard work and exhaustive cataloguing of the literature.	Noted. Thank you.

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20525	16	0				all references to Fast Start Finance should use the exact commitment in the Copenhagen Accord.	We will use the most recent data reported by governments to UNFCCC.
19736	16	0				Suugest to add the concent of gegal supervision of these investmant and financial issues.	Rejected. Suggestion is not clear.
25356	16	0				This new chapter on investment and finance issues by IPCC contributes to the ongoing debate and split on the actual flows and numbers reported on climate change finance. We understand that IPCC does not carry out its own original research and draws from peer reviewed and published scientific literature. However the disciplinary distribution of information, data and method in this chapter is skewed, heavily adding and inappropriately conforming to only one side of the arguments. The information and data should be reliable and evidence based. Whereas there is a wealth of quality literature referring to how minuscule the actual flows of climate change finance is, contrary to the inflated figures that this chapter reflects. In fact as reported by Climate Funds Update only $1.5 billion was approved or earmarked to new projects or programmes in 2012, even though $ 2 billion was deposited in funds dedicated to climate change. Exaggerations in the chapter are a result of how the term climate finance has been dealt and accounted for. IPCC defines climate finance to consist of all financial flows whose expected effect is to reduce net greenhouse gas emissions or to enhance resilience to the impacts of climate variability and projected climate change. The current levels of climate finance reported in the chapter (USD 343-385 billion per year) represent inflated and exaggerated figures as the approach used to arrive at it covers full investment in mitigation measures, such as renewable energy etc. In reality, in most of these cases, the climate is a “co-benefit”. Hence, the distinction between “investment” and “climate finance” has to be clearly brought out. The right approach to arrive at climate finance should have been to only consider the incremental investment which is a proportion of the total investment related to the expected mitigation and adaptation benefit. Further the estimated amount includes a mix of instruments i.e grants, commercial loans and equity, as well as the full investment in mitigation measures. Counting commercial loans towards climate finance further overestimates this amount. Therefore it would not at all be appropriate to quote the USD 343-385 as climate finance. This figure would be misleading, and undermines the actual gap in the needed flows of climate finance. USD 343-385 billions could therefore be flows associated with investments that yield mitigation benefits but certainly not climate finance flows. A wrong or partially true definition on climate finance in an IPCC document is just not acceptable given the weight and influence that IPCC carries. Climate finance has been a central element of the international climate change agreements in the UNFCCC forum from the outset and IPCC reports also intends to address gaps in the state of scientific knowledge and contribute to a stronger foundation for public policy in such forums. Therefore in the IPCC report appropriate and adequate referencing to UNFCCC which the dedicated multilateral body to deliberate on climate finance issues is required. It is important to set the context of climate change finance right, with respect to the articles of the convention and also relative roles of the public vis-à-vis the private sectors, in dealing swiftly with climate change actions and it’s financing. In the interest of the readers it is crucial that the chapter is vetted from the point of view of the work that has be done by Governments in UNFCCC. The chapter cannot be complete without discussing the issues of new, additional, predictable, full incremental cost of climate finance as agreed under the Convention. Also negotiations under UNFCCC with respect to allocation of finances for mitigation and adaptation would benefit from knowing “what is the optimal balance for allocation between mitigation and adaptation finance”? Also an estimation of changing mitigation and adaptation costs over time would help policy makers to take the right decisions. We wish to emphasize how critical and impairing incomplete information from skewed sources could be. The developing countries cannot approve of the figures quoted in the chapter as they themselves do not confirm the claims of financing made available to them. Overall we strongly recommend that the chapter is not fit for publishing	Noted. Text will be added to the appendix on the methodologies used by CPI (numbers used in 16.2.1) and estimates under 16.2.2. A box clarifying the different concepts will be added in the text and a subheading on international climate finance will be introduced. The ES will be adjusted to reflect the differences in the numbers presented. Limitations of addressing the optimal balance btw mitigation and adaptation are addressed under 16.6 and Working Group II.

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25357	16	0				It states that “The full incremental cost for a given country could be calculated as the difference between GDP in the absence of UNFCCC commitments and GDP when country is undertaking actions to meet those commitments.” We may not agree with such an approach for calculating incremental cost. The concept of costs should not be dependent on the commitments undertaken by countries under UNFCCC. There are countries which have voluntarily pledged to reduce emissions intensity like India. Moreover the concept of incremental cost should be linked to the cost of offsetting increased risk from climate change for an investment or the share of investment associated with climate change benefit.	Text on page 20 will be revised regarding mentioning of UNFCCC commitments. Estimating benefits of climate change is beyond the scope of the chapter.
25358	16	0				There are a number of estimates and figures corresponding to the results of various models and studies that the chapter mentions. However the policy makers are more concerned about the estimation of needs for climate finance. We would benefit from a comprehensive assessment of the needs of climate finance particularly in the developing countries which are more exposed to the impacts of climate change. The scale of needs would help plan and prepare policy makers to budget for climate change. Also even though power is one of the biggest sources of emissions, an overemphasis on this sector in the chapter has limited the scope of a thorough and inclusive analysis. Sectors like transport, infrastructure, agriculture, forestry etc also are equally potentially important which the chapter does not mention. Moreover for some of the figures estimated with respect to the power and energy sector, we are not sure if it is possible to sum across these figures to arrive at an approximate range for climate finance needs.	Noted. Only limited data available on other sectors than energy. Energy efficiency covers transport, waste, industry and households. Covering adaptation investment needs is beyond the scope of chapter 16. We are treating the different sectoral estimates seperately.
33330	16	0				A good chapter but with room for improvement. Most importantly, I think the definition of climate finance should be clearer, or perhaps should it be made clear that the chapter addresses two related but somewhat distinct issues: investment and climate finance. As most of the climate finance literature only deals with financing of measures in developing countries, it causes confusion when the discussion of this strand of literature is mixed wiht the discussion of the estimated global need for climate investments, which also includes measures in the developed world. One solution could be to make the two issues addressed clear from the beginning, and not move from one issue to another, but instead reorganise the chapter so that firstly the investment bit is addressed, and subsequently the issues relating to the measures in developing countries is addressed. Most of the discussions seem centred on the energy sector, whereas industrial emissions (especially non-CO2 emissions) are a bit overlooked. The same goes for the role of public money from the state budget (in other words money which is not necessarily raised through carbon taxes, auctioning or wires charges but by "ordinary" taxation) - this is after all the kind of money pledged in the Copenhagen and Cancun agreements. A discussion of the importance of mainstreaming climate measures into ODA would also be useful. Finally, Also the concept of creating a global carbon price could be addressed more explicitly.	Noted. The definitions have been improved and been applied consistently in the final draft.
38711	16	0				Though the chapter is generally well written, there are grammatical and typographical errors throughout. A round of careful copyediting will be needed.	Noted. Will be cleaned up until final editing.
38712	16	0				Sections of 16.2 are somewhat redundant with 16.7 and 16.8, and could be consolidated. / The chapter's content is strong but the organization is confusing. For example, the section on "future low-carbon investment" (16.2.2) seems to overlap a great deal with 16.7 and 16.8. Would suggest eliminating 16.7 and 16.8 and merging content into 16.2.2.	Accepted - The text was revised to reduce redundancies. However, the overall structure of the chapter cannot be changed.
38713	16	0				The chapter is quite dense and filled with so much information that it made it difficult to pull out any key messages of the chapter. Any assistance to the reader in that regard would be most helpful.	Taken into account - The text was revised to communicate main messages more effectively.

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38714	16	0				Would appreciate more treatment of the dirty vs. clean invesmtent - we should be looking not only to increasing the green flows but also reducing the dirty flows. Maybe something could be included on current financing flows that demonstrates the current range of "dirrty" financing alongside the climate finance.	Rejected - The amount of "dirty" investments is already included in Table 16.1.
28183	16	0				General: This chapter is written and structured very well. Also, given the importance of the topic and the fact that for the first time the AR has a finance chapter in the IPCC report, I would not shorten it. This chapter faces the substantial challenge of a strong scarcity of scientific literature which is to my knowledge unique across the WGIII report. About 39 of the 184 citations (less than a quarter) are peer-reviewed literature. This is correctly pointed out - also in the Executive Summary. It is very necessary to emphasize this since it implies that the vast majority of the documents that are cited did not go through the quality check. It is important to ensure that this does not contribute to setting a "lower quality standard" required for the literature that feeds into the finance chapter but rather something like a transitional effect until the scientific literature has picked up speed.	Noted. The limited availability of peer reviewed literature is deplorable and stressed in the section on gaps
29252	16	0				Slightly inconsistent use of 'climate finance', 'mitigation finance' and 'climate investment'.	Taken into account - Text was revised.
33933	16	0				lacking supporting ducuments. Data not clear and need to be further classified to enhance illustrition.Documents from same person were cited(buchner et.al) result in a not banlanced view.	Noted. Unfortunately, data on this topic is very limted as cited at several places in the chapter.
33934	16	0				Defination of climate finance under UNFCCC should be the basic of the discussion.Climate finance under UNFCCC and how to enhance this finance should be the focus of this chapter.	Rejected. The mandate of the IPCC Plenary was to cover climate finance in developed and developing countries alike.
33935	16	0				need clear defination on“public fund” “government fund”“private sector finance” . Content in this chapter using the same phase in different places to express different meaning which is confusing and misleading. Expecially the meaning of phase "public fund" is not as the same as it under UNFCCC.	We introduced a box explaining the different concepts (understandings) of climate finance.
33936	16	0				"finance flows to developing countries" need to be further classified or specified, for instance from which country or the same country? domistic used or given to an countries? investment, fund, donation, loan? developing country's own money or not?	We introduced a box explaining the different concepts (understandings) of climate finance.
30468	16	1				The chapter would benefit from a clearer split between the role of public finance to leverage and mobilise private setcor finance.	Taken into account - The role of the public sector in mobilizing private investments is already covered in Section 16.5.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
26415	16	1		63		One significant gap in Chapter 16's anslysis is financial accounting. Financial accounting allows for valuation, comparison, and financial efficiency analysis of climate change mitigation activities (citation, Accounting for Carbon, ISBN: 978-1-85909-469-4). If we have financial accounting rules in place and institutions are required to follow these rules under generally accepted accounting principles (GAAP), then it is possible to value mitigation activities. Furthermore, we can then compare mitigation activities amongst themselves in an "apples to apples" comparison since same or similar mitigation activities will apply the same GAAP regime. This also allows for transparency regarding tax consequences and revenue generated by the "ongoing activities" of the climate change mitigation activity resulting in tax revenue being generated for statal regimes (i.e. income taxes, sales taxes, corporate taxes, etc.) Finally, financial accounting GAAP regimes must be in place to catalyze private sector capital markets participation at the speed and scale required to fund mitigate climate change. Without financial accounting GAAP, it is impossible to compare effectiveness of climate finance from the corporate point-of-view; hence, corporates will struggle to participate in climate finance activities since they will not have a consistent, accurate, and effective way to account for their climate finance activities (whether assets or liabilities) on-balance, at fair-value.	Taken into account - The lack of clear accounting principles for carbon mitigation activities will be reflected in the "Gaps in knowledge data" section.
22633	16	10	14		16	Unclear, needs rewording. (also has too many numbers without a storyline, as para above)	Taken into account in rewrite.
28199	16	10	14			Change from "or in other developing" to "or in other developed"	Taken into account in rewrite.
22636	16	10	17		34	Lots of examples - could these 2 paras be summarised into one?	Noted. Text will be revised. Definition of climate finance under UNFCCC will be moved to section 16.1 There will be a subsection that discusses flows to developing countries.
22255	16	10	17	10	23	Reflect current discussion on Bienniel Update Reporting and International Consultation and Analysis.	Rejected. The para is limited to defining climate finance, not to reporting and review.
25910	16	10	17	10	37	UNFCCC and Kyoto climate finance are mentionned at several places of the chapter (eg. here, and also at p.12, lines 3-28, and later on). The information should be better integrated, repetitions should be avoided. This would also contribute to reduce the length of the chapter.	Rejected. The discussions are quite different. Finance provided by Annex II governments and the CDM.
38746	16	10	17	10	23	This is not necessarily a commonly accepted definition of climate finance under the UNFCCC. It may refer more narrowly to climate finance *commitments* under the Convention, but the Convention itself and COP decisions pursuant to it address a broad range of sources, channels, and uses of finance. See paragraph 99 of decision 1/CP.16 (Cancun agreements) for a clear example.	Taken into account in rewrite.
29263	16	10	17	10	23	This wording doesn't accurately reflect the UNFCCC commitment, which is more nuanced and does not include a blanket agreement to cover incremental costs of all mitigation measures implemented by developing countries.	Taken into account in rewrite.
22634	16	10	18			Reword needed. As per comment above, only some of the reference to finance in the UNFCCC context relates to agreed full incremental costs. The 100bn USD commitment, for example, does not refer to this, so it could be interpreted as refering to total costs, not additional, incremental costs.	Noted. The USD 100 billion commitment is discussed in section 16.2.3
22259	16	10	21	10	37	Annex I countries report in their Nat Comms about their climate finance spent in non-Annex I countries. Check for compilation.	Noted. The latest compilation is cited -- UNFCCC, 2011a.
22635	16	10	24			It has not been agreed in the UNFCCC context that "developed countries" equates to "Annex II". So the text should not imply that it has.	Taken into account in rewrite.
22256	16	10	24	10	30	Reference with analysis of financial pledges by WIR.	Noted WRI analysis of financial pledges covers fast start finance and is referenced in section 16.2.1.3

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
38749	16	10	24	10	25	Reporting does not include private flows, co-benefits and other leveraged finance	Taken into account in rewrite.
38747	16	10	24	10	30	This doesn't factor in Developed country Parties FSF reporting to the UNFCCC, and the fact that current reporting requirements under UNFCCC are improving. This para needs to account for this.	Noted. Paragraph will refer to fast start finance which is discussed in section 16.2.1.3 and which the donors have insisted is not subject to UNFCCC. Changes to reporting systems is beyond the scope of the chapter.
38748	16	10	24	10	30	This paragraph stops short of the fast-start period (2010 - 2012), during which many developed countries made a significant effort to ramp up climate finance (and to report it to the UNFCCC). This conclusion therefore risks being out of date - and also inconsistent with other sections of the chapter that do discuss fast-start. Finally, it seems strange that this section on climate finance under the UNFCCC would mention neither the fast-start commitment nor the 2020 $100B commitment.	Noted. The paragraph will note the fast start finance commitment discussed in section 16.2.1.3. The USD 100 billion commitment relates to 2020 and so is discussed in section 16.2.3
29264	16	10	27	10	28	For consistency (with later reference) and balance suggest this should read 'an average of around USD 10 billion' per year.	Taken into account in rewrite.
22257	16	10	28	10	30	Please explain	This sentence has been deleted.
28201	16	10	28	10	30	Please add reference - this is an important finding, not exactly sure where it comes from.	This sentence has been deleted.
28200	16	10	28	32		3% seems low! How is the number generated? If it is the 3xxbn from Buchner for 2010/11; then related to the "less than 10bn a year" on average from 2005 to 2010 (from the national communications (UNFCCC, 2011a)), then my guess would be that the average from 2005 to 2010 eliminates a (I assume positive) trend, meaning the actual number would be higher. The ratio (roughly 3%) would then be on the lower end. If this is true, then "less than 3%" might be misleading.	Noted. This sentence has been deleted.
33942	16	10	28	10	30	need to chage way of layout. Only 3% of the meantioned finance fits UNFCCC provision to support developing countries' climate change action as new and additional. Only 15-25% of which went to developing countries including investments.	This sentence was deleted to avoid misunderstanding.
28202	16	10	29	10	30	It is not clear, if the mentioned 15-25% refer to the share of public finance flows or also include private finance, since different terms are used in Chapter 16 (p. 10, lines 29-30) and the SPM (p. 24, line 2). Also, in SPM p.24 lines 1-5 the definition should be clarified (e.g. are public and private flows included? Is it national and international?).	Noted. This sentence has been deleted.
28203	16	10	32			Concerning "Green Climate Fund". The description in Annex 1 (p. 21) has to be corrected: in line 5, "pledge" has to be replaced by "committed goal" or a similar wording based on wording in UNFCCC-decision (see e.g. decision 1/CP.16 para 98 and 100).	Taken into account in rewrite. The text does not mention "pledge", the reference to Annex I (p. 21) is unclear. Paras 98 and 99 refer to the USD 100 billion commitment and 100 covers only new multilateral funding
38750	16	10	35	10	35	why only reflect data from 2005-2010? suggest also reflecting data from 2010-2012.	Noted. Will update the figures.
22258	16	10	36	10	37	Plus pledges from bilateral donors, please elaborate.	Noted and considered in rewrite.
22254	16	10	4	10	4	But there are several existing estimates.	Noted and considered in rewrite.
22632	16	10	5		10	This para is just a list of numbers, with no story line at present. Either add a storyline, or delete.	Noted and considered in rewrite.
38745	16	10	5	10	10	Better to use the term "mobilized" rather than "raised."	Replaced where appropriate.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22671	16	10	8	10	9	Policy makers must be aware that most of the numbers present with regard to the flow of finance are estimations and based on very general and broad definitions of climate finance. The number , in particular, the $120-140 billion (line 8, pg.10) reported as flowing to developing countries 2011/ 2012 and the presumed $162-202 billion (line 9, pg.10) committed to these countries (as reported by Buchner et al 2013) gives a false sense of what is actually available for countries to fund national adaptation and mitigation plans(especially those under NAMAs). Buchner et al.,2011 cautions that their total includes some developing countries and domestic sources and that not all of the amounts included in their assessment can be defined as additional to the climate finance available prior to the Copenhagen Accord (2011). Clapp et al in their OECD report, cautions that the estimated range they present depend upon a simple methodology, which “adds” different types of climate finance, from grants to non-concessional development finance and private capital. This aggregate figure, they argue ‘has a significant degree of uncertainty, given the potential for double-counting across several of the sources, and does not take into consideration which flows might count as ‘additional’ (OECD 2012, p.11). Both the CPI and OECD numbers reflect a significant portion of private sector investment in the form of direct equity and debt investment , $37-72 billion (OECD) and $55 billion of CPI. With the public sector contribution account for significantly less than the private contribution, between both studies accounting for $15-20 billion (OECD) and $21 billion (CPI). But not all of this public sector attribution is for dedicated climate change activities. The picture presented also connotes a fairly liquid flow of climate finance to developing countries, significantly more than what most developing countries convey that they are receiving in UNFCCC. Many developing countries’ adaptation projects are unfunded (only a few have been funded and according to OECD 2012, no TNA identified have been funded. This is because these aggregate numbers are, in the first instance, estimation; in the second instance, include as well domestically generated sources by developing countries, loans and foreign direct investments. It is also not clear to what extent co-financing is included in the data. Adaptation fund is a very small proportion of even these large flows. The authors of the Chapter need to underscore more clearly and consistent throughout the chapter as well as in the Technical summary (pg. 58, line3-4 and 9-10) the cautioned raised by Buchner et.al., themselves as well as OECD 2012: ‘these estimates are highly uncertain for several reasons: there is a lack of accurate data on the larger flows; there is a risk of double-counting across several sources; and some of the sources included in this range may not ultimately be agreed as accountable towards the $100 bn commitment.… Unfortunately, the climate-related funding currently provided to developing countries through the different channels cannot be determined accurately.’ It is important to bear in mind as the OECD 2011has noted that: The limited data available suggest that the climate-related financial resources for mitigation are of the order of USD 14 to 21 billion per year, mostly through the purchase of CDM credits and bilateral assistance. Only th	Taken into account in rewrite.
22260	16	11	13	11	14	Maryland and San Francisco are in the US, not Canada.	Accepted. Sentence has been deleted.
29265	16	11	14	11	16	Suggest it would be more accurate for the end of this sentence to read 'none is earmarked/hypothecated for international climate finance' rather than 'none is used...'	Accepted.
38753	16	11	15	11	16	is the statement after the semi colon true for Norway, Sweden, and the UK?	Unclear. There is no semi colon
32203	16	11	16	11	16	Add: Similar taxes can be put on non-CO2 GHG (methane, N2O, HFC, PFC, SF6).	Rejected. The section summarizes the current situation, not what could be done.
22638	16	11	17		34	These two paras include many detailed examples - and read a bit like a list. Could they be summarised and the key points brought forward?	Noted. Text will be shortened.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
28205	16	11	17	11	26	Please add "has so far" to the sentence "Germany has so far earmarked a portion of its auction revenue for international climate finance (Germany Federal Ministry for the Environment Nature Conservation and Nuclear Safety, 2012)."	Accepted.
33943	16	11	24	11	26	need detailed information to support the argument	Rejected. This is not an argument, but a fact. Various references can be found on the German Gvt's website and in the reference mentioned in the text.
33334	16	11	26	11	26	Here the falling allowance price within the EU ETS should be mentioned, as well as its implications for the earmarking of such revenue.	Accepted. A footnote has been added.
38754	16	11	27	11	34	Consider including information on revenues from California's auction (see http://www.arb.ca.gov/cc/capandtrade/auction/auction.htm).	Taken into account in rewrite - deadline to be considered.
38752	16	11	3	11	3	What is the reference for the statement "and most private funding is balance sheet finance?" would be good to include that reference or otherwise remove the statement.	Accepted. Now extensively referenced.
32197	16	11	30	11	34	Please convert CAD and NZD in USD !!	Noted.
22494	16	11	31			There should be a space between 25 and per.	Accepted.
22637	16	11	6		16	The OECD has a database on environmentally-related taxes, available at www.oecd.org/env/policies/database . This shows that if you add up the revenue from taxes *explicitly* named as carbon taxes, you get 6.8bn in 2010 and 7.3bn in 2011 (is there a typo in your draft? you say 7.3bn for 2010). However, there are other taxes that could be relevant, such as the Finnish excise tax on fuels, the UK Climate Change Levy, and the Dutch energy tax. If you add these, you get to 15.9bn in 2011. So maybe the key point here is that there is also uncertainty on what a "carbon tax" is. Please do include the OECD reference, there is also a book recently published called "taxing energy use - a graphical analysis" (OECD 2013) for more info.	Accepted. Reference is now included.
33333	16	11	6	11	9	It seems a bit strange to exclude fuel taxes on the basis of them being implemented for revenue reasons, as it is hard to gauge the reasons for all kinds of taxes: auctioning of emission allowances have also to a large degree been adopted for revenue reasons. Better to focus on the externality which the tax is intended to address (is it climate change or another externality).	Noted. Wording proposed by another reviewer (#28204) has been inlcuded.
28204	16	11	6			Suggestion for the sentence: "Fuel taxes, fossil fuel royalties and electricity charges can be converted to CO2 equivalent charges and do substantially influence the attractiveness of climate friendly investment vis-à-vis fossil fuels. Nevertheless, they are excluded here, because they are usually implemented with different policy goals."	Accepted
32196	16	11	9	11	12	It would be good to write the $/t CO2	Rejected. There are multiple tax rates within some of the countries and the coverage wouold also need to be described (only some industries).
38751	16	11	1			Section 16.2.1.2 could be cut entirely or folded into the later section 16.2.3.	Noted. A seprate section is retained since that was agreed and section 16.2.3 has been shortened considerably.
24978	16	11	31	11	31	Refers to "CAD 15 and NZD 25per 'ton' CO2 respectively" The original references for Canada and New Zealand both refer to 'tonnes' of CO2, which is the international standard, national standard (for most countries), IPCC standard, and metric standard. 'Ton' is not a standard weight for CO2.	Accepted.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24488	16	11	9	12	28	Japan adopted Carbon Tax on Oct. 2012. (Tax for Climate Change Mitigation) It charges on the use of fossil fuels, say petroleum, gas and coal (excluding cokes coal) and increased to JPY289 per ton CO2 by 2016. More than half of tax revenue will be allocated mitigations but its detail has not been disclosed http://www.env.go.jp/en/policy/tax/env-tax/20121001a_dct.pdf	Taken into account in rewrite.
32198	16	12	11	12	21	Once CDM 4 billion USD in 2011, and then CDM 72 billion USD in 2011. I don't understand	Noted. The first is revenue the second is investment. Text has been rewritten.
38756	16	12	16	12	16	delete the word "relevance"-- the revenues are not less relevant, just smaller. suggest a different word.	Accepted. Text revised.
34778	16	12	17	12	19	This paragraph should note that since the Doha UNFCCC conference in December 2012, Parties have agreed to extend the share of proceeds levy to the issuance of ERUs and the first international transfers of AAUs (as mentioned in Chapter 16, page 23, lines 18-23).	Noted. The option is included in Table 16.1. Space limitations preclude an extensive discussion.
22640	16	12	17			This is a repeat from a footnote - suggest just including this text once.	Accepted. Footnote deleted.
33335	16	12	2	12	2	The problem with selling AAUs is that it raises the emissions in the country buying them.	Noted.
25913	16	12	20	12	28	A special mention to the Clean Development Mechanism Program of Actions (PoAs) must be added, given their importance in the funding of projects which were hardly part of the carbon trade mechanisms until now given their characteristics (small projects, small emission reduction impacts by project, but high potential in the replication of the projects). PoAs represent a crucial step to enable developers to scale up single, localized project activities into larger projects without incurring some additional costs. These projects are usually related to the objective of providing electricity or clean cooking to communities of remote areas of developing countries. More particularly, recent years have shown a remarkable increase of clean cookstove PoAs in the CDM (16 registered PoAs, 32 at validation, representing a total of 12% of all PoAs at the beginning of 2013) and voluntary markets, where clean cookstoves are recognized as moving from marginal volumes to prominent project type, as reported in UNEP-Risoe (2013), Kossoy et al. (2012), Peters-Stanley et al. (2012) 1) UNEP Risoe CDM/JI Pipeline Analysis and Database, March 1st 2013 2) State and Trends of the Carbon Market 2012. Alexandre Kossoy, Pierre Guigon. World Bank. 3) Developing Dimension - State of the Voluntary Carbon Markets 2012 - Molly Peters-Stanley, Katherine E. Hamilton - Ecosystem Marketplace/Forest Trends.	Noted. The section discusses revenue from the sale of CERs. Space limitations preclude an extensive discussion.
38757	16	12	20	12	28	The scope of this paragraph is unclear - it begins by discussing the CDM, but then introduces "similar projects in developed countries" - what does this mean?	Noted. Text was revised.
29266	16	12	20	12	22	Is $72 billion the cumulative figure from 2005 to 2011? If so would be helpful to say this, as currently reads as an annual figure for 2011 which then seems inconsistent with following sentence.	Noted. USD 72 billion is cumulative. Text has been rewritten.
38758	16	12	29	13	17	Somewhere in this section, it would seem appropriate to mention the $100B commitment for 2020, as it's a "recent development" analogous to the fast-start commitment.	Noted. That commitment is addressed in section 16.2.3
22639	16	12	3		28	These 3 paras focus on carbon credit revenues. Again, if you're looking for places to summarise, then this could be a good place: there are several detailed examples. Also, the key point about whether the cost of credits should (or not) be included in "climate finance" (or whether doing so is double-counting) is missing.	Taken into account in rewrite.
25912	16	12	3	12	28	These paragraphs would need to be better integrated. They sound like a series of numbers, without a clear message.	Taken into account in rewrite.
38759	16	12	30	12	32	Can you rephrase slightly to explain "how" climate finance has been affected by these various events?	Taken into account in rewrite.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
38755	16	12	7	12	7	replace "limitation" with "reduction"	Rejected. Not all Annex I Parties had reduction commitments. Australia for example.
25911	16	12	9	12	16	An estimate of the finance associated to the voluntary markets (Gold Standard, VCS etc.) must be added. Data is available in the following reports, all available online: 1) State and Trends of the Carbon Market 2012. Alexandre Kossoy, Pierre Guigon. World Bank. 2) Developing Dimension - State of the Voluntary Carbon Markets 2012 - Molly Peters-Stanley, Katherine E. Hamilton - Ecosystem Marketplace/Forest Trends. 3) Leveraging the Landscape - State of the Forest Carbon Markets 2012 - Molly Peters-Stanley, Katherine Hamilton, Daphne Yin - Ecosystem Marketplace	Noted.
22498	16	12	1	13	17	This part can be shortter since it has a very big table to talk about the data. Also In that way the table can be interpreted more clearly.	Rejected. Tried a table and it didn't use less space. Will shorten the text to focus on the revenue raised.
24979	16	12	17	12	19	The sentence states, "Sale of CERs generated revenue of over USD 90 million for FY 2010 and over USD 50 million for FY 2011 (World Bank, 2012a). Suggest make more clear on whether this is revenue for the Adaptation Fund?	Accepted. Text clarified.
25915	16	12				New developments related to "loss and damages" in international negotiations (COP18, Doha) and their consequences on climate finance must be added.	Rejected. This section covers recent historic developments. The finance implications of the loss and damages decision are not clear.
25359	16	13		21		Raising public funding for climate finance does not make any mention of the direct budget contributions by the developed countries, on which the developing countries have been insisting.	Noted.
33336	16	13		13		Please explain that this table does not include emissions from non-energy use, and what "Liquids" covers? Is it heating, transportation and cooking?	Accepted. Has been taken into account in rewrite.
22642	16	13	10			Data too old - refer to data to at least end 2011, and preferably whole FSF period.	Accepted. Uodated data in rewrite.
38763	16	13	10	13	10	Please replace "most" with "roughly half"	Noted. Will check the latest compilation.
22643	16	13	13		17	Delete sentence "Researchers have proposed…" as it is not specific and adds no further information (and the chapter is too long).	Noted. Will update literature on FSF.
22261	16	13	14	13	17	Explain the different outcomes. Reference other relevant literature, e.g. Stadelmann, Roberts, Michaelowa (2012): New and additional to what? Assessing options for baselines to assess climate finance pledges.	Rejected. Section is descriptive. Will use more recent literature.
38764	16	13	14	13	17	This sentence is problematic in two regards: 1. None of the references cited actually attempt to apply their criteria to the pledges. This implies that the authors of Chapter 16 have reached the conclusion - that the criteria identify anywhere from virtually none to almost all as new and additional - on their own. 2. This conclusion is difficult to defend. None of the baseline options or criteria presented in these three papers lead to the conclusion that "almost all" of the finance is new and additional. The only way you can get to that conclusion is under the no baseline option, which essentially amounts to "a country's climate finance is new and additional if the country says it is, and the country in question is not required to define their own baseline or criteria or even state the basic logic supporting this conclusion." If this is what the authors mean, they should say so directly - otherwise readers may conclude there's a bit more substance behind the argument that "almost all" finance is new and additional than there actually is.	Noted. Will update literature on FSF
33945	16	13	16	13	17	need a paragraph to explain the additionality of the Fast start finance	Accepted. There was already a paragraph on additionality in the SOD and is has been amended for the final final draft.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
33944	16	13	16	13	6	need to add one sentence, "among which,only arround 10% fit the provision on climate finance under UNFCCC	Rejected. We didn't find a reference that prooves that. Systemtic analysis of the whole FSF period is still non existing.
28208	16	13	26	13	29	Could this be updated using the latest figures from the WEO 2012 (IEA, 2012)?	Rejected. These are model baseline data - consistent with the following model results.
28209	16	13	30			It would make sense to differentiate in the table (power sector) between the following categories: two aggregates power plants, fossil fuels, and then: renewables, gas, coal with CCS, coal without CCS and nuclear; this would allow to get a better picture regarding potential transformative trends. If this is not possible (data availability) the reason should be explained in a footnote to the table.)	Rejected. Would be useful but would add to much detail.
38760	16	13	4	13	5	Direct quote needed: "approaching $30 bn" and the announced pledges EXCEEDED $30bn.	Taken into account in rewrite.
29267	16	13	4	13	4	This sentence should read "provide approaching $30bn"	Taken into account in rewrite.
22641	16	13	5			This line refers to FSF as 30bn, whereas it was previously referred to (Exec Sum?) as 28bn. Need consistency.	Taken into account in rewrite.
38761	16	13	5	13	6	Update these numbers based on COP-18 reporting	Accepted. Will use latest compilation report.
28206	16	13	5			"pledges" should be replaced by "commitments"; the latter corresponds to wording in relevant UNFCCC decisions	Taken into account in rewrite.
38762	16	13	6	13	6	This figure needs to be updated based on announcements made at COP-18 in November 2012 - now exceeds USD 33 billion.	Accepted. Will use latest compilation report.
28207	16	13	6			Please update the number of Fast Start Finance on the final reports of developed countries on Fast Start Finance in May 2013	Accepted. Will use latest compilation report.
24980	16	13	3	13	11	It would be valuable for this section to reflect the fact that the fast-start commitment has been met by developed countries. For instance, Umbrella Group countries made an opening statement in the LCA at Doha COP18 confirming that developed countries have met and surpassed the fast-start commitment with a total exceeding $33 billion. Citation: Umbrella Group (2012). LCA 15.2 Opening Statement. December 2012 (http://www3.unog.ch/dohaclimatechange/sites/default/files/Statement%20from%20Umbrella%20Group.pdf)	Noted. Text on FSF will be updated. Prefer to use latest compilation by UNFCCC as the source.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
30469	16	13				This section would benefit to highlight the opportunity today to leapfrog on the global investment gaps in infrastructure, irrespective of climate change. Adaptation and mitigation will just be a portion of the overall investmemt needs: Irrespective of climate change, a major part of the infrastructure required to meet development goals is still to be built in developing countries and a large share of infrastructure in developed countries needs to be renovated or upgraded. It is in energy, water, urban development, transportation as well as in agriculture sectors. OECD latest analysis suggests that global infrastructure investment requirements may be in the order of USD 50 trillion to 2030, or an investment flow of roughly USD 3 trillion per year. Today only roughly USD 1 trillion is estimated to be invested annually in infrastructure through domestic and foreign investments, public and private channels, leaving about a USD 2 trillion investment gap. The choices we make today about infrastructure investment are critical to meet the climate change challenge. If we make the wrong choices, we will lock-in high carbon infrastructure systems and development patterns that are also vulnerable to the impacts of climate change. There is an opportunity - and an urgency - to build right, not just to build more. (Corfee-Morlot, J, V. Marchal, C. Kauffmann, C. Kennedy, F. Stewart, C. Kaminker and G. Ang (2012), “Toward a Green Investment Policy Framework: The Case of Low-Carbon, Climate-Resilient Infrastructure”, Environment Directorate Working Papers.)	Rejected - outside the scope of the chapter - We provide estimates of incremental investments in infrastructures when available. Adaptation will require changes to infrastructures, but this topic is beyond the scope of this chapter.
24264	16	14				Foot note 11: "policy makers face pure uncertainty" should be balanced by adding that the high probability for climate change they face.	Rejected – There is no uncertainty about the future of CCS without climate policy: CCS will not be developed because reduces efficiency of power plants without any benefit. Renewables and nuclear have benefits that go beyond climate change.
22645	16	14		15		There are a lot of figures presented on investment needs. It would be clearer if these were in a table, rather than text, no?	Rejected - Climate change risk is not within the scope of the chapter
22501	16	14		16		This passage is sort of poorly-organized. The author can shorten some of them.	Noted and considered in rewrite.
24263	16	14	11	14	17	It would be useful if these fossil energy investments could be expressed also in estimated increase in carbon emissions and/or degrees of additional global warming.	Noted and considered in rewrite.
25917	16	14	18	14	18	"Model results crucially rely on assumptions about subsidies and...": not fully correct. Better to say: "Model results crucially rely on assumptions about future costs of technologies, subsidies, and …"	Noted and considered in rewrite.
38765	16	14	18	14	23	are these numbers factoring in climate policy (including fossil fuel subsidy phaseout) or without climate policy?	Noted and considered in rewrite.
22495	16	14	19	14	23	There is no reference to show where the digitals come from.	Noted and considered in rewrite.
32337	16	14	2	14	10	Is this introduction necessary, as it gives little to the discussion on investment needs?	Noted. The digitals (numbers) come from Figures 16.2 and 16.3
28211	16	14	21			I don't know, where this comment would be placed best. But the "needs" (here, perhaps mainly driven by the IEA model numbers) are - for the near term - systematically lower (up to 180bn p.a. until 2029) than what is reported in actual investments by the (deals-based) Bloomberg numbers (257bn US$ renewables investment alone in 2011). It might be worth considering to mention that at some point - also to say that it may be a mis-interpretation that renewables-investments are already higher than actually needed, or simply to stated that model volumes and bottom-up deal-based volumes may systematically differ.	Rejected. The introduction sets the context for the following paragraphs.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
32199	16	14	28	14	28	Why both 2.8 and 2.6 W/m2 ?	Noted. Section 16.2.2 provides information that we are displaying only model results of which EIA is one of serveral models used. Of course models should net be used to forcast invetments, but rather to compare the results between the reference and mitigation scenarios
22644	16	14	36			Need to be careful how you refer to the 2 degrees issue. 2 degrees is not an 'objective' (as outlined above), nor is getting there a "target". It is limiting temperature rise to this level that is the target. This needs to be carefully edited in the whole report.	Noted. We are stating that both forcing scenarios are roughly consistent with achieving a 2C target.
38766	16	14	40			Footnote11: The first sentence unclear. Please revise it for clarity.	Noted - will be taken into account during final draft editing
28210	16	14	5			Suggestion: "Section 16.2.2.2 summarizes in more detail - given the data-availability - estimates of investment needs..."	Noted - will be taken into account during final draft editing
33337	16	14		16		Here the importance of behavioural change (eg. through consumer choices) should also be mentioned, as should non-power emissions from a.o. industry (incl. industrial gasses) and waste.	Rejected. Too little robust data.
24981	16	14	18	14	18	This observation also applies to CCS, which is not yet commercial. Suggest that non-commercialised CCS is also noted	Rejected – There is no uncertainty about the future of CCS without climate policy: CCS will not be developed because reduces efficiency of power plants without any benefit. Renewables and nuclear have benefits that go beyond climate change.
29291	16	15	13			Compared to the International Energy Agency New Policies Scenario, "achieving universal access by 2030 would increase global electricity generation by 2.5%. Demand for fossil fuels would grow by 0.8% and CO2 emissions go up by 0.7%, both figures being trivial in relation to concerns about energy security or climate change" but would avoid 1.5 million premature deaths per year (IEA 2011 World Energy Outlook Energy for All, retrieved from http://www.iea.org/papers/2011/weo2011_energy_for_all.pdf). The small increase in emissions is attributable to the low level of consumption per capita, and to the high proportion of renewable solutions adopted in this scenario. Business as usual scenarios would consider a higher share of Diesel generation for off-grid electrification, and this would rise the emissions from 0,7% up to a maximum of 1.5% if the preferred off-grid generation choice is Diesel compared to the IEA NPS. Additionally, higher levels of consumption up to 2000 kWh per year per person associated with a desirable economic growth would result in a worst case scenario where emissions would go up to a range from 1.6% for the new policies scenario to 3.6% in the off-grid diesel additional electrification.	Noted - will be taken into account during final draft editing

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
29292	16	15	13			The choice of adequate pathways to Universal Access from the first moment, sets an adequate tendency for the growing needs and energy consumption, specially considering productive uses. According to UN AGECC (2010) the electricity consumption evolves according to basic human needs, from 50-100 for basic access to 2000 kwh per person per year for modern society needs (IEA 2009), so this raise in consumption will result in significant raise in emissions according to the economic development conditions targeted by the international development agenda. Evolution of the power services in populations that first receive access will be different wether if they have network supply or off-grid electrification. Users that receive energy through the power network will have a smooth transition to higher power consumption and according to the generation mix for the country. For those who receive off-grid electrification (individual households or microgrids) guaranteeing an appropriate quality of service and the satisfaction of growing demand coherent with climate goals will be heavily influenced by the inital choice of technologies for electrification, the knowledge and capacitation of the main actors involved, and the user behaviour. By 2030 around 1 billion people will be supplied off-grid (Tecnologías para el desarrollo humano de las comunidades rurales aisladas. Real Academia de Ingeniería 2011, retrieved from http://www.raing.es/es/publicaciones/libros/tecnolog%C3%AD-para-el-desarrollo-humano-de-las-comunidades-rurales-aisladas) Off-grid electrification systems vary from AC technologies supplied by household or microgrid connected generators (diesel, PV, minihydro, wind, hybrid), that provide also a smooth transition to compatible network service, to DC low-cost technologies that provide basic energy supply (lighting, radio, mobile phone charging). According to Practical Action 2013 classification for energy supply tiers (Poor People's Energy Outlook 2013: 29-30, retreived from practicalaction.org/ppeo2013), AC technologies would enable the users to reach higher energy services levels up to Tier 5, while DC would be able to satify the demand only for Tiers 1 and 2.	Noted and considered in rewrite.
38768	16	15	14	15	16	It is not intuitive why T&D investment needs will be reduced. (On the one hand, less power will be necessary due to efficiency...on the other hand, isn't improved T&D to reduce losses part of efficiency, and also necessary for RE to access the grid?) Consider explaining.	Noted and considered in rewrite.
24265	16	15	17	15	19	Here and repeatedly in the chapter, the need and opportunity for new models which can distribute cost & benefits among stakeholders and over time is evident. This should be highlighted and preferably elaborated with research findings and successful examples - e.g. on product-service systems for solar PV, see Cambridge Institute for Manufacturing http://www.ifm.eng.cam.ac.uk/news/new-briefing-on-business-models-to-help-adoption-of-sustainable-technologies/#.UTirQhxLNfD. This perspective is also highly relevant, and addressed, in Chapter 5 which should be pointed out.	Noted and considered in rewrite.
38769	16	15	29	15	32	Can the authors show how money would be reduced from dirty investments?	Rejected - beyond the assigned scope of the chapter
38767	16	15	3	15	49	It would be good to know what the whole landscape of clean invetments are that were factored in to reach the numbers cited here.	Noted - high carbon investments are disadvantaged due to the increasing carbon charges employed by the models to drive the emission paths
28212	16	15	37	15	49	One important reason for model-based investment and real investment (therefore also for diversity across models) might be the degree to which the models reflect investments in very small and distributed capacity.	Noted - Table 16.2 & 16.3 provides the mist disaagregate view of the clean investments embodied in the models used in this chapter

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
29290	16	15	9			Power technologies in developing countries need to address climate change together with their challenge of providing their population with access to modern form of energy. Without dedicated policies, despite progress estimated by the New Policies Scenario (IEA 2011), in 2030 still 1 billion people will lack electricity and 2.7 billion people will still depend on traditional uses of biomass for cooking and heating. Still this scenario would have spent $275 billion in electricity access to decrease the share of people without electricity from 19% in 2009 to 12% in 2030, and $21 billion for the deployment of improved cook stoves, so the proportion of people without clean cooking declines from 39% to 33% in the same period. Compared to the New Policies Scenario, the Energy for All Scenario would require an additional investment of $640 billion in electricity access and $74 billion for cooking facilities, achieving universal access to both electricity and clean cooking in 2030.	Noted. It is not possible to verify this from available model information.
22500	16	16	11			Spelling mistakes. "dedreasing" should be changed to "decreasing".	Taken into account - text revised
22646	16	16	19		26	The link between R&D and climate finance is not clear, so suggest cutting this para.	Accepted
29268	16	16	19	16	26	The conclusion on the need for greater R&D could merit inclusion in the executive summary.	Noted. ES has been completely rewritten.
31159	16	16	1	16	4	Suggest referencing McCollum et al's (2013) set of investment scenarios with technological and policy constraints here. This would be valuable to elaborate on some of these constraints.	Noted and considered in rewrite.
38771	16	17				This table is so filled with information that the user can't possibly be expected to take anything meaningfully away from. Strongly suggest condensing.	Accepted. Table has been removed.
38770	16	17	13	17	13	"300-700 basis points above the LIBOR - Please clarify this jargon.	Taken into account - text revised
38772	16	18				This table is so filled with information that the user can't possibly be expected to take anything meaningfully away from. Strongly suggest condensing.	Accepted. Table has been removed.
38773	16	19	21	19	29	The point that fossil investments continue to grow is important, but clean energy is catching up. It would be useful to include some recent work from BNEF and others on trends in clean vs. fossil large-scale power sector investment in recent years.	Noted. These data are included in the 2012 CPI survey.
32339	16	19	22	19	45	This section should discuss the impact of the investment gap better. Some additional insight into this can be drawn from a forthcoming paper (Tommi Ekholm, Hamed Ghoddusi, Volker Krey and Keywan Riahi, 2013. The effect of financial constraints on energy-climate scenarios. Energy Policy, in press, doi:10.1016/j.enpol.2013.04.001, preprint available at http://sal.aalto.fi/publications/pdf-files/pekh12b.pdf), in which we analyze the impact of capital costs on technology selection and emission reductions in the GEA Mix scenraio. The results present quantitatively how high capital costs decrease the impact of emission pricing as the driving force of emission reductions.	Noted. The model results show mainly a picture of re-allocation between sub-sectors.
29269	16	19	26	19	29	What is the basis for stating current levels of climate investment 'do not constitute incremental investment'? This depends on the interpretation of incremental, but as at least a portion of this finance (i.e. public finance) is meeting the incremental cost of developing low carbon rather than high carbon energy, specifically for the purpose of GHG mitigation. Similarly a portion of the private finance will have been leveraged by public finance for the same purpose. Suggest this statement is removed or appropriately caveated.	Noted. Has been clarified in rewrite.
22263	16	19	27	19	29	such as?	Taken into account in rewrite.
32335	16	19	49	19	40	The text "if energy efficiency is included" is ambiguous. Does it mean that incremental investments are as stated in the text if a) energy efficiency measures are carried out, or b) energy efficiency investments are included in the stated incremental investments? Please clarify the text.	Accepted.
22262	16	19	7	19	11	Don't underestimate costs of governance, one of the major criticisms on the McKinsey cost curves.	Noted. We have to work with what's available.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24982	16	19	1	19	6	It would be useful if some explanation were provided on investment in CO2 mitigation in the resource exploitation sector. CCS can provide a means to capture and sequester CO2 released and/or separated from oil and gas reservoirs and in large-scale energy intensive manufacturing processes. This doc seems to ignore these opportunities for climate change mitigation. Yet it is probably an area that can attract more investment in the medium term than fossil-fuel power generation. The Australian Government is pursuing this approach i.e. focussing on CCS across power generation (coal and gas) and gas (and oil) extraction. GHG mitigation is also being pursued through incentives to reduce fugitive emissions from coalmines. See the Government's Coal Sector Assistance Package as part of the CEF Plan. Suggested citation: Australian Government Department of Resources Energy and Tourism (DRET) (2012). Coal Sector Assistance Package. Last updated 30/10/2013 (http://www.ret.gov.au/energy/clean/ctap/Pages/CSAP.aspx)	Taken into account - we introduced a footnote to provide more detail on the sectors covered. Unfortunately, information at the level of detail suggested by the comment is not always available.
32430	16	19	3	19	4	Please provide a more specific reference to the WGI AR5 contribution, e.g., WGI Ch06.	Accepted – text revised
24266	16	20				The question "…how much extra flows will be required…" is highly relevant but is not clearly answered.	Noted. There is no clear answer.
29271	16	20				Unclear what 'raised' refers to in 'developing countries raised USD 120-141 billion' and 'developed countries raised USD 213-255 billion…'. I.e. does this mean from all sources or only domestic?	It means from domestic sources, but does not mean that it was also spend domestically.
29270	16	20	1	20	21	It's potentially unhelpful to present macro country-level compensation-based methods and calculations of incremental costs in this context as these are likely to be misinterpreted as equating to 'incremental costs' as referred to in UNFCCC Article 4 which is mentioned elsewhere in this chapter. Commitments under Article 4 do not imply this kind of methodology. Do these calculations based on change in GDP also reflect the avoided costs that result from taking mitigation measures (i.e. reduced impacts and adaptation costs)? Studies such as the Stern Review have found that taking ambitious mitigation action will reduce the negative impact of climate change on GDP in the longer term.	Noted. A box has been introdcued in the beginning of the chapter to explain the different concepts, incl. Incremental cost, in order to avoid misunderstanding.
38775	16	20	14	20	18	Why so much for incremental cost?	Numbers have been revised. The global incremental cost is in the order of USD 300-400 billion per year in 2010-2029 and USD 1.2-1.8 trillion per year in 2030-2049 (Carraro et al., 2012; Calvin et al., 2012; McCollum et al., 2013).
38774	16	20	2	20	7	what about nuclear?	Comment not clear. Might be mistake in # of page.
22496	16	20	27	21	10	It is better to use a figure to show the comparision.	Noted. Figure are not allowed in FAQs
38776	16	20	30	20	36	Duplicative? Plus see earlier comments about "raised" versus "mobilized."	Noted. FAQ are supposed to highlight the most important findings.
38777	16	20	30	20	36	Not clear what is not included in the $350bn estimate.	Accepted. A box was introduced to explain the different concepts.
38778	16	20	34	20	34	"raised" is not the right word in this context--invested?	Rejected. It is the other way around. Raised = mobilized, commited = invested.
38779	16	20	35	20	35	"committed" is not the right word here-- suggest "mobilized"	Rejected. It is the other way around. Raised = mobilized, commited = invested.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24275	16	20	38			Should mention shifts if investments to efficiency measures here as well as to renewables.	Accepted.
28213	16	20	5			Suggestion to insert after consumption: "…consumption under the assumption that climate change itself does not harm or create GDP-losses."	Noted. Referece to consumption was deleted.
22647	16	20	6			Most countries with mitigation pledges, have developed these voluntarily, and submitted them to the UNFCCC. So the phrase "UNFCCC commitments" should be reworded.	Accepted. Text was revirsed.
24489	16	20	1	20	25	This section focuses on fund raising for the incremental cost. Carbon tax may provide impact on the investment and consumers behavior through the increase of cost. However, generally speaking, price effect is considers to be not so big. So as pointed out here, we should focus on public expenditure after securing revenue. It is better to introduce mechanism for improving the efficiency of climate finance including the outcome of reduction and leverage functions. Performance base instruments are commonly discussed mechanism and one of the ideas is described as “Performance Base Incentive Scheme” which was proposed for Green Climate Fund at a workshop in July 2011 in Singapore hosted by Japan and Australia. Its outline is described on “Reforms of Private Finance towards Green Growth in Asia” (at 3.3 Performance Base Incentive Scheme, p16-) http://www.ubraintv.com/watch.php?id=569 https://www.joi.or.jp/modules/report/index.php?content_id=23	Noted.
30470	16	20				There is no mention of the fact that going green in infrastructure building could also create some synergies and reduce the overall investment needs. "The additional costs of going “green” could be offset by reduced investment in roads, airports, and oil & natural infrastructure under low carbon growth, although further analysis is required. Future demands for rail infrastructure investment could be higher due to switching of freight from road vehicles, but lower due to decreasing demands for transporting large quantities of coal. Port infrastructure investment is expected to increase, but under low carbon growth this might support increased global trade in components of low carbon transport, building, energy and industrial products, with a decreased demand for the shipping of coal and oil. Although cost estimates are incomplete, the technical interdependency and financial tradeoffs between infrastructure systems suggests the potential to generate investment in LCR infrastructure to create a self-sustaining cycle2 of low carbon growth. Most central to this growth are three interactions: i) increased generation of low carbon electricity technically enables greening of buildings and transportation vehicles; ii) decreased demand for oil and natural gas reduces the capital requirements for new infrastructure in these sectors; iii) this capital can alternatively be invested in greening of the electricity sector, which decreases demands for coal".This is explained in Kennedy, C. and J. Corfee-Morlot (2012), “Mobilising Investment in Low-Carbon, Climate-Resilient Infrastructure”, OECD Environment Working Papers, No. 46, OECD Publishing, Paris. (page 9)	Noted. The models that are used to estimate future investment needs under climate mitigation policy already include (to various degrees) all the interactions mentioned in the comment.
28215	16	21				It would be very helpful and useful to explicitly mention that the figures in the table depend on certain assumptions (e.g. a certain price per ton CO2).	Accepted. Added the price assumptions of the different studies.
28216	16	21				The term "Funds collected internationally pursuant to an international agreement" is misleading. It should be made clear that even in this case, national budgetary rules may require the involvement of national parliaments in decisions on the use of revenues.	Noted. This is correct for category 2 it is not correct for category 3. Was clarified.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
25107	16	21				Please check the items and amounts of their accuracy. For example, 1) Financial transaction taxes (Tobin Tax) that corresponding to $2-27 Billion is missing (See AGF 2010, page 24). This item is one of the important part of AGF, this should not be omitted. 2) Please add "and ETS" after 'AAUs' in 12th lines of the table 16.4 (Ref. to AGF 2010, p. 33 (item 106). 3) Please change the second line of Table 16.4, from 'Domestic carbon taxes' to "Domestic carbon tax and auctions of emission allowances", and change the amount from $300B to $30B for AGF (check AGF 2010, p. item No. 41)	Noted. Double checked reference.
28214	16	21	14	21	15	The source "G20" is not correct. The analysis was conducted by the World Bank Group et al. (only "at the request of the G20 Finance Ministers".). Moreover: the 4th source ("and other studies") mentioned in the text, does not have a correspondent in the brackets.	Accepted.
38781	16	21	17	21	20	These measures should be placed in two categories: sources that depend on national decisions, and sources that depend on international agreements. How revenues are collected is not a defining characteristic of climate finance; instead, it is a political decision on the part of countries making the international agreement In practice, beyond the Adaptation Fund there are extremely limited examples of international collection For example, as noted in the discussion, the carbon pricing that has occurred in the aviation sector has used national collection. All of these examples listed under “Funds collected internationally” could work just as well with national collection. Further, it should be noted in this section that many of these policies could be implemented through either national or international decisions. For example, border carbon adjustments could be implemented nationally, or conversely carbon pricing for aviation could be a national decision (e.g., as this section notes that it has been in the EU).	Noted. Was clarified. Similar to comment 309.
25106	16	21	23	21	23	In order to avoid any misunderstandings, please add after '16.4' the following. "Note that the amounts shown in the table 16.4 are the ones that do not consider feasibility".	Accepted. Note to firther explain figures was added.
38780	16	21	12			Section 16.2.3 is too narrowly focused on the potential funds that could be raised by Annex II countries for developing countries. However, most of the measures discussed here (e.g., domestic carbon pricing) could be employed by developing countries to raise climate finance, some of the measures would likely require participation by all countries in order to be effective (e.g., carbon pricing in international shipping), and some of these measures are almost a prerequisite for climate finance to be effective in developing countries (e.g., reducing fossil fuel subsidies in developing countries) This section would be much improved by taking a broader view and quantifying the total global climate finance that could be raised by all countries taking these actions, with a breakdown across groups of countries (i.e., as other parts of Section 16.2 did in discussing overall investment needs).	Noted. Paragraph will be inserted that indicates that global climate finance needs to be scaled up and that as part of this developed countries committed to USD 100 billion by 2020. The material will then be positioned as studies on how to meet that commitment.
40768	16	21	13	21	27	This part should be deleted since there has been no decision so far on which specific sectors might be resources for long term global climate finance at UNFCCC and it is therefore inappropriate to contain this kind of misconception in the IPCC report which is purely a technical and scientific document.	Reject. The table will be positioned as a summary of studies that examined ways to meet the USD 100 billion commitment.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22673	16	21	13	15		Narrow literature. The literature relied on for both discussions of the sources of finance as well as assessing the scale of the flow of climate finance is quite narrow. For example, discussion on raising public funding for climate finance only considers three sources (16.2.3, pg.21): the UNFCCC, the AGF report, and the G20. It is not clear why the analysis is limited to these three since the broad mandate of IPCC, as in other chapters, is to review the literature, in this case the climate finance literature. It is therefore limited in the analysis and the scope of what is possible and discussed in the literature, including the potential role of SDR (proposed by the IMF itself, among others). This much discussed topic by a wide range of institutions, NGOs and academics. Admittedly, there is a narrow universe of reports on the availability of climate finance, the report relies on Buchner et al., and they are also included as authors in different combination on other reports cited. Yet, there is no problematisation around the issue of the scale and scope of financing and the all-inclusive definition employed by these researchers, which tends to grossly over-estimate the scale of finance actually flowing to developing countries, and which is a continuing source of tension in climate discussion. For example, the tension around the driving source of climate finance, which has noted by the OECD 2012, many developing countries view as reimbursement (not aid) for the incremental costs incurred in implementing agreed mitigation and adaptation measures (OECD 2012, p.27). The issue of why developed countries have by passed Convention funds instruments and mechanism, such as NAPAs (underfunded by $1 billion -$700 million, conservatively) and SCCF (with a waiting lists of projects, totalling approximately $242 million) and TNA's. These instruments were designed to promote national ownership, which has been said to be a critical aspect of development effectiveness of international development finance (OECD 2012. (Other source: OECE 2012, World Bank 2010 etc.	Noted. Sources cited wasbe examined. A paragraph to indicate that global climate finance needs to be scaled up and that as part of this developed countries committed to USD 100 billion by 2020 was added. The material was then be positioned as studies on how to meet that commitment.
28218	16	22				Footnote 16: question: what about the exports? Are they affected?	Noted. An indepth discussion of the sources was deleted
28217	16	22	1	22	2	Please add a footnote with present prices of CO2 equivalent to compare with the AGF prices.	Accepted. Note was added.
22264	16	22	20	23	8	more proposals?.....	Noted. An indepth discussion of the sources was deleted
24276	16	22	20+			The AGF and G20 also extensively discussed Financial Transaction Taxes (FTTs), which would be appropriate to address in this section, since they would most likely be collected nationally pursuant to an international agreement. Since these reports, 11 EU countries have decided to pursue such a coordinated approach to FTTs. France has committed a small portion of their revenue to international climate and development purposes, and similar disucssions are under way in other countries.	Noted. An indepth discussion of the sources was deleted
24211	16	22	29	23	2	lack references that the two listed options could benefit developing countries	Noted. An indepth discussion of the sources was deleted
33338	16	22	5	22	8	It should be mentioend that removing fossil fuel subsidies also lower emissions.	Noted. An indepth discussion of the sources was deleted
38782	16	22	5	22	8	The discussion of fossil fuel subsidies should discuss the scale of subsidies globally and the importance of phasing out subsidies to reduce fossil fuel use and improve the competitiveness of clean technologies.	Noted. An indepth discussion of the sources was deleted
38783	16	22	9	22	10	How many Annex II countries have substantial fossil fuel production beyond the 5 that collect royalties? Please describe in the discussion.	Noted. An indepth discussion of the sources was deleted

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22675	16	22	29	22		There are many generalisations and general statements which do not give the reader any insight into the issue. For example, 16.2.3, Raising public funding for climate finance, in the section discussion 'sources that contribute to national budget, dependent on international agreement and in particular on the topic of border levies on GHG intensive imports, the authors who support this as a way of discoursing carbon leakages, simply notes that: " (m)any developing countries oppose unilateral imposition of border levies or imports" (line 29, p.22) without contextualising why this issue is a problem for developing countries. With regard to regulation of international aviation and shipping emissions (line 43, 44, pg.23), the authors seem to have by-passed some of the substantive arguments about response measures. They assert that: "it is not clear that the principle of common but differentiated responsibilities applies to airlines and shipping companies or to emissions beyond national borders". This section could benefit from a review of some of the critical literature on unilateral Border Carbon Adjustments (BCAs as well as the discussion on response measure in the UNFCCC framework.[See for example, Gössling, Stefan, Peeters, Paul, and Scott, Daniel; (2008); Consequences of Climate Policy for International Tourist Arrivals in Developing Countries, Third World Quarterly, 29:5, 873-901. Pentelow, Laurel and Scott, Daniel; (2011); Aviation's Inclusion in International Climate Policy Regimes: Implications for the Caribbean Tourism Industry, Journal of Air Transport Management, 17:3, 199-205.; Anuradha, R.V., Unilateral Carbon Border Measures: Key Legal Issues, ICRIER Policy Series, July 2011; Dhar, B and K. Das, "The European Union's Proposed Carbon Equalization System: Can it be WTO Compatible?", Research and Information System for Developing Countries, Discussion Paper 156, 2009; Droege, Susanne, Using border measures to address carbon flows, Climate Policy (Earthscan), Vol. 11 Issue 5, p1191-1201, 11p, 2011; Eckersley, Robyn., The Politics of Carbon Leakage and the Fairness of Border Measures, Ethics & International Affairs (1747-7093), Vol.24, Iss.4; p.367-393. 2010; Voituriez, Tancrède; Wang, Xin. Getting the carbon price right through climate border measures: a Chinese perspective. Climate Policy, Vol.11,Iss.5;p.1257-1261(5), 2011; Yu, Vice, Carbon-Based Competitiveness, trade and climate change linkages: Developing Countries' perspectives, South Bulletin, 10 Sept., 2009.]	Noted. An indepth discussion of the sources was deleted
24278	16	23				The ICAO Assembly ghg resolution from 2010 included the comparable term "national circumstances and respective capabilities of developing countries".	Noted. An indepth discussion of the sources was deleted
38784	16	23	28	23	32	This discussion should emphasize the importance of global participation in a aviation or maritime emissions levy or trading scheme due to the risks of leakage.	Noted. An indepth discussion of the sources was deleted
28219	16	23	28	23	32	To deliver a complete picture, it is strongly recommended to add the following information: "Concerning the use of revenues, national budgetary rules, which e.g. envisage the involvement of the national parliament, are to be taken into account in some countries."	Noted. An indepth discussion of the sources was deleted

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
25108	16	23	28	24	10	1) Page 23, Lines 29-30. Replace 'The high and rising CO2 emissions from these sources' with "Emissions from these sectors". Reasons are as follows. What is the evidence proving 'high' emissions from these sectors? In comparison to what? Also not only these two sectors, but almost all sectors' emissions are increasing. Why these adjective apply to only these two sectors? This is quite subjective expression. 2) Delete from p. 23 lines 43 to the next page line 4. Reason: This is a biased view. For example many developed countries may be in fovor of principle of non-discriminatory and no more favourable treatment of ships under IMO and ICAO. Also there is a literature in fovour of these principles (Yamaguchi 2012). For reference, "Yamaguchi M. (2012). Policy and Measures. In: Climate Change Mitigation, A Balanced Approach to Climate Change. M. Yamaguchi, (ed.), Springer Publishing Company, London, UK pp.129–159 . 3) Delete lines 5-10 in p. 24. Reasons: What actually happened is that member countriew of IMO has already agreed to introduce mandatory energy efficiency improvement regulation and, in this case, money never goes to IMO nor governments. Inclusion of international aviation to EUETS has never been settled and this is not global one. It is particularly inappropriate to mention in this context.	Noted. An indepth discussion of the sources was deleted
38786	16	23	35	23	37	The text should be clarified to reflect the fact that some proposals within ICAO have recommended that a share of the revenue should be set aside to compensate for the adverse economic impacts on developing countries of increased fuel prices associated with the levy.	Noted. An indepth discussion of the sources was deleted
38785	16	23	35	23	42	The final sentence in the discussion of aviation and maritime revenues should be edited to state, “If compensation were to be provided to developing countries for the adverse economic impacts these measures, a portion of the revenue, on the order of XX%, would be required.”	Noted. An indepth discussion of the sources was deleted
32200	16	23	40	23	42	Why ? I absolutely don't agree. You must give references, at least, with "according to"	Noted. An indepth discussion of the sources was deleted
29272	16	23	40	23	42	We would ask this be rephrased as: ‘Some of the revenue, of the order of 40%, would need to could be used to compensate for adverse economic impacts on developing countries assist developing countries with adaptation and mitigation.’	Noted. An indepth discussion of the sources was deleted
24277	16	23	43	23	44	Not accurate. The amentments to MARPOL annex 6 to implement the EEDI, that regulates efficiency based on GHG emissions, was passed by a margin of 49-5, with support from most developing countries that voted. There is broad support for efficiency measures for aviation as well. There is less support for market-based measures in developing countries, but it is hard to objectively assess this - statements in negotiation processes aren't always accurate indicators of final positions.	Noted. An indepth discussion of the sources was deleted
38787	16	23	43	24	4	Those are not the views of “most” developing countries; those are the views of a few countries (namely, the BASICs). A large number of developing countries support regulation of international shipping and aviation emissions and do not think that CBDR should apply to IMO and ICAO. Compensation is an idea pushed mainly by a number of environmental NGOs. Because it is policy prescriptive, it should not be included in this document. All of these lines should be deleted in their entirety. If some of all of this must be included, it must properly acknowledge the origins of those ideas (i.e., with citations) and the extent to which those views are not supported by a majority of IMO and ICAO countries. It should also acknowledge opposing views on equal footing.	Noted. An indepth discussion of the sources was deleted

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22676	16	23	43	44		With regard to regulation of international aviation and shipping emissions (line 43, 44, pg.23), the authors seem to have by-passed some of the substantive arguments about response measures. They assert that: “it is not clear that the principle of common but differentiated responsibilities applies to airlines and shipping companies or to emissions beyond national borders”. This section could benefit from a review of some of the critical literature on unilateral Border Carbon Adjustments (BCAs as well as the discussion on response measure in the UNFCCC framework.[See for example, Gössling, Stefan, Peeters, Paul, and Scott, Daniel; (2008); Consequences of Climate Policy for International Tourist Arrivals in Developing Countries, Third World Quarterly, 29:5, 873-901. Pentelow, Laurel and Scott, Daniel; (2011); Aviation’s Inclusion in International Climate Policy Regimes: Implications for the Caribbean Tourism Industry, Journal of Air Transport Management, 17:3, 199-205.; Anuradha, R.V., Unilateral Carbon Border Measures: Key Legal Issues, ICRIER Policy Series, July 2011; Dhar, B and K. Das, “The European Union’s Proposed Carbon Equalization System: Can it be WTO Compatible?”, Research and Information System for Developing Countries, Discussion Paper 156, 2009; Droege, Susanne, Using border measures to address carbon flows, Climate Policy (Earthscan), Vol. 11 Issue 5, p1191-1201, 11p, 2011; Eckersley, Robyn., The Politics of Carbon Leakage and the Fairness of Border Measures, Ethics & International Affairs (1747-7093), Vol.24, Iss.4; p.367-393. 2010; Voituriez, Tancrède; Wang, Xin. Getting the carbon price right through climate border measures: a Chinese perspective. Climate Policy, Vol.11,Iss.5;p.1257-1261(5), 2011; Yu, Vice, Carbon-Based Competitiveness, trade and climate change linkages: Developing Countries' perspectives, South Bulletin, 10 Sept., 2009.]	Noted. An indepth discussion of the sources was deleted
25360	16	23	46	23	46	In the context of emissions from international aviation and shipping states “ it is not clear that the principle of common but differentiated responsibilities applies to airline and shipping companies or to emissions beyond national borders.” It may be said that the principle of CBDR as agreed under the Convention does not have a sectoral approach. This principle under the Convention implies that all Parties taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall take appropriate actions to work towards combating climate change. Therefore CBDR in this respect does not have a sectoral context but should apply to all multilaterally agreed actions that are taken in the context of climate change and therefore should be equally applicable to international aviation and shipping.	Noted. An indepth discussion of the sources was deleted .

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
40769	16	23	28	24	16	"This part should be completely deleted since: 1) Regarding the estimate of the potential annual revenue from shipping and aviation sectors (lines 28-35 and 38-40), there was neither discussion nor consensus within the UNFCCC on which sectors/fields might be identified as appropriate financial resources for climate finance so that it is imbalanced if only the international maritime and aviation are identified. 2) Regarding the revenue which would be used to compensate for adverse economic impacts on developing countries (lines 35-37 and 40-42), the sentences including this point contain single-handed information without reference background. Moreover, in the international shipping and aviation sectors, a global level playing field is prerequisite and there should be no trade distortion elements in the global market. With this basic principle in mind, it surely has a significant trade distortion effect on the sectors and the trade markets. 3) Regarding application of the common but differentiated responsibilities (lines 43-4 (next page)), the sentences including this point indicate only the one-side's view but is unfair. Moreover, it is quite fair to say that the CBDR principle could not apply to airlines and shipping companies so that the issue on climate change vis-a-vis international transport should be exclusively discussed at each UN specialized body, that is, IMO and ICAO, in accordance with the principle of equal application and non discriminatory treatment. "	Noted. An indepth discussion of the sources was deleted
38788	16	24	1	24	3	The first two complete sentences on this page should be edited to state, “Nevertheless, alongside regulation of international aviation or shipping emissions, countries could agree to provide compensation to developing countries. A metric could be agreed to establish the compensation received by each developing country, for example, its share of global trade multiplied global revenue collected.”	Rejected. An indepth discussion of the sources was deleted due to page constraints.
29273	16	24	1	24	4	We would ask this be rephrased as: ‘Nevertheless, it can be addressed through compensation to assisting developing countries with mitigation and adaptation. It is the view of some States that each developing country would could receive compensation equal to, for example, its share of global trade multiplied by the revenue collected. That would leave net revenue equal the revenue collected multiplied by the developed country share of global trade. However, other States do not agree with this view.’	Rejected. An indepth discussion of the sources was deleted due to page constraints.
32201	16	24	11	24	13	Cite some countries which have levy on flight and of how much	Rejected. An indepth discussion of the sources was deleted due to page constraints.
33339	16	24	16	22	16	What about non-CO2 taxes, such as an international financial transaction tax, which has also been mentioned.	Rejected. This would go beyond the scope of the chapter which - because of data gaps - largely focussed on energy related CO2.
25921	16	24	17	24	36	The paragraph on "Global modeling results" does not seem at the right place (does not inform about public funding, which is the title of the section). If these paragraphes are kept, the results provided by EMF (Chapter 7) must be added.	Rejected. It provides insights in potential public revenues.
33340	16	24	17	4	36	Here the notion of a global carbon price should be mentioned.	Noted. This point has been stressed in section 16.4
22681	16	24	17		36	Though section 16.3 Enabling environment provide useful information on the definition and scope of Enabling environment, it does not make the connection as to how this related to the section prior to it (16.2	Noted.
32202	16	24	18	24	18	What is IAM ?	Abreviation has been spelled out.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
38789	16	24	25	24	26	Is this estimated revenue on the order of USD 200 billion EACH in China, the EU, and the USA? Current sentence is unclear whether this is total across all three regions or a similar individual total in each region.	Accepted and clarified.
25792	16	24	32	24	33	This part should explain that it is uncertain whether BECCS can be utilized in the future, as described in the section TS.3.3 (page 21, line 37). Safety confirmation, affordability and public acceptance are indispensable in CCS site selection. There is a much higher barrier to adopt BECCS than CCS because BECCS requires stable biomass supply for generation at reasonable cost. Since feasibility for BECCS has not been established so far, it is not appropriate to expect huge potential for BECCS in the future, as described in (Rhodes, 2008, page323). This literature is listed in the No7 line of this table.	Rejected. This comment seems to have been misplaced.
24279	16	24	4			Suggest inserting at end of paragraph "For aviation, route-based differentiation or phase-in periods, that avoid competitive distortions, could also help address concerns about equity and impacts on developing countries."	Noted. Respective paragraph was deleted.
38790	16	24	40	24	40	replace "an" with "a strong"	Rejected. The definition quoted (by UNCTAD) cannot be changed. Not supported by the peer review litterature. "strong" is a qualitive judgement.
28220	16	24	40			Unclear, why limitation to "macroeconomic environment". Enabling environment (which intends to change individual behavior) also has to have a microeconomic component. There it is suggested to replace "macroeconomic" by "economic".	Rejected. The source quoted cannot be changed. The chapter will consider other elements beyond macroeconomic environment.
24280	16	24	41		43	Since there was no mention above of collection by ICAO and IMO, would suggest "… could flow to either nationa governments or to an institution created or designated by ICAO and IMO. If the funds flow to national governments, additional mechanisms will be required to ensure they are used for agreed international purposes."	Noted. Paragraph was deleted.
22682	16	24	37			The chapter also relies on many assumptions that are not explicitly discussed. Many times the actors, state, firms and household, investors being discussed would seem to be those located in developed countries. For example, in the enabling environment (16.3, pg.24, ln37) and financing low cost-carbon investments, opportunities and key drivers (16.4), which should more properly be termed: enabling National Environment (the first pg.24, ln 37 and the later (pg.26, ln 42) the term 'in developed countries' added. There are many implicit assumptions about the nature, behaviour and character of firms, which may not fit may firms in developing countries…their operational challenges and constraints in investing in mitigation activities. Box 16.1, p.27does not recognise MSMEs though they are predominant actors in most developing countries.	Noted. Enabling environment goes beyond national enabling environment in developing countries. A in depth discussion of different types of firms and their behaviour lies beyond the scope of the chapter.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
30471	16	24				The OECD has extensively worked on the issue of enabling environment to mobilise private setcor invetsment in low carbon, climate resilient infrastructure. Governments have a central role to mobilise private investment towards low-carbon and climate-resilient (LCR) infrastructure. The issue is not the lack of availability of investment capital, but its misallocation. Why? This is partly because of the presence of market failures and barriers to green infrastructure investment as descibed in section 16.4.. Governments can send the right signals to the private sector by integrating climate and investment policies together in a framework that supports green investment. To help governments achieve this goal, the OECD has developed elements of a “green investment policy framework” to help governments create and improve domestic enabling conditions to shift and scale-up private sector investments in green infrastructure, to finance a transition to a LCR economy and greener growth. The proposed framework can guide domestic reforms and target the use of limited public funds, while also enabling and incentivising private investment to support the simultaneous delivery of climate change and local development goals. The proposed approach includes 5 priorities: First, set clear, long-term strategic policy goals to ensure meaningful action and predictability for investors. Goals need to be aligned across different levels of government (from local to national) and developed in consultation with business and community leaders. Second, implement policies and incentives to support low-carbon, climate-resilient investment. Putting a price on carbon and other pollution is an important first step, including removing subsidies to fossil fuel use and production. This will help to make clean energy sources more competitive. An inventory by the OECD of measures supporting the production and use of fossil fuels in its 34 member countries found that the more than 550 measures identified had an overall value of about USD 55-90 billion per year in recent years. The IEA also estimates price-driven, fossil-fuel consumption subsidies in 37 developing and emerging economies to have amounted to an estimated USD 523 billion in 2010. Recent analysis by the OECD shows that phasing out subsidies to fossil-fuel consumption in developing and emerging markets could reduce global greenhouse gas emissions by 6% in 2050 compared with business as usual, while increasing GDP growth in most of the countries implementing the reforms. Additional regulations will be needed as well, such as energy efficiency standards in buildings or for household appliances. Third, provide the right financial instruments to reduce risk and increase returns from green infrastructure projects. Public funds can be used to help leverage private investments, - for example by providing loan guarantees to lower the cost of capital - and to increase the availability of financing. International climate finance will also be critical for developing countries. Fourth, harness resources (for example for research and development) and build the capacity for action. In general, countries have been spending more on research related to fossil fuels than for clean alternatives - over the last decade, countries spent USD 56 billion on nuclear energy research and USD 22 billion on fossil research, but only USD 17 billion on renewable energy and energy efficiency research combined. And fifth, promote greener consumer and business behaviour, through education, public awareness campaigns, eco labels, and harmonised standards for GHG accounting and reporting by firms. source : Corfee-Morlot, J, V. Marchal, C. Kauffmann, C. Kennedy, F. Stewart, C. Kaminker and G. Ang (2012), “Toward a Green Investment Policy Framework: The Case of Low-Carbon, Climate-Resilient Infrastructure”, Environment Directorate Working Papers	Noted. Misallocation is covered in sections 16.2.2 and 16.4. A discussion of the issues proposed here go beyond the scope and page limit of the section
38791	16	25	18	25	18	aren't there are other aspects to mention here?	Noted. Comment not clear enough
24267	16	25	24			Given the bullets in line 25-37, "(partly low-carbon relevant)" is confusing and should be removed.	Noted. Text was deleted in the final version.
24268	16	25	39	25	40	Suggestion to replace "can play an important role" with "must play an active role", as this is the primary role for policy makers and public capital in financing the transition.	Noted. Text was deleted in the final version.
22265	16	25	39	26	2	Role of enabling policies underestimated	Noted. Comment not clear enough
24983	16	25	28	25	30	This observation also applies to fossil-fuel power generation with CCS. Suggest that fossil-fuel power generation with CCS is also noted.	Noted. Respective text was deleted.
24984	16	25	31	25	33	Investment in GHG mitigation technologies is equally highly dependent on GHG emission policies such as carbon price. Suggest that that the role of GHG emission policies is noted.	Noted. Respective text was deleted.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24985	16	25	43	25		FITs are not as cost-effective as previously assumed. The focus seems to be shifting to other options, for example Contract for Difference (CfD) arrangements. Suggest rebalancing this discussion	Noted. Sentence under this sub-section making reference to FIT has been deleted
22267	16	26	18	26	22	not only macroeconomic factors but especially political regulatory frameworks are key for a successful transition to low carbon development. Enabling market factors alone will not suffice, as investments in renewable energies e.g. suffer from higher investment costs etc. as elaborated below.	Taken into account - covered in other paragraphs. This paragraph deals with macro-economic factors
22679	16	26	19	26	21	An important conclusion of the chapter vis a vis the role of the private sector is that “macroeconomic factors that are good for private investment as a whole are also the most important determinants of climate investment”(line 19-21, pg.26). This could have some import in discussions in the Green Climate Fund where the emphasis has been on passing money through the private sector. This should also be referenced in the Policy Makers Summary line 6-11 as well as the Technical Summary line 19-21.	Rejected. The ES summarized only main results. This is already commonly known.
22269	16	26	24	26	41	Contradicts 16.3, p.26, line 18-22	Noted. FAQ was deleted
22268	16	26	24	26	41	Wrong numbering?	Noted. FAQ was deleted
28221	16	26	25	26	41	This discussion is too narrowly focused - suggest to add leveraging discussion and references (see comments chapter 14).	Noted. FAQ was deleted
33341	16	26	29	26	29	A contraction of fossil fuel subsidies would also raise the costs of using fossil fuels.	Noted. FAQ was deleted
22266	16	26	3	26	12	elaborate on capacity building for governments	Noted. Text was rewritten and shortend due to page constraints. Capacity building for institutions is mentioned under 16.4.2.
28222	16	26	30	26	31	It may be helpful to add: "and thereby mobilizing private finance" at the end of the sentence in line 31.	Noted. FAQ was deleted
38792	16	26	32	26	36	Do these estimates only include the energy sector? Or is transport, industry and energy efficiency included as well?	FAQ was deleted
28223	16	26	32	26	34	Please add reference.	Noted. FAQ was deleted
38793	16	26	33	26	33	delete "and will continue to do so"	Noted. FAQ was deleted
28224	16	26	33	26	34	Is the volume of "USD 250-285 billion in 2010/2011" the value of the period 2010-2011 or the annual value for each year?	Annual average
38794	16	26	35	26	35	delete "are especially" so it reads "major challenges for low-carbon investments lower returns on investments.."	Noted. FAQ was deleted
22683	16	26	42			the term ‘in developed countries’ should be added	Rejected. Section 16.4 refers to both developed and developing countries.
22674	16	26	9	26	12	Sweeping generalisations and developing country assumptions. Lines 9-12 of section 16.3, pg.26, offer the broad sweeping assertion, that: (s)upport for capacity building can be a substitute for income transfers, increasing the probability that the recipient country.. will success in implementing the mitigation policies, which may result in less funding This issues need more discussion and research; it has implications for flow of funds to developing countries. I also question the use of the term ‘income transfers’ in regard to climate finance between developed and developing countries, it is more appropriate in the context of national or domestic policy. It is also not clear if ‘capacity building’ being referred to in the context is being conflated with ‘readiness’.	Noted. Paragraph on income transfer was deleted.
30262	16	26	42			The difference of the nature of public finance and private finance should be discussed before discussing several issues on finance. Without the explanation on this issue, readers may be difficult to recognize the limit of work by both of public and private sector and how both can comnplement each other.	Noted. Different concenpts of climate finance are introduced and discussed in section 16.1 and 16.2.1

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
21361	16	27				In terms of the discussion of household as potential sources of finance in Box 16.1, p27 a subject that has attracted considerable attention is how 'green' energy tariffs can help contribute to finance transition in the energy system. My work in this area (see references below which cites the broader literature) has lead me to conclude that this could be a useful addition to other policies to support investment but by no means a substitute for robust action elsewhere (e.g. see points above about feed-in-tariffs and discussion of incorporating climate consideration in the fiduciary duty of institutional investors) references (1) Diaz-Rainey, I, Tzavara, D (2012) 'Financing the decarbonized energy system through green electricity tariffs: A diffusion model of an induced consumer environmental market', Technological Forecasting and Social Change, 79:9, 1693-1704 (2) Diaz-Rainey, I, Ashton, J, (2011) 'Profiling potential green electricity tariff adopters: Green consumerism as an environmental policy tool?', Business Strategy and the Environment, 20:7, 456-470 (3) Diaz-Rainey, I, Ashton, J (2008) 'Stuck between a ROC and a hard place? Barriers to the take-up of green energy in the UK', Energy Policy, 36:8, 3053-3061	Noted. Lies beyond the scope i.e. focus of this section.
22684	16	27				Box 16.1, p.27does not recognise MSMEs though they are predominant actors in most developing countries.	Noted. Focus lies on major actors and is not exhaustive.
24986	16	27	14			Suggest including oil and gas in large-scale energy intensive manufacturing processes as important actors	Accepted. Reference was made to energy intensive manufacturing companies in rewrite of section.
38795	16	27	20	27	26	Are small scale commercial actors included? If not, note that.	Accepted. See comment 22684.
38796	16	27	36	27	37	Note governments also reduce emissions to reduce operating costs, increase efficiency.	Noted. Motivations for all investors have been deleted.
22497	16	27	38			spelling mistakes: R&DD should be changed to R&D.	Sentence was deleted.
22270	16	27	39	27	40	Source UNEP 2005 - need more recent literature.	Noted. Did not find literature to exactly replace that source.
24490	16	28				It is simplified and is helpful to know the difference of cost of funding sources. However I am afraid that an important risk factor for finance is missing. Cash flow and risk of renewable energy for power generation highly depends on government incentives schemes, say Feed-in-Tariff or Green Certificate or other incentives, and required return for investors is changed by incentive mechanism and finance period. For instance, bank finance under FIT is not so costly. I am sorry I could not show relevant articles as evidence, but when this table is used, it is better to add some additional comments about the different incentive scheme. In the case of financing to the project, generally speaking, investors and financiers required that the technology used for the projects should be proven even when it is mezzanine finance. As far as I know, technology risk is covered by suppliers or special financial instruments such as performance bond. (Venture capital for new technology has different features. Some are designed to invest technology which have not accepted at the market as proven technology.)	Noted. Table was deleted.
22271	16	28	2	28	3	What percentage of the total is this?	Reference to the total was deleted
22272	16	28	22	28	24	Statement "many renewable energy projects, especially in developing countries where additional risk margins are added, are struggling to reach returns of this level to satisfy the expectations of financiers of equity and debt." Hence the barriers are more numerous than the general investment climate. For instance emerging economies such as Indonesia or the Philippines have high economic growth rates, a friendly investment climate, attracting foreign investors in large numbers, however the development is business as usual and not carbon friendly.	Noted. Underlying text does not contradict this finding. No change of text.
38797	16	28	25			title of table should be "Sources of capital, typical deployment and the investors' expected internal rate of return for renewable energies"	Table was deleted.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
31160	16	28	8	28	24	In addition to the types of investors listed here that expect high rates of return, it may be useful to briefly reference the emergence of angel or philanthropic investors (albeit a small percentage), who seek other environmental/developmental benefits.	Accepted. Angel investors are included.
24987	16	29	25	29	37	Only using RE as examples give the impression that only RE is affected, the same issues apply to CCS development and deployment. Suggest rewording to: "…majority of measures in CCS, energy efficiency, RE infrastructure or technology development…"	Sentence was deleted.
32340	16	29	26	29	30	Additional insights into how challenges in financing hinder low-carbon investment can be drawn from a forthcoming paper (Tommi Ekholm, Hamed Ghoddusi, Volker Krey and Keywan Riahi, 2013. The effect of financial constraints on energy-climate scenarios. Energy Policy, in press, doi:10.1016/j.enpol.2013.04.001, preprint available at http://sal.aalto.fi/publications/pdf-files/pekh12b.pdf). In the paper we analyze the impact of capital costs on technology selection and emission reductions in the GEA Mix scenraio. The results present quantitatively how high capital costs delay the introduction of renewable electricity (and therefore also delay emission reductions), and therefore decrease the impact of emission pricing as the driving force of emission reductions.	Noted. Goes beyond the scope of the chapter within its page allocation.
32204	16	29	27	29	27	What is RE ?	Accepted. RE will be spelled out.
25922	16	29	38	29	40	To clarify the category "iii) technology development". For example, where would renewable technologies be included (ii or iii)?	Paragraph has been deleted.
25920	16	29	5	29	6	To update (or remove) the information and its source (UNEP, 2005).	Noted, but limited literature availability precluded update.
38798	16	29	6	29	65	"non-recourse structure" - financial term that needs to be explained.	Accepted. Was replaced.
30472	16	29	38	29	40	There is no mention of the particular issue of financing public transportation systems in the context of fast growing cities. The topic of how to mobilise private setcor invetsment in sustainable transport systems (including the different financial tools and instruments) is discussed extensively in the following paper: Ang G. & V. Marchal, 2013, MOBILISING PRIVATE INVESTMENT IN SUSTAINABLE TRANSPORT The case of land-based passenger transport infrastructure, OECD publishing, Paris. Regarding renewable energy, the OECD has developped	Paragraph was deleted.
26275	16	3	5	3	5	16.2 Scale of financing at national, regional and international level in short, mid- and long-term. could be shortened to 6.2 Scale of financing at national, regional and international level	Rejected. Outline has been approved by the IPCC plenary and cannot be changed.
28225	16	30	2			Please add the full cite after "for now": "In the readiness phase public finance is critical for investments in the enabling environment which are below the rate of return. Obstacles for a broader engagement of the private sector still lie in the lack of a legally binding framework to protect tropical forests and in the unpredictability of demand for verified emissions reductions." (...)	Noted. Sentence was deleted in order to shorten the chapter.
22273	16	30	27	30	29	Please explain. What role can capacity building play?	Noted. Capacity building is discussed under the section on human resources and isntitutional capacity.
28228	16	30	27			This is only a view. It is plausible, but not yet really established in the literature. I would be more modest. Suggestion: "Moreover, it is sometimes argued that risks are overestimated due to…."	Noted. Will use wording "...maybe overestimated...", check second half sentence for missing words and delete last sentence of paragraph.
28227	16	30	27	30	30	More information needed - and more references on the risk issues should be consulted, look e.g. http://climatepolicyinitiative.org/venice/publication/risk-gaps/	Accepted. Assessed and included.
28226	16	30	3			Please consider also the useful literature: Global Canopy Programme: The Little Climate Finance Book. Oxford 2009.	Sentence was deleted.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22274	16	30	32	30	37	This might be correct in many countries. Other cases, however, such as the Philippines show that development banks such as KfW and other financiers such as AFD provide low interest credit lines for low carbon investments but that the local partners banks increase the interests in a way that the credit lines are not attractive for local governmnet units or private sector actors.	Noted. Discussion of case studies lie beyond the scope of the chapter due to page constraints.
27001	16	30	2			Consider an additional explanation for the resistance of private sector to REDD+: the lack of regulated system at the governmental level in the developing countries (see Moutinho et al. 2011. Carbon Management 2(5): 587-602. doi: 10.4155/cmt.11.46).	Noted. Sentence was deleted in order to shorten the chapter.
24269	16	31	11	31	12	"many mitigation technologies are not economically profitable for investors…": this may be true but must them be explained in a context of fossil fuels subsidies, non-full cost pricing, infrastructure lock-in etc.	Noted. Text was deleted.
38799	16	31	11	31	17	The point about the economic competitiveness of RE versus fossil fuels may benefit from some additional context, including acknowledgement of the long history of subsidies supporting fossil fuels, and the declining cost trend of RE.	Noted. See comment 24269.
38801	16	31	19	31	20	Please soften first sentence. Offshore wind projects can easily surpass fossil fuel based plants and potentially CSP plants as well.	Accpeted. Text will be redrafted to become more positive. See comment 38800.
24270	16	31	31			Present amount in EUR to enable easier comparison with the EUR 50-500 million in following sentence.	Noted.
22275	16	31	36	31	46	Differentiate between developing countries, e.g. Sub-Sahara Africa and South East Asia with high growth rates.	Noted. Text was rewritten.
24491	16	31	18	18	34	Local small projects are financed by mostly local public funds, local banks and internal cash at local investors and sometime there financed by local banks funded by multi- and bilateral finance. It is credit line/two step bank loan. . http://www.jbic.go.jp/en/about/press/2012/0327-01/index.html	Noted. In this section on barriers we do not see the place to discuss the role of local banks.
38800	16	31	18			However, to be fair you should note that RE projects have generally zero fuel cost (except biomass) and therefore no fuel price volatility risk. Please consider adding this to the discussion.	Accpeted. Text was redrafted.
22276	16	32	1	32	11	Barriers in most developing countries also include the lack of capacities on the side of local officials and lack of enforcement of environmental laws. This is often a barrier for private investment in clean technologies such as waste to energy plants etc. Should be elaborated further.	Noted. Thesetweo barries are included under operational risk (enforcement of law) and institutional capacity
38802	16	32	1	32	11	This section explains how human resources and institutional capacity are a barrier to "harnessing RE sources" - but not how they are a barrier to investment, per se.	Accepted. Will make reference to low-carbon technologies instead.
22277	16	32	12	35	14	See also Newell (2011): The Governance of Energy Finance: The Public, the Private and the Hybrid; Venugopal et al (2013): Approach and Methodology: Public Financing Instruments to Leverage Private Capital for Climate-Relevant Investment; Tirpak et al (2012): Leveraging Private Finance Flows.	Noted. Literature reviewed.
28229	16	32	13	32	14	It may be helpful to add: "and can help to improve the risk-return profile of investments" and the end of the sentence in line 14.	Sentence was deleted.
38803	16	32	29	32	29	Please delete "risks of."	Sentence was deleted.
38804	16	32	29	32	29	"risks of political risk" - awkward word choice. Please revise.	Sentence was deleted.
38805	16	32	32	33	8	This section is confusing. Four examples of risk mitigation tools are provided - but these are quite narrow and not well explained. Would suggest cutting all four.	Noted. Text can be shortened and will be framed to show that these are just examples.
38806	16	32	46	32	48	The acronym EPC has not been previously introduced or explained in this chapter.	Accepted . Will be spelled out in rewrite.
24271	16	32				The lack of competence on climate & energy also in financial institutions is evident and should also be included.	Accepted. Half a sentence added.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24493	16	32	13	35	14	Large scale private energy related infrastructure projects in developing countries have been funded by bilateral finance such as export credit agency and its role should be introduced. As stated this section, one of the benefits of bilateral finance is leverage of private finance by insurance/guarantee and co-financing. IEA (Plugging the Energy Efficiency Gap with Climate Finance, 2012) introduced leverage effect of Multilateral and Bilateral finance at the Table 7, p48. Export Credit Agencies adopted environment guideline for avoiding unacceptable environment effect like air and water pollution. When ECAs adopt energy efficiency standard, its impact is enormous because it provides on the financing by private financial institutions.	Accpeted. ECA will be explicitely mentioned.
24492	16	32	26	33	23	Trade credits insurance are by both public (though export finance and guarantee) and private. However, long term risk cover is mostly made by export finance. Co-finance by public and private is an effective way to mitigate the risk for private financial institutions. For instance, when host country government breaks the contact which is crucial for the project, such as PPA (power purchase agreement for private investors), public lender negotiate for securing the contact on behalf of lenders. This is risk mitigation function of public lenders and this was observed at the case of Asian financial crisis in the end of 1990'.	Noted. In depth discussion of function of public lenders lies beyond the scope of the chapter.
21353	16	33	18	33	20	Insert: A U.S. example is the Sustainable Energy Utility (SEU) which monetizes savings from energy efficiency investments in order to cover capital and debt costs (Houck & Rickerson, 2009). Established in Delaware (USA), the SEU, in August 2011, completed its $72.5 million tax-exempt sustainable energy bond issue, the first of its kind in the U.S., based on guarantees of monetized energy savings (Citi, 2011). The guaranteed monetized savings, combined with a realignment of credit risk to the sovereign state of Delaware, ensures securitization as acknowledged by the AA+ rating by Standard & Poor (Citi, 2011). The model has subsequently found application in California and Washington, DC and has been recognized by the White House (The White House, 2012) and endorsed by the Asian Development Bank (ADB, 2011). Houck, J., & Rickerson, W. (2009). The Sustainable Energy Utility (SEU) Model for Energy Service Delivery. Bulletin of Science, Technology, & Society , 29 (2), 95-107. Citi, 2011. Delaware Sustainable Energy Utility - Energy Efficiency Revenue Bonds. Series 2011: Post-Pricing Commentary. New York, NY : Citigroup, 2011. The White House, 2012. The White House - Office of the Press Secretary. We Can't Wait: President Obama Announces Nearly $4 Billion Investment in Energy Upgrades to Public and Private Buildings. 02 December 2011. http://www.whitehouse.gov/the-press-office/2011/12/02/we-cant-wait-president-obama-announces-nearly-4-billion-investment-energ (accessed July 31, 2012). ADB, 2012. Asian Development Bank (ADB). „Communiqué - Special Roundtable to Develop a Regional Plan of Action for Clean Energy Governance, Policy, and Regulation." Asia-Pacific Dialogue on Clean Energy Governance, Policy, and Regulation. Manila: Asian Development Bank (ADB), 24 June 2011.	Rejected. Unfortuantely too long, little additional substance, chapter has to be shortened.
38808	16	33	21	33	21	"Grant" should be replaced with "public" finance	Accepted. Wording adjusted.
38809	16	33	30	33	41	This section might be useful explain the terms "concessional" and non-concessional" as these are often more commonly used in the climate finance literature than "soft loans."	Accepted. Term will be included

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24272	16	33	42	33	45	Grants are also perceived by investor to distort markets, i.e. can be counter productive given that the primary role of policy and public funds should be to attract private investments.	Rejected. We do not see this finding supported sufficiently by the literature. Private investors rather tend to welcome non-dilutive sources of capital that are granted to their portfolio companies, and often, these grants indcate third-party validation.
24988	16	33	46	34	2	Suggest make it more clear that rebates are understood to also include CfD and arrangements other than just FIT	Rejected. Comment unclear. Rebates are not FiTs.
38807	16	33	8	33	8	The acronym TCS has not been previously introduced or explained in this chapter. Please introduce and explain	Accepted. TCX is briefly explained now.
28230	16	33	9	33	17	Please add references http://climatepolicyinitiative.org/venice/publication/risk-gaps/	Accepted and added.
38810	16	34	11	34	11	It is unclear what "state aid issues" means here.	Noted. EU jargon was deleted
38811	16	34	17	34	37	These examples should be integrated into the categories above, not listed separately.	Rejected. This paragraph has been deleted in order to meet the page limit.
38812	16	34	25	34	27	It would be helpful to note national development banks too.	Rejected. This paragraph has been deleted in order to meet the page limit.
21354	16	34	37	34	37	Insert additional bullet-point: Use of sovereign credit to establish the worthiness of clean energy investments which are in turn backed by guaranteed savings agreements. An example of this is the Sustainable Energy Utility (SEU) bond offering in August 2011 (Citi, 2011) Citi, 2011. Delaware Sustainable Energy Utility - Energy Efficiency Revenue Bonds. Series 2011: Post-Pricing Commentary. New York, NY : Citigroup, 2011.	Rejected. This paragraph has been deleted in order to meet the page limit.
21360	16	34	42	35	8	International evidence as to the greater environmental effectiveness of FIT over alternative investment support schemes is available from: Davies, S, Diaz-Rainey, I, (2011) 'The patterns of induced diffusion: Evidence from the international diffusion of wind energy', Technological Forecasting and Social Change, 78:7, 1227–1241. The paper also highlights the importance of policy stability providing an adequate environment for investment in renewables	Noted. The issue is well established.
20528	16	34	42	35	8	This is an area where assessment by the authors would be useful. Spain had a generous FIT which was retroactively (and prospectively) reduced due to its high cost. This undercut support for FIT's elsewhere - especially for developing countries - due to the now apparent policy risk.	Rejected. This is certainly a very interesting topic but lies beyond the scope of the chapter due to page constraints. For more analysis of FIT please have a look at chapter 7.
38814	16	35	15	40	29	This entire section on institutional arrangements is only focused on public finance institutions, doesn't give any treatment of private finance institutions. Would suggest adding a section on private finance institutions.	Noted. We have included a paragraph on institutions that facilitate private sector finance. Please look at the definition of "institution" that we use in this section.
38815	16	35	19	35	21	This sentence seems to imply that effective governance and institutions are more important for mitigation financing than for adaptation. Certainly the nature of the interests involved imply institutional capacity needs, but I wonder if it extrapolates a bit far to apply this conclusion to the statement that "institutions are essential for ensuring that action on climate change responds to national needs and priorities..." - surely this is just as critical for adaptation?	Accepted. Text has been rephrased

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
28231	16	35	38			"pledges" should be replaced by "commitments"; the latter corresponds to wording in relevant UNFCCC decisions	Text has been deleted
38816	16	35	40	36	2	Please cite/find the original source of these numbers. The 2011 UNDP report (UNDP, Human Development in a Changing Climate: A Framework for Climate Finance, 2011), cites the #s as coming from a 2009 UNDP report (CHARTING A NEW LOW-CARBON ROUTE TO DEVELOPMENT: A PRIMER ON INTEGRATED CLIMATE CHANGE PLANNING FOR REGIONAL GOVERNMENTS), which, in turn cites a 2008 UNEP report, where the trail runs dry. Would be good to know the methodology/criteria that was used to reach these figures.	Have requested informaton about sources and methodology to UNDP and its authors - respone pending
22278	16	35	6	35	6	The details of FIT implementation (guarantee of contracts for independent power producers, the rates, the duration etc.) matter greatly for the success of such instruments, should be elaborated more.	Rejected. A discussion of implementation details lies beyond the scope of the chapter due to page constraints. Please refer to chapter 7.
38813	16	35	9	35	14	In addition to CO2 offset mechanisms, results-based financing mechanisms which borrow carbon market methodologies to allocate ODA are being designed and tested, most notably through the buy-and-retire tranche of the Carbon Fund of the Forest Carbon Partnership Facility. Emission Reduction Underwriting Mechanisms (ERUMs) have also been proposed for methane abatement, distributed clean energy in LDCs, and other uses. See Ghosh, Mueller, Pizer, and Wagner 2012 - "Mobilizing the Private Sector: Quantity-Performance Instruments for Public Climate Funds."	Noted.
22677	16	35				16.5 (pg. 35) institutional arrangements for mitigation finance, there is not through exposition of the complex issues around issues such as equity and CBDR and how those related to the financing issues. As the OECD notes: All measures to address climate change have implications for regional and temporal equity. To the extent that the funds are provided for projects, the funding body must establish priorities and so implicitly or explicitly address regional and temporal equity. To the extent that the funds are provided for country programmes or national development strategies, regional equity is implicitly or explicitly addressed while priorities and their temporal equity implications are delegated to the national government.	Noted. Very valuable comment. However, this a general political issue that lies beyond our chapter. For a discussion on equity and burden sharing in the context of international cooperation on CC please look at chapter 4.7.3.
24494	16	35	30	36	36	GCF is expected to play catalytic role of private finance and private investment for mobilizing USD200 a year and it is going to set Private Sector Facility (PSF). Its financial options are under consideration but it is likely to link with local finance, such as through the credit line. Credit line is described well on P44 and 45 at IEA (Plugging the Energy Efficiency Gap with Climate Finance, 2012)	Noted. Credit lines are mentioned under national arrangements. However, we didn't find evidence to linl the GCF to specific instruments at this early stage.
24102	16	36	10	36	12	The reference to the KP should also mention the Adaptation Fund, since the previous sentences also mention Funds under the UNFCCC rather than mechanism that generate the funding.	Accepted and added
38825	16	36	10	36	10	Text should read, "fund for climate change finance." NOT "financial mechanism to support climate action in developing countries."	Accepted. Changed partially.
28233	16	36	10	36	13	The "Adaption Fund" could also be mentioned as instrument which generates funding. The AF is partly financed by CDM, but not only (see description in Annex I).	Rejected. The AF is mentioned here, but we do not discuss the origin of financial resources of the funds here.
22279	16	36	14	36	26	see Ballesteros et al (2010): Power, responsability, and accountability: Rethinking the legitimacy of institutions for climate finance	Could not figure out what this is about
38826	16	36	14	36	15	Better to phrase: The UNFCCC recognizes that funding for mitigation may come from a variety of sources and through a variety of channels beyond the financial mechanism (see Article 11.5 of the Convention as well as, inter alia, para 100 of decision 1/CP.16).	Accepted. Changed accordingly

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
38818	16	36	3	36	13	This section could include a fuller discussion of the Green Climate Fund, which is one of the most important institutional developments in climate finance since the last IPCC report. A paragraph describing its origins and aims would be important, and would be easy to put together based on publicly available materials.	Rejected. GCF is mentioned in the text, but there is not much to say scientifically yet. Design elements of the GCF are all not finalized yet.
38817	16	36	3	36	4	Quite the opposite is true (as pointed out by earlier sections of this chapter) - most funding for mitigation flows through channels other than the financial mechanism of the Convention.	Accepted. Sentence deleted.
28232	16	36	3		4	Here it says: funding for DCs has come principally through the Financial Mechanism…. On page 10 it was said "Operating entities of the financial mechanism [...] deal with less than 10% of climate finance reported under the Convention, …". At first sight this looks like a contradiction.	Accepted. Sentence deleted.
38819	16	36	4	36	4	Add "operating entities of" before "the financial mechanism"	Accepted. Text has been edited
38820	16	36	5	36	5	The word "regular" should be replaced with "GEF"	Accepted and done
38821	16	36	6	36	6	Note that the SCCF and LDCF are adaptation funds, not mitigation funds, as the first sentence of the para would seem to indicate.	Accepted. Edited text
38822	16	36	7	36	1	The GCF was not established until COP17.	Accpeted and text edited
24101	16	36	8			The Green Climate Fund did not become an operating entity of the UNFCCC's financial mechanism by the decision at COP16 at Cancun. That decisions states that the GCF is "to be designated" as an operating entitiy. The GCF became an operating entity through decision 3/CP.17, para 3: "Decides to designate the Green Climate Fund as an operating entity... "	Accpeted and text edited
38823	16	36	8	36	8	The use of the term "new and additional" to refer to an institution is very confusing, even if the term has been used in a UNFCCC paper prepared by the Secretariat. / I suggest striking the phrase "new and additional" given its political implications.	Accepted and text edited
38824	16	36	9	36	10	Delete sentence "the GCF is expected...countries"-- this is a policy interpretation, not an assessment of the facts.	Noted. This assumption can be found in various source, however we contrast the expectation in the final draft with the fact that the GCF has not been capitalized yet.
31161	16	36	9	36	10	In reference to the GCF, it could be more clearly noted that it is currently under development.	Accpeted and clarified.
26637	16	37		37		Should refer to Export Bank and OOF, WTO SCM agreement issue and Export Credit Arrangement by OECD.	Noted. OECD Arrangement on officially supported export credits has been included.
38827	16	37	1	37	2	End the sentence that begins this page after "European Union"-- the parenthetical at the end makes it seem as though others aren't engaged in these efforts, which is not the case.	Rejected. We believe it is just an explanation of why we mention the EU.
22648	16	37	11		21	More recent data on aid statistics collected by the OECD is available at http://www.oecd.org/dac/stats/final2011oda.htm	Text was deleted to avoid duplication with section 16.2
38831	16	37	11	37	21	This paragraph could highlight the growing role of bilateral DFIs and ECAs alongside bilateral aid agencies in channeling climate finance.	Sentence was deleted to avoid confusion
38832	16	37	15	37	16	DAC figures represent a maximum cap on what could have been provided - therefore edit to read "provided UP TO USD 22.9 billion"	Respective text as deleted to avoid duplication with section 16.2
23132	16	37	19	37	19	Add after "… not used": Michaelowa and Michaelowa (2011) find severe miscoding of projects and a correlation between overcoding and political variables." Reference: Michaelowa, A.; Michaelowa, K. (2011): Coding Error or Statistical Embellishment? The Political Economy of Reporting Climate Aid, in: World Development, 39, p. 2010–2020	Respective text as deleted to avoid duplication with section 16.2
38833	16	37	19	37	19	May be worth clarifying that standard definitions and methodologies are available (and indeed prescribed), but are not actually applied consistently by reporting countries.	Text was deleted to avoid duplication with section 16.2
38829	16	37	4	37	10	This section is unclear. Where do existing bilateral environment programs fit in? DFIs? A-c seem unnecessarily narrow.	Accepted and did a bit of finetuning of language.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
38828	16	37	4	37	8	This taxonomy is confusing and could be deleted.	Accepted. Edited text to clarify that this is meant to provide a list of principal channels used
38830	16	37	6	37	7	"funding windows" should be changed to "funds"	Accepted and changed
24495	16	37	4	37	38	It is recommended the leverage effect of bilateral finance at IEA (P34-38 at Plugging the Energy Efficiency Gap with Climate Finance, 2012)	Noted. The role of BFIs is now mentioned, but leverage effects are not discussed in particular.
28234	16	37				Please mention also the role of National Development Banks, look e.g. at Mallridge, D., Buchner, B., Trabacchi, C., Netto, M., Lorenzo, J.J.G., and L. Serra (2012), "The Role of National Development Banks in Intermediating International Climate Finance to Scale Up Private Sector Investments", IDB Discussion Paper No. IDB-DP-249 .	Accepted and added.
22280	16	38	27	38	37	In this paragraph different types of institutions are being mixed up: National climate change trust funds (such as the ICCTF, the Amazon Fund etc.), institutions for climate policy coordination (such as the Indonesian Planning Agency Bappenas, the Philippine Climate Change Comission and others) as well as designated institutions that can apply for direct access to the Adaptation Fund (National Implementing Entities NIE) and potentially in the future to the Green Climate Fund. See also the prototype NAMA registry established in Doha. Revise whole paragraph and elaborate more.	Accepted and added text to explain that this is meant to be sample list of institutions with a variet of detailed missions but overall have the responsibility of helping tap internatioanl finance and mainstreaming into national priorities
38834	16	38	32	38	32	Amend to read "common to all of them is the desire to tap into finance sources and to"	Accepted and changed
38835	16	38	34	38	34	Explain the concept of "direct access"	Accepted and text added
38836	16	38	36	38	36	Please strike everything after, "Adaptation Fund" and replace with "…and will be considered in the GCF."	Accpeted and text edited
22281	16	38	38	39	1	Several national climate funds are missing such as Lebanon, Bangladesh has two climate funds. See eg. UNDP (2011): Blending Climate Finance Through National Climate Funds	Rejected. This is a sample list only and it is now better explained
22499	16	38	38			The table is full of words and isn't simple and clear at the same time. It can be deleted.	Rejected. It provides a glimpse at those that have been established and this is new
21355	16	39	4	39	4	Insert: Innovative third-party clean energy service delivery models present new options to finance, market, and deliver sustainable energy to end-users (Houck & Rickerson, 2009). Houck, J., & Rickerson, W. (2009). The Sustainable Energy Utility (SEU) Model for Energy Service Delivery. Bulletin of Science, Technology, & Society , 29 (2), 95-107.	Noted. Interesting, however does not fit exactly to the respective paragraph.
22610	16	4				Need to start the Exec Sum with an indication of uncertainty in terms of definitions of climate finance. At present, this is at the end.	Noted.
35338	16	4	1	4	12	The statement of "financial flow to developing countries" is too general. Further clarifications should be made on whether it includes finance from ODAs, investment and off-set activities of developed countries, finance from developing countries themselves, or cooperation between developing countries. In addition, the number quoted"15-25%" is not supported by any reference, and thus shall be deleted.	Accepted. Was taken into account in rewrite.
28184	16	4	1	5	49	The presentation of figures in the ES is not always comprehensible. In particular, the relation of a figure in one sentence to a figure mentioned in a following sentence is not always clear. The reader could get the impression that the objective is to present as many figures as possible without trying to explain the relation between the different figures (e.g. what is the relation between information in line 5 and 11/12 on page 4?). See e.g. also next comment.	Taken into account - Text revised.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22670	16	4	1	45	29	The Chapter suffers from a number of imbalances, deficiencies and lacunae that reduces its effectiveness with regards to providing insights and perspective on the financing and investment issues perplexing climate finance negotiators and policy decision-makers. These include: 1. Chapter organisation: This chapter is not as well articulated as others in the set. Linkages between sections and sub items within sections are not well articulated. For example, though section 16.3 Enabling environment provide useful information on the definition and scope of Enabling environment, it does not make the connection as to how this related to the section prior to it (16.2) and within 16.2 the sub section on global modelling results (line 17-36) could be better integrated into the discussion preceding it or the significance of its location made clearer. 2. Narrow literature. The literature relied on for both discussions of the sources of finance as well as assessing the scale of the flow of climate finance is quite narrow. For example, discussion on raising public funding for climate finance only considers three sources (16.2.3, pg.21): the UNFCCC, the AGF report, and the G20. It is not clear why the analysis is limited to these three since the broad mandate of IPCC, as in other chapters, is to review the literature, in this case the climate finance literature. It is therefore limited in the analysis and the scope of what is possible and discussed in the literature, including the potential role of SDR (proposed by the IMF itself, among others). This much discussed topic by a wide range of institutions, NGOs and academics. Admittedly, there is a narrow universe of reports on the availability of climate finance, the report relies on Buchner et al., and they are also included as authors in different combination on other reports cited. Yet, there is no problematisation around the issue of the scale and scope of financing and the all-inclusive definition employed by these researchers, which tends to grossly over-estimate the scale of finance actually flowing to developing countries, and which is a continuing source of tension in climate discussion. For example, the tension around the driving source of climate finance, which has noted by the OECD 2012, many developing countries view as reimbursement (not aid) for the incremental costs incurred in implementing agreed mitigation and adaptation measures (OECD 2012, p.27). The issue of why developed countries have by passed Convention funds instruments and mechanism, such as NAPAs (underfunded by $1 billion -$700 million, conservatively) and SCCF (with a waiting lists of projects, totalling approximately $242 million) and TNA's. These instruments were designed to promote national ownership, which has been said to be a critical aspect of development effectiveness of international development finance (OECD 2012. (Other source: OECE 2012, World Bank 2010 etc. 3. Developed centric perspective. The over-riding perspective that dominates a number of the sections is that of the developing countries environment. For example, though there is a detailed discussion about investment and actors, who are primarily in the developed countries, there is much less space devoted to discussion problems with the flow of finance to developing countries: barriers, constraints and potential resolutions for policy. 4. Sweeping generalisations and developing country assumptions. Lines 9-12 of section 16.3, pg.26, offer the broad sweeping assertion, that: (s)upport for capacity building can be a substitute for income transfers	Taken into account - We see several main comments in one. 1. The text of the chapter is under revision and efforts will be done to improve the linkage among sections. However, the outline cannot be changed. 2. We realize that we rely extensively on Buchner et al. (2012). We mention in the final section that one of the limits for this chapter is the lack of a well developed peer reviewed literature. 3. We are going to add a section that addresses with greater accuracy flows to developing countries.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22669	16	4	1	46	19	This is an important chapter. It is also the first time that this topic is being covered in an IPCC report. It probes the nature, scope, scale and character of finance and investment that are important for mitigation in both developing and developed countries. Given the esteem in which IPCC is held and its potential impact on climate negotiations, and given the critical importance of financial and investment flow for mitigation in developing countries, this topic is a serious matter. It also has relevance for the evolution of the Green Climate Fund and will contribute to the work of the Standing Committee on Finance as well as Reviews of the Financial Mechanisms of the Convention. The authors of the chapter attempt a comprehensive presentation of the discussion and state of play in the financing of mitigation activities. The chapter makes the point that 'appropriate governance arrangements at the national, regional and international level are an essential pre-requisite for efficient, effective and sustainable financing of mitigation'. It further notes the challenge of lack of a rigorous definition of climate finance as well as the lack of standardization of methodologies for reporting and assessing climate finance. The chapter makes a valuable contribution in its exposition of the synergies and trade-offs between financing adaptation and mitigation.	Noted.
22613	16	4	11		15	This para is confusing. Most of the climate finance reported under UNFCCC is public, so need to say that up front. Or you are comparing apples and oranges. Also, climate finance reported under UNFCCC is for mitigation AND/OR adaptation. Suggest first sentence of para is reworded to read "Some climate finance is reported under the UNFCCC. These reports focus on public climate finance flows to developing countries for mitigation and adaptation, and account for less than 3% of total (domestic and international, public and private) climate flows globally."	Taken into account - Text revised.
38719	16	4	11	4	12	should note which year this refers to.	Accepted.
38720	16	4	11	4	15	Fast start finance figure should be USD 33 billion based on publicly reported information that formed the basis for COP decisions in Doha.	Taken into account - the document will be checked and the figure updated if needed.
28185	16	4	11	4	15	There should be additional information to support a better interpretation of these numbers (e.g. examples to illustrate which climate finance is reported under UNFCCC and which not.). It is unclear, whether "15-25% of the public international climate finance" refers to "Climate finance reported under the UNFCCC accounts" or refers to "3% of current climate finance".	Taken into account - text will be revised and additional information provided in the Chapter beyond the ES
29254	16	4	13	4	15	The figure for Fast Start finance delivered needs updating now. Reports presented by developed countries at Doha suggest that developed countries have delivered a total of around $33bn.	Taken into account - the document will be checked and the figure updated if needed.
35339	16	4	14	4	15	It is suggested to modify the sentence as "..in Fast Start Finance, however, it is highly controversial whether these funds are "new and additional" as promised.(16.8)"	Taken into account - text will be modified. The language says: "committed to" - authors cannot judge if Parties will comply with commitment on the provision of "new and additional funds"
28186	16	4	14			Please update the number of Fast Start Finance on the final reports of developed countries on Fast Start Finance in May 2013 and add date.	Taken into account - the figure will be revised.
28187	16	4	14			The Fast Start Commitment is 30 billion USD. It is a political commitment and not a technical value being the result of extensive economic calculations. Therefore, a price-adjustment is not appropriate. Moreover, in other parts of text (e.g. ch. 16, p. 12, line 31), the commitment of 30 billion USD is mentioned (without price adjustment). See also description of "Copenhagen Accord" in Annex I.	Taken into account - Consistency across the document will be checked.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
35340	16	4	16	4	39	Here, the discussion on future financial needs in mitigation narrowly focuses on sectors, and fails to address the overall future financial needs of developing countries. Table 16.2 includes detailed data of developing countries which should be aggregated and presented ES.	Noted. It is virtually impossible to derive this type of information from the limited number of aggregated model results.
24261	16	4	16	4	23	Please provide an indication of total investments needed to guide the reader - e.g. by comparing to total energy investments, Table 16.1 - and to emphasize the magnitude of the financing challenge, e.g. $5.7 trillion as presented in http://www3.weforum.org/docs/WEF_GreenInvestment_Report_2013.pdf.	Accepted. These numbers are now presented in Section 16.2.
22614	16	4	16	17		2 degrees is not an objective! Limiting temperature rise to no more than 2 deg is the objective. Reword needed.	Accepted.
25790	16	4	16	4	33	This part should explain unlimited evaluation results because it is prejudicial and misleading to put an emphasis on limited scenarios of 2℃. IPCC should be policy-neutral and should have responsibility to indicate unlimited evaluation results, as described in Table 6.1. The 2℃ target is extremely difficult to attain, as described in (Höhne, 2011, conclusion) and (Rogelj, 2011, abstract). These literatures are listed in the No4 line of this table.	Taken into account - We include in the ES reference to non 2°C scenarios included in tables 16.2 and a16.3.
22615	16	4	17			It is not clear what "This is mainly due…." refers to. Reword.	Accepted.
22493	16	4	19			Spelling mistakes. (limited evidene) should be changed to (limited evidence) .	Editorial.
22616	16	4	21			It is not just the energy sector that is involved. Add "energy-related AND OTHER sectors".	Noted. There is very limited reasonably robust information from other sectors. Energy efficiency includes industry, transport and buildings. Even the much contested data (analysed by us as raw data) compiled by McKinsey does not comprise a minimum of useful data on investment needs beyond energy and energy efficiency in other sectors. The underlying chapter (16.2) now provides some information on the waste sector and forestry.
31500	16	4	24	4	27	Based on the data provided below this sentence and in FAQ 16.2 the reallocation will be mostly towards renewable power generation. We therefore suggest that renewable power generation is moved to the front: "Ambitioius climate policy is expected to induce a reallocation of investments in the power sector from fossil fuels to renewable power generation, nuclear and to fossil fues with CCS in all scenarios compatible ...."	Taken into accout in rewrite.
22617	16	4	24		39	These paras include lots of figures that aren't related to climate finance, and so could be summarised. For example: "Ambitious climate policy is expected to lead to increased investments in lower-carbon investments in the power sector, particularly for renewable energy. Substantial incremental investments are also expected in energy efficiency. However, increased investment is also expected for thermal power plants. [need something comparing what proportion of low-C electricity we have now, and what is expected in the future. Or it is difficult to compare].	Rejected - Total and incremental investments in the power sector are generally part of climate finance. Results summarized in Tables 16.2 and 16.3 show that investment in thermal power plants generally declines (with the exclusion of power plants with CCS).
28188	16	4	24	4	26	The statement is a generalization with limited evidence. There are countries without direct investment towards nuclear power and CCS. In this paragraph you also forget to explain, that a no-nuc-scenario would be possible for no extra investment costs as SPM.7 shows.	Taken into account - text revised - reference to limited evidence -and SPM is yet to be structured

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
29255	16	4	24	4	26	Wording of this conclusion and following para could be misunderstood as being a projection of what is likely to happen ('ambitious climate policy is expected to….'). Could reword to make clearer this is what would happen in hypothetical 2 degree compatible scenarios.	Taken into account - The text was revised to describe scenario building exercises more carefully.
29256	16	4	24	4	31	Conclusion on CCS investment currently seems inconsistent. Headline says investment will move to CCS but lines 30-31 say plants with CCS will have marginal importance. Perhaps this is because investment in CCS mostly comes beyond 2029? Would be helpful to clarify.	Taken into account - CCS appear not to be very important from 2010 to 2029 but its importance increases afterwards.
38721	16	4	27	4	28	Does this refer to scenarios under BAU or factoring in ambitious climate policy? Clarify.	Taken into account in rewrite.
28189	16	4	27	4	30	The meaning of the numbers in brackets is not clear (e.g. 39 to 60 %). What is the base/reference figure?	Taken into account in rewrite.
32195	16	4	31	4	31	Why (2010 USD) ? Suppress.	Accepted.
28190	16	4	31	4	31	Please check "(2010 USD)" ???	Accepted.
30465	16	4	32	4	39	I would include the need of investment on clean cookstoves to increase energy efficiency, reduce deforestation and increase human health co-benefits	Noted, but too much detail for the level of the ES. Section 16.8 now comprises this type of information (at least in brief)
29257	16	4	37	4	39	Sentence on deforestation seems unrelated to the rest of the paragraph.	Noted. Unavoidable - as this type of information originates from a different type of model.
22611	16	4	4			It is also important to allocate flows for adaptation. So add "and adaptation" after " mitigation".	Taken into account - This chapter deals only with mitigation. The text will be revised to reflect this narrower scope of the chapter
28191	16	4	40	4	43	Difficult to understand. Please reformulate.	Taken into account in rewrite.
29258	16	4	40	4	47	The first sentence (lines 41-43) of this paragraph is confusing. The key point of the para seems to be the significant uncertainty around the size of the mitigation investment gap, so might be helpful to explain it in those terms.	Taken into account in rewrite.
38722	16	4	43	4	43	add the word "needed" at end of line so it reads "Model estimates of global total annual incremental investments needed for energy-related activities..	Taken into account in rewrite.
22618	16	4	44			"a decline of -30" means an INCREASE of 30. So it needs to be written as "a decline of 30".	Accepted.
32334	16	4	45	4	45	The text "if energy efficiency is included" is ambiguous. Does it mean that incremental investments are as stated in the text if a) energy efficiency measures are carried out, or b) energy efficiency investments are included in the stated incremental investments? Please clarify the text.	Taken into account in rewrite.
22619	16	4	45			"+" not needed in "increases by more than USD +500…."	Accepted.
38715	16	4	5	4	11	Recognizing that data is limited and better systems need to be put in place to capture this, what does "reported under" mean or refer to? / Need to be specific about what "reported under the UNFCCC" means. This is what developed countries reported for FSF? Or in the finance portal? GENERALLY, THIS FINDING IS ODDLY FRAMED - "3% of climate finance reported under UNFCCC." It's an important finding to demonstrate the relatively limited nature of funds under the UNFCCC, but the finding comes across as a focus on the importance of reporting rather than drawing out the broader conclusion which is that climate finance comes from a very diverse set of sources – public and private- and the scale is actually larger than we tend to think. SUGGEST SLIGHT REFRAMING	Taken into account in rewrite.
38716	16	4	5	4	5	Suggest citing a range rather than the USD 350B figure, to better reflect significant uncertainty.	Accepted.
38717	16	4	5	4	5	Need definition for mitigation finance	Accepted. See box 1.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
26276	16	4	6	4	7	16.8 Financing mitigation activities in and for developing countries including for technology development, transfer and diffusion could be shortened to 16.8 Financing mitigation activities in and for developing countries	Noted.
22612	16	4	8			Need to clarify what "raised" means.	Taken into account - The term "raised" is used now in a more narrow way.
38718	16	4	8	4	9	The use of the term "raised" is not quite right here - consider "mobilized"	Taken into account - The term "raised" is used now in a more narrow way.
29253	16	4	8	4	9	Unclear what 'raised' refers to in 'developing countries raised USD 120-141 billion' and 'developed countries raised USD 213-255 billion…'. I.e. does this mean from all sources or only domestic? If this refers to where the money was spent / destined to be spent it would be clearer to say that. Using 'raised' could lead to confusion with the idea of developed countries raising climate finance for spend in developing countries.	Taken into account - The term "raised" is used now in a more narrow way.
20071	16	4	16			Replace "to become" with "if they were to become" to be consistent with SPM (p.11 line 9)	Noted. SPM is still in process of revision.
33946	16	4	16	4	15	need to specific mention the additionality of finance	Rejected. Additonality will not be discussed in the executive summary but later in the chapter text.
34454	16	4	24	4	31	How do you arrive at these amounts? E.g. "USD 134 (-3.8 to +332) billion". Are the amounts before brackets the median of the ranges within brackets? Please explain.	Taken into account - The first figure is the mean, in brackets the minimum and the maximum value found in the reviewed literature. We add an explanation in the SPM. The explanation was already included in the main text.
20072	16	4	26			Delete "in 2100", as 2 degree C is not a objective in 2100, if it is so meant. (See Table 6.1 of chapter 6, p.19.)	Taken into account - We changed the word "objective" with the word "limit". We also removed reference to 2100.
24976	16	4	30	4	31	The reference to CCS is incomplete. The full statement is: "power plants with carbon capture and sequestration (CCS) have only marginal importance in 2010-2029 while attracting USD 195 (27 to 574) billion per year in 2010-2049"[16.2.2.1, 16.2.2.3].	Taken into account in rewrite of ES.
34455	16	4	32	4	33	With what likelihood are these scenarios commensurate with stabilization at 2°C? Please disclose exceedence probabilities.	Rejected - This section may be updated with information from chapters in WGI and WGIII that estimate the exceedence probability that correspond to 2100 GHG concentrations reported by the cited studies. However, this might be an imprecise exercise because the actual impact on temperature depends on the pattern of emissions over the whole century, which is not always available.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24975	16	4	22	4	23	Carbon intensity of average new investments: is this a reference to full product life-cycle assessment? If so what would be the agreed methodology and the cost of applying such a methodology?	Noted - This section has been rewritten.
24977	16	4	30	4	31	Power plants with carbon capture and sequestration (CCS) have marginal importance: Note that projections from Treasury and BREE for Australia suggest inclusion of CCS from 2035 under the Government's CEF Plan. The focus on 2030 risk painting a partial picture of the potential roles of each technology by 2050 or 2100 and could result in inappropriate emphasis of certain technologies over others. Citation: http://archive.treasury.gov.au/carbonpricemodelling/content/report/09chapter5.asp and BREE 'Australian Energy Projections to 2050' December 2012 p. 28 at http://www.bree.gov.au/documents/publications/aep/Australian-Energy-Projections-to-2050.pdf	Rejected - The text mentions investment needs up to 2050. Investment needs beyond 2050 are beyond the scope of this chapter. Transformation pathways for the second half of the century highlight the importance of CCS and are covered by Chapter 6. We include a reference to Chapter 6 scenarios.
24208	16	4		5		the following points should be highlighted:1. recognizing the social economic development and poverty eradication are the first and overriding priorities for developing countries. 2. considering the development stages and respective capabilities of developing countries when they moblize climate finance; 3.the importance role of the UNFCCC in fostering scaled-up clinmate finance.	Taken into account - [see response to analogous comment above]
29250	16	4		5		The summary clearly sets out the expected investment in ambitious (2 degree) scenarios, but is less clear on what is likely to happen under business as usual or the size of the investment gap. Would be good, if possible, to strengthen conclusions on what level of warming current investment puts us on track for and what the size of the investment gap might be. Also feels like there could be a clearer conclusion that political uncertainty currently constrains investment and that increased political ambition / targets would be needed to drive investment required for 2 degrees. E.g. the sentences from page 6 lines 37-39 and/or 42-44 could helpfully be pulled out as a conclusions in the executive summary.	Noted - The tables presented in the chapter assess the investment gap by comparing investment in the policy scenarios to investments in the reference - i.e. without or with limited climate policy - scenarios. Unfortunately, it is not possible to discuss the temperature targets because we do not have emission trajectories, concentrations and temperatures for all models over the whole century. We will reinforce the message that political uncertainty reduces incentives to invest in emission reductions.
29251	16	4		5		No mention of scale / state of carbon finance seems like a possible omission.	Rejected - The Summary includes information on scale/state of climate mitigation finance.
22282	16	40	1	40	5	reference literature for climate finance in cities e.g. NAMAs for cities, see e.g. Li (2011): Supporting greenhouse gas mitigation in developing cities: a synthesis of financial instruments	Agreed. Have added sentence and reference suggested
28236	16	40	16			It is suggested to replace "the" by "a".	agreed. Have made change
33344	16	40	18	40	28	Another concern is the the risk of forum shopping (powerful actors choose the institutions which fits their interests) and that power relations between states play a bigger role in some institutions than others. See for instance Biermann et al (2009) "The Fragmentation of Global Governance Architectures: A Framework for Analysis".	Agreed. Have added text and reference.
38839	16	40	19	40	19	"ODA" should be changed to "needs such as health and education"	Agreed, have made change
38840	16	40	25	40	25	add "operating entities of the" before "financial mechanism"	Agreed, have made change
38842	16	40	30	40	30	delete the first sentence of the paragraph as this is a policy statement, not a statement of fact.	Accepted.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
28237	16	40	37	41	4	This whole paragraph is unclear. A statement like "It is very likely that adaptation and mitigation should be viewed as complements, not as substitutes." needs scientific backing. There are strong signals to treat mitigation and adaptation separately, and to address both in a complementary way. As I understand the paragraph, there is literature supporting both views, but evidence for the "complement"-view seems stronger.	Taken into account - covered in the following paragraphs.
38843	16	40	41	41	11	these two paragraphs are both unclear and lacking in real-world evidence. suggest deleting them.	Rejected - no scientific evidence / publication provided to support changes suggested by the reviewer. Moreover, reviewer in his next comments suggested changes in the text itself, which makes evident that he does not have strong views on their deletion.
38837	16	40	6	40	28	This section might be renamed "complexity of institutional landscape" and focus on that topic rather than on the general topic of institutional performance. The point that many are concerned about the multiplicity of climate finance institutions is a good one (there's an earlier quote in the chapter of a UNEP survey of the number of actors which could be reprised here).	Accpeted partly - tweaked title but kept performance as the emphasis is on need to create institutions that can cope with these challenges
28235	16	40	8			The "evidence" affirmed here, is very questionable. It is suggested to replace "public and private sources" by "actors".	Agreed. Have made change
38838	16	40	9	40	17	This paragraph could be cut from the sentence that begins "Some see this as..." through the end of the current paragraph, since it is largely speculative.	Agreed partially. Deleted most of the rest of the paragraph but let last sentence which is not speculative
24496	16	40	6	40	28	Performance and outcome of institutions is very crucial and it shall be reviewed. An innovative approach for improving performance is MRV as a financing condition which is implementing by GREEN by Japan Bank for International Cooperation. Its concept is that lender will provide finance when they confirm GHG emission reduction at the project. It is introduced at P37 of IEA's "Plugging the Energy Efficiency Gap with Climate Finance" and P14-16 of "Climate Finance: Reforms for Private Finance towards Green Growth in Asia" (Takashi Hongo, 2012, available at http://www.ubraintv.com/docs/Takashi_Hongo_Road_to_Market_Mechanism_20101013_doc.pdf It also proposes "Performance Base Incentives Scheme" for GCF on P16-2. It was originated in a workshop for GCF on July 2011 in Singap0re. A key for Performance Base Incentive Scheme is MRV and it should be practical and shared with investors to reduce GHG emission.	Noted. Very interesting topic. We have included the performance and effectiveness of institutions as one of the areas of further research in 16.9.
24212	16	40		43		considering the allocation limitation, this session can be shorted.	Noted. Section has been shorted and condensed.
38841	16	40	29			Section 16.6 could be considerably tightened to save space.	Noted. Section has been shorted and condensed.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22678	16	40				• Also missing is the linkage to Loss and Damage, which could have added some texturing to the discussion in section16.6.1 about the synergies and trade-off between adaptation and mitigation. In particular, with regard to the conclusion drawn that reduction of damage is preferred when damage stocks are small. The reality is that damages are not small and never have been for developing countries (though they may be for developing countries who experience relative less overall damage to infrastructure than developing countries from extreme weather events.) In fact damages are rising, both for developed and developing countries, giving rise to more adaptation challenges and costs. In the case of developing countries these rising cost point to the need for a structured approach to loss and damage as was signalled by the Doha Outcome (2012). This discussion on the synergies and trade- offs between adaptation and mitigation is extremely important because the view-point that argues in favour of delayed adaptation is what has resulted in the continuing imbalance in adaptation financing and which is strong point of discord within the GCF Board, where developed countries focus is on mitigation and developing countries are struggling hard to ensure that adaptation is not once again left behind. The challenges with relying on IAMs modelling for calculating the optimal allocation of investments between mitigation and adaptation are important for policy makers to be aware of since these model point to investing in mitigation before investing in adaptation. Such a strategy might in fact be optimal for developed countries, who have good climate resilient infrastructures and are distance from or only occasionally experience the harsh realities of extreme climate events. But it is not a strategy for developing countries. (But even in some of these countries adaptation is become more relevant… See for Example UK's, Climate Change Risk Assessment (CCRA) on 25 January 2012, the first assessment of its kind for the UK and the first in a 5 year cycle; and the US's 2011 Interagency Climate Change Adaptation Task Force Progress Report.	Taken into account. Text to be added on residual damage.
22685	16	40				Also missing is the linkage to Loss and Damage, which could have added some texturing to the discussion in section16.6.1 about the synergies and trade-off between adaptation and mitigation. In particular, with regard to the conclusion drawn that reduction of damage is preferred when damage stocks are small. The reality is that damages are not small and never have been for developing countries (though they may be for developing countries who experience relative less overall damage to infrastructure than developing countries from extreme weather events.) In fact damages are rising, both for developed and developing countries, giving rise to more adaptation challenges and costs. In the case of developing countries these rising cost point to the need for a structured approach to loss and damage as was signalled by the Doha Outcome (2012).	Taken into account. Text to be added on residual damage.
38844	16	41	1	41	2	"Mitigation and adaptation generally compete to attract investments." Given the significantly different nature of financing for mitigation and adaption, I question whether this is generally true. Certainly it can be true in the context of a climate-specific fund that supports both adaptation and mitigation, but when we are talking about e.g. private sector investment - which is the lion's share of climate finance - I'm not certain how true it is.	Accepted. Text will be revised
38845	16	41	29	41	30	"Adaptation is instead a long-term phenomenon and little investment is necessary in the first decades of this century." This seems like a strange statement - perhaps it's a reference to a particular paper but if so, needs to be referenced clearly so it's not viewed as an IPCC conclusion/recommendation.	Accepted. Text will be revised
38846	16	41	37	41	40	This paragraph is not well-placed in the text, since it does not deal with timing issues.	Accepted. Text deleted.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
38847	16	41	42	41	42	Please add "negative but" before "strategic."	Rejected - no scientific evidence / publication provided to support changes suggested by the reviewer. We cannot change the message of the author quoted.
38848	16	41	46	42	4	We propose deleting.	Rejected - no scientific evidence / publication provided to support changes suggested by the reviewer.
22283	16	42	10	42	16	see also e.g. Eisenack et al (2012): Adaptation financing in a global agreement: is the adaptation levy appropriate?	Noted. Proposed text is not exactly related to integrated financing approaches.
28238	16	42	14		16	This is a bit unclear: If "optimal balance of mitigation and adaptation" means really socially optimal, then the local scale is per definition not too relevant, but rather the aggregate view. Probably just a matter or formulation.	Taken into account. Text to be revised.
38849	16	42	22	42	27	Please give examples of synergies	Taken into account. Covered in the sectoral sectors in the subsections dealing with adaptation. See line 28.
38850	16	42	26	42	27	delete the last sentence of the paragraph, since it is repetitive.	Accepted. Text will be revised
38851	16	42	33	42	33	Change "mitigative" to "mitigation" and change "externalities" to benefits.	Accepted.
38852	16	42	33	42	33	Perhaps this is not what is meant, but in the strict economic sense, mitigation activities can indeed have local externalities, both positive and negative. E.g. reduced air pollution from mitigation would have local externalities that are not captured by the market. Likewise installation of an RE facility on sensitive land that imperils a species or harms people's view would have a local negative externality.	Taken into account. Text to be revised.
38853	16	43	19	44	28	This whole section is duplicative of other parts of the chapter and should be cut.	Accepted. This section is to provide highlights for developed countries, some of which have been presented in previous section, so it is duplicative to some extent.
22650	16	43	20			insert "countries" after "developed and developing"	Accepted, will do.
22651	16	43	30			"determined" not "determind".	Accepted, will do.
22652	16	43	30		38	There is a lot of repeat in this para and earlier in the document. Can it be cut or summarised?	Noted. Paragraph will be rephrased and shortened.
38854	16	43	30	43	30	"raised" should be changed to "mobilized"	Noted. Will be considered and rephased.
38855	16	43	36	43	36	Please spell out IDFC and explain.	Accepted.
38856	16	43	41	43	41	It is unclear what "additional" means in this context-- define, explain, or revise.	Accepted, will do. It is the incremental investment defined earlier.
38857	16	43	44	43	44	This sentence is unclear. can you please rewrite to be clearer?	Accepted, will do.
40770	16	43	45	44	2	Although the first two sentences of this part referred the public source generally, a levy or emission trading scheme for international aviation and shipping in the last sentence is mentioned abruptly without rationale linkage. Therefore, ", followed by a phase out of fossil fuels and a levy or emission trading scheme for international aviation and shipping" should be deleted.	Noted. Sentence will be improved to provide more clarity.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
22284	16	44	34	44	34	how many percentage of the total leveraged funds ar the 120-140 billion?	Noted. The total global climate finance flows are presented in section 16.2.1. One can easily calculate the shares for developed and developing countries.
38859	16	44	35	44	35	"funds committed to developing countries"-- from where?	Noted. Commited means invested. Funds origin from various location (no info available on the location).
23133	16	44	36	44	36	Add after "… Buchner et al. 2013": "The share of development assistance channelled into mitigation activities has not been influenced in a statistically significant manner by the international climate policy regime, but essentially been correlated to the level of the oil price (Michaelowa and Michaelowa 2011)." Reference: Michaelowa, A.; Michaelowa, K. (2011): Old Wine in New Bottles? The Shift of Development Aid towards Renewable Energy and Energy Efficiency, in : Carbonier, Gilles (ed.): International Development Policy: Energy and Development, Palgrave Macmillan, London, p. 60-86	Rejected. This finding (esepcially the correlation to the poil price) would need more explanation and we believe this discussion lies beyond the scope of the chapter.
25361	16	44	42	44	42	It reads “According to UNFCCC (2011a), in 2005-2010 Annex I countries provided a total of USD 58.4 billion about 10 billion per year on average, climate finance to developing countries.” The line should read Annex II instead of Annex I (As also mentioned in the UNFCCC’s report on the workshops of the work programme on long term finance).	Accepeted. Typo will be corrected.
38860	16	44	45	44	45	Insert "approaching" before $30bn.	Accepted, will insert.
38858	16	44	6	44	6	This is unclear as written. This is an important finding, so please be very clear with how it's written.	Noted, will be rephased.
30473	16	44				A key challenge for developing countries to support the transition towards green growth is to help establish robust domestic policy frameworks to scale-up private investment in green infrastructure. This is particularly critical in the energy sector. The OECD has developed a Policy Guidance for Investment in Clean Energy Infrastructure, to help governments identify ways to mobilise private investment in clean energy infrastructure, particularly in developing and emerging economies. Key issues considered by this report include: investment policy, investment promotion and facilitation; competition policy; financial market policy; and public governance. source: OECD 2013, Policy guidance for investment in clean energy, OECD publishing, Paris.	Accepted. This is a valid point. We review the reference mention.
38861	16	45	1	45	1	Developed countries announced more than $33bn in FSF in Doha. This should be noted.	We will use the most recent data reported by governments to UNFCCC.
28239	16	45	1			Please update the number of Fast Start Finance on the final reports of developed countries on Fast Start Finance in May 2013.	We will use the most recent data reported by governments to UNFCCC.
38862	16	45	2	45	2	"new and additional" was never defined and this sentence is highly biased. Recommend striking the entire sentence but at a MINIMUM strike "highly" and "as promised"	Will delete "highly" and "as promised".
38863	16	45	21	45	21	Unclear what "additional" means in this context. suggest revising.	Accepted, will be rephrased.
22285	16	45	26	45	28	indeed investment climate and investment grades alone do not lead to low carbon development. See also comments on 16.4.1.	Noted. See answer to your comment in 16.4
38864	16	45	26	45	26	Not clearly written. Please rewrite to be clearer.	Noted. Will be rephrased to be more clear.
29294	16	45	29	45	32	It is widely acknowledged the role that private funding should play in alleviating poverty in developing countries. However this is not the only way of overcoming poverty and other innovative types of funding could be promoted, for example, through initiatives promoting endogenous local development with the participation of the users.	Agree, but a discussion of ways to alleviate poverty are out of the scope of the chapter.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
38865	16	45	39	45	49	We suggest deleting this whole paragraph since the information is already covered in the chapter.	Noted. We will shorten the material either in this section or in section 16.4, however this section is to provide highlights for developing countries, some of which have been presented in previous section, so it is naturally duplicative to some extent.
22653	16	45	5			Suggest you use MDB source directly. This is for mitigation: http://www.oecd.org/dac/stats/final2011oda.htm and for adaptation http://climatechange.worldbank.org/sites/default/files/Joint%20MDB%20Report%20on%20Adaptation%20Finance%202011.pdf (there may be some overlap).	A good point, we will check the links you suggested, but for consistency reasons we might rather use the Buchner data.
24273	16	46				Referring to 16.8 and technology development, and boxes on LDC issues where several challenges are already addressed: a fundamental weakness in many LDC's national innovation systems is the low awareness among policy makers as well as individuals about climate change, how it affects them and the exisiting solutions which could help them already today - see for example assessments from Tanzania, Kenya, Uganda and Ghana in "Enabling the Transition - Climate Innovation Systems for a Low-Carbon Future" (WWF 2011) at http://www.climatesolver.org/enabling/get-informed-enabling. The lack of awareness is an effective barrier for actions and investments which could be just as effectively removed if addressed decisively.	Noted. We will revise the reference provided and check if there is more reserach availble to make this a prominent finding.
25924	16	46				Box 16.2. is important, but should be summarized. See the comment proposed above (chapter 16. p12 lines 20-28). Moreover, not only LDC are concerned by this topic, but also the remote areas of developing countries (being LDC or not)	Noted. Text will be improved. We will mention that some of the issue are also relevant for other countries, but we will stick to the commonly accepted definition of LDCs.
22286	16	46	1	46	5	The details of FIT implementation (guarantee of contracts for independent power producers, the rates, the duration etc.) matter greatly for the success of such instruments,e.g. in the Philippines the FIT has been mixed with Renewable Portfolio Standards. should be elaborated more.	Noted. Assessment of the effectivenes of policy instruments is coverend in chapter 15.
33346	16	46	1	46	7	Mention that there is no nationa wide incentive (cap or carbon price) to cut emissions, which means that there is a risk of "carbon leakage" or "carbon shifting"	Noted. Please refer to chapter 15 for national policy incentives.
22287	16	46	11	46	19	see previous comment on 16.5.2 page 38, again mix up of institutions and their mandates.	Please look at previous response to the comment mentioned.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
29295	16	46	28	46	39	Another issue of concern is the impact of the black carbon. Traditional uses of biomass emit relevant quantities of black that should be taken into account. According to UNEP (2011) the use of improved cookstoves and switch from biomass to modern fuels would: 1) contribute to reduce short-lived climate forcers (SLCFs), specifically black carbon, by 2050 in a 24.8% 2) reduce 1.8 Mt of Black Carbon 3) contribute to a 0.1ºC reduction by 2050 FAO (Food and Agricultural Organization of the United Nations) 2010: What woodfuels can do to mitigate climate change FAO Forestry Paper 162; Rome: FAO UNEP (United Nations Environment Program) 2011: Near-term Climate Protection and Clean Air Benefits: Actions for Controlling Short-Lived Climate Forcers; A UNEP Synthesis Report, United Nations Environment Programme (UNEP), Nairobi, Kenya, 78pp These figures should be kept in mind in order to promote coherent actions that could contribute to poverty alleviation and climate change effects reduction. The promotion of clean cookstoves could be an effective way to meet this.	An assessment of emissions and mitigation measures/policies (and their impacts) is beyond the scope of this chapter that focuses on finance and investment.
29298	16	46	28	46	39	The limited contribution of the LDC to the climate change is true but it is clear that there are some sectors with room for improvements, for example, the traditional use of biomass for cooking and heating purposes. At this respect, considering the relevant global mitigation potential of advanced cookstoves between 0.6 and 2.4 Gt CO2eq/yr (Chum, Faaij, Moreira, Berndes, Dhamija, Gabrielle, et al., 2011 in Chapter 11 p 78 l 6-19) this issue shouldn´t be disregarded. On the other hand, it is recognized that the traditional uses of biomass may cause deforestation and forest degradation (e.g. Cushion, Whiteman, Dieterle 2010) so it cannot be considered as renewable biomass. Hence, I would like to propose the inclusion of the following sentence: a better understanding of the contribution of both non-renewable and renewable traditional biomass combustion to climate change should be promoted, and the corresponding emissions be added in the energy models, which usually poorly include these emissions. Additionaly please, note that the aforementioned assessments would allow to quantify some of the impacts of poverty on climate change and to promote actions accordingly such as the promotion of clean cookstoves. Reference: Cushion E, Whiteman A, Dieterle G 2010: Bioenergy Development Issues and Impacts For Poverty And Natural Resource Management; The World Bank; Washington	An assessment of emissions and mitigation measures/policies (and their impacts) is beyond the scope of this chapter that focuses on finance and investment.
34023	16	46	28	46	39	In many areas of developing countries traditional biomass is not consumed in a sustainable way, causing deforestation and forest degradation (see e.g. FPAN (Forests Philantrhopy Action Network) 2011: Chapter 6. Woodfuels and forests in tropical Africa; in: Protecting and restoring forest carbon in tropical Africa http://files.forestsnetwork.org/FPAN_HR.pdf). It would be important to have more accurate data about these emissions in order to promote measures to limit them at the same time that measures to fight against poverty may be encouraged. Then, the promotion of cost-effective solutions such as clean cookstoves installation that additionally have other co-benefits (on health, development, etc..) might be explored within the climate finance framework.	An assessment of emissions and mitigation measures/policies (and their impacts) is beyond the scope of this chapter that focuses on finance and investment.
29296	16	46	34	46	35	Here "universal access" is not mentioned, but it should be noted due to various relevant international initiatives at this respect, for example, the UN "Sustainable Energy for All".	Noted. Energy access is mentioned in the LCD box. Please refer to the energy chapter and ist LDC box for more information on that issue.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
29297	16	46	37	46	38	The sentence in lines 36-38 is very relevant but I miss a specific comment regarding universal access. I propose to include an additional sentence between lines 37 and 38, as follows: at this respect universal energy access both in electricity and clean cooking terms should be promoted and aligned with other international initiatives.	Noted. However, access to energy services in included in LDC box. Please refer to the energy chapter and ist LDC box for more information on that issue.
24213	16	46	6			the correct expression shall be "China (provinces and cities)	Accepted. Will do.
31162	16	46		47		Suggest spelling out LDCs. It is also not clear in this section how data for LDCs differs from data throughout the chapters on broader category of 'developing countries.'	Will spell out LCDs. The box is meant to highlight particularities of poor countries as all chapters are mandated to hae such a box.
29965	16	47	17	47	18	A useful reference in this context is also Ekholm,, Ghodusshi, Krey, Riahi, The Effect of Financial Constraints on Energy-Climate Scenarios, Energy Policy, forthcoming	Noted.However, in this section we want to highlight gaps and not mention existing literature.
38866	16	47	30	47	34	Could mention the OECD research collaborative on tracking private climate finance as a new initiative aiming to overcome some of these gaps.	Rejected, research collaborative is only in place for very few months, has not shown any results yet and we don't know how lasting it will be. Therefore it does not seem appropriate to mention it here.
30464	16	47	5	47	7	I would include the co-benefits of some relevant activities that are related to both climate change mitigation and poverty alleviation. Particularly, the implementation of clean cookstoves in LDCs favours poverty alleviation (preventing premature deaths as estimated by Wilkinson et al. 2009 and Venkataraman et al. 2010; and demonstrated by Smith-Sivertsen et al. 2009) and combats climate change including deforestation (FAO 2010 and World Bank 2011) and reduction of Short-Lived Climate Forcers (e.g. Figure 4.2 and Table 4.1 in UNEP 2011). Moreover, capital investments for clean cookstoves are substantially lower than other measures and also provide a short pay-back period. References: - Wilkinson P, Smith KR, Davies M, Adair H, Armstrong BG, Barrett M, et al. Public health benefits of strategies to reduce greenhouse-gas emissions: household energy. Lancet 2009; 374 : 1917-29. - Venkataraman, C., A. D. Sagar, G. Habib, and K. Smith. 2010. “The National Initiative for Advanced Biomass Cookstoves: The Benefits of Clean Combustion.” Energy for Sustainable Development 14(2): 63–72. - Smith-Sivertsen, Tone, Esperanza Diaz, Dan Pope, Rolv T. Lie, Anaite Diaz, John McCracken, Per Bakke, Byron Arana, Kirk R. Smith, and Nigel Bruce. 2009. “Effect of Reducing Indoor Air Pollution on Women’s Respiratory Symptoms and Lung Function: The RESPIRE Randomized Trial, Guatemala.” American Journal of Epidemiology 170: 211–20. - World Bank (2011). Household Cookstoves, Environment, Health and Climate Change: A New Look at an Old Problem. The World Bank, Washington, USA. - FAO 2010. Global Forest Resources Assessment 2010 (FRA 2010) - UNEP 2011. Near-term Climate Protection and Clean Air Benefits: Actions for Controlling Short-Lived Climate Forcers, United Nations Environment Programme (UNEP), Nairobi, Kenya, 78pp	An assessment of emissions and mitigation measures/policies (and their impacts) is beyond the scope of this chapter that focuses on finance and investment. Please have a look at chapter 3 and 7 for a discussion of co-benefits.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
20289	16	47	30	48	42	Additional gaps in knowledge/data that should be included: establishing links between public policy levers and mobilising of private finance (including but not limited to leveraging, which is very inconsistently measured), data on private sector investments is not well tracked or understood. Sources that outline gaps include: Clapp, C., J. Ellis, J. Benn and J. Corfee-Morlot (2012), Tracking Climate Finance: What and How? OECD/IEA Publishing, May 2012, http://www.oecd.org/env/climatechange/50293494.pdf; and Brown, J., B. Buchner, G. Wagner, and K. Sierra (2011), Improving the Effectiveness of Climate Finance: A Survey of Leveraging Methodologies. Climate Policy Initiative, December 2011, www.odi.org.uk/resources/details.asp?id=5701&title=climate-finance-private-investment-public-sector-climate-change.	Noted. Gap on tracking and effectiveness in mobilizing is included in 16.9
20290	16	48	22	48	30	Good to see that effectiveness is included as a gap. Effectiveness work to date is largely based on case studies. Also effectiveness is sometimes equated with leveraging ratios -- which is only part of the picture, and leveraging ratios are measured very differently across institutions (see Brown, J., B. Buchner, G. Wagner, and K. Sierra (2011), Improving the Effectiveness of Climate Finance: A Survey of Leveraging Methodologies. Climate Policy Initiative, December 2011, www.odi.org.uk/resources/details.asp?id=5701&title=climate-finance-private-investment-public-sector-climate-change).	Noted.
35341	16	5	1	5	15	The discussion on the role of private funding contradicts itself in the text, and lacks sufficient elaboration on the importance of public funding. It should make a reference to the relevant text so as to highlight the importance of public funding to developing countries and identify the mechanism in which public funding leverages private sector investment. The word of “central” in line 1 should be replaced by “supplementary”.	Taken into account - The paragraph was rewritten to better convey the complex interaction between private and public funding.
38723	16	5	1	5	6	Unclear: contribution numbers (250-285bn) only for developing countries? And large scale investment instruments listed are primarily only used in LDCs and LMICs. Also, need clarity on mitigation finance definition.	Taken into account - The total applies to both developed and developing countries. A definition of mitigation finance was added in the ES.
38724	16	5	12	5	12	add "domestic and" before "foreign investors"	The role of domestic players is now better reflected in the chapter.
38725	16	5	14	5	14	the word "grant" would be better changed to "public"	Term "grant" is now used appropriately.
38726	16	5	14	5	14	Replace "grant" with "public"	Term "grant" is now used appropriately.
28193	16	5	17	5	20	It should be mentioned that an enabling environment in recipient countries is also a crucial factor.	Accepted.
28192	16	5	2	5	3	Is the volume of "USD 250-285 billion in 2010/2011" the value of the period 2010-2011 or the annual value for each year?	Taken into account. Explanation has been provided.
38727	16	5	21	5	21	Add "investment in" before "mitigation technologies" to clarify this idea.	Paragraph completely rewritten.
38728	16	5	22	5	22	Not sure political uncertainty is the main hurdle, so would group all enabling environment isues together.	Accepted. Text will be revised.
26411	16	5	22	5	22	s/b "political risk uncertainty"	Accepted. Text will be revised.
20523	16	5	25	5	31	Raising revenues and allocating those revenues to climate finance are two distinct issues. While governments could levy carbon taxes, say, it does not necessarily follow that those some or all of those monies will be dedicated to climate finance. Conversely, the failure to utilize carbon-related revenues does not mean public climate finance will not be forthcoming. This is a political rather than a scientific or economic question. Not clear that this belongs in the chapter.	Noted. Paragraph was rewritten.
38729	16	5	25	5	25	Add the word "new" between "raise" and "revenues"	Noted. Paragraph was rewritten.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
26412	16	5	25	5	25	s/b "taxes AND"	Accepted.
38730	16	5	28	5	30	As we're not aware of any GHG taxes on international bunker fuels currently, this para should read (additions=caps, deletions=crossed out): The consideration of the use of other innovative sources of public revenues like taxes on international bunker fuels or aviation ticket charges specifically for climate financing are IS still in their ITS infancy.	Accepted.
38731	16	5	37	5	43	Paragraph does not reflect difficulty in distinguishing between adaptation and development finance in many investments.	Taken into account. Text will be added in gaps of literature (subsection 16.9)
38732	16	5	39	5	41	in reference to mitigation vs adaptation funding, how much evidence was reviewed? I thought more investment in mitigation now is priority. Please caveat the entire section on synergies between adaptation and mitigation as we do not believe there is extensive research available on this topic.	Noted. See sub-section 16.6.
22620	16	5	44		48	Rephrase the paragraph and put it as the first para in the Exec Sum. The point is not so much that there is little scientific literature, but rather that there are no internationally-agreed definitions of what climate finance is, and therefore no comparability and consistency between different estimates. [there are moves in this regard, e.g. from MDBs, but nothing more widely agreed]	Taken into account, both sentences have now been combined and are highlighted.
38733	16	5	47	5	47	add "and methodologies" after "assumptions"	Taken into account in rewriting of text.
33947	16	5	25	5	31	need a paragraph to explain the nature of the market. For instance, carbon martet is more local based and the tax revene are more used domestically on mitigation investment; Global carbon market is still lacking political agreement; market is not stable and not predicable	Rejected. The exective summary is supposed to be limted to the key results. Section 16.2.3 discussed the different types of revenue raising mechanism in more depth.
40767	16	5	28	5	30	"The use of other innovative sources of public revenues like taxes on international bunker fuels or aviation ticket charges specifically for climate financing are still in their infancy." should be deleted since there was neither discussion nor consensus within the UNFCCC on which sectors/fields might be identified as appropriate financial resources for climate finance so that it is imbalanced if only the international maritime and aviation are identified.	Rejected. Text is correct.
34793	16	50				Assumptions used to derive investments form AME scenarios may be controversial. 4000 $/kW for hydropower is wrong (for overnight cost) or has to be considered as the upper value of the range. Hydropower is site specific and to provide a range is more relevant in comparison to other technologies. Reference to this could be found in the recent IRENA report published early 2013 "Renewable Power Generation Costs in 2012: An Overview". I can provide additional references on request	Table was deleted.
35342	16	6				It is suggested to add more discussion on the importance of public funding from developed countries in meeting the financial needs of developing countries, and on whether developed countries have fulfilled their obligation in providing financial support.	Noted. This is discussed in section 16.2.3. It is not appropriate to add more in the Introduction.
25628	16	6	1	6	2	It is unclear that which document under the UNFCCC says that, especially "have agreed" and "by the end of 21st century". Correct words sould be used like Chapter 1 P16 L15-30.	Taken into account in rewrite.
38735	16	6	15	6	15	on the example, in some places only a portion is counted, eg USAID's Fast Start Finance. Reflect this, too.	Noted. Inter alia, a box has been added on different definitions and concepts.
22625	16	6	16			The chapter does not focus solely on finance needs, but also on finance flows. So adaptation flows should not be excluded.	Noted. Flows include finance for adaptation. This sentence was revised.
22626	16	6	16		25	Paragraph is a bit confusing. What is the key message?	Accepted. Paragraph will be revised.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
25907	16	6	16	6	36	The proposed definition of climate finance should clarify the issue of fundings or projects whose first objective is not climate mitigation or adaptation: are these projects or only a part of these projects included in the definition of climate finance as proposed in this chapter?	Noted. The new box on different concepts addresses this concern.
25791	16	6	2	6	3	This part should be revised to "countries have agreed to recognize that by the end of 21st century the increase in global average temperature should be no more than 2°C above pre-industrial levels.", describing the Cancun agreement correctly. This target is not agreed but only politically mentioned. In addition, the 2°C target is extremely difficult to attain, as described in (Höhne, 2011, conclusion) and (Rogelj, 2011, abstract). These literatures are listed in the No4 line of this table.	Taken into account in rewrite.
22251	16	6	33	6	34	UNFCCC definition missing.	Accepted. Definition has been moved up.
20524	16	6	33		36	If the term climate finance is not well defined, how can it be narrower in scope? Also, the last phrase ("full cost of various reports...") is actually broader than what I would consider a reasonable climate finance definition. So there is a contradiction in this paragraph.	Noted. We now include a box that defines different concepts.
38736	16	6	33	6	36	delete this entire paragraph because the UNFCCC does not define climate finance at all and this is therefore confusing.	Reject. Paragraph on UNFCCC definition has been moved up.
38737	16	6	33	6	36	Paragraph incorrect and nonsensical. Strike, "However…" through the end of the paragraph.	Reject. Paragraph on UNFCCC definition has been moved up.
28195	16	6	33	6	34	Why is "Under the UNFCCC the term climate finance [...] not WELL defined"? There is no definition at all. Therefore, the sentences in lines 33-36 could be deleted.	Reject. Paragraph on UNFCCC definition has been moved up.
29260	16	6	33	6	36	Not clear where this interpretation of climate finance under the UNFCCC comes from. The second sentence of this para on covering agreed full incremental costs of mitigation actions goes beyond the commitments in Article 4 of UNFCCC. Might be better to say the term climate finance is 'generally used to refer to international flows from developed to developing countries to support mitigation, adaptation, and various reports and activities'.	Reject. Paragraph on UNFCCC definition has been moved up. That paragraph has the phrase 'agreed full incremental costs' in quotes and cites Article 4.3.
22627	16	6	34			The sentence "It is limited to international flows…." is incorrect. Climate finance in the context of the UNFCCC is also the 100bn USD commitment. This commitment was entered into by "developed" countries (the relationship between "developed" and "Annex II" has not been clarified). Also, the 100bn commitment is not specifically linked to incremental costs, or full incremental costs. Either this para should be deleted, or a clear distinction should be made between provisions in the UNFCCC itself, and the 100bn USD commitment.	Noted. Will add a sentence to reference discussion of the USD 100 billion commitment in section 16.2.3
32338	16	6	37	6	44	It would be worthy to note here in the introduction how the lack or high cost of financing can affect the effectiveness of climate policy that is driven by emission pricing (emission taxes or cap-and-trade). We analyze this effect quantitatively in a forthcoming paper, in which high capital costs delay the introduction of renewable electricity (and therefore also delay emission reductions) in the GEA Mix scenario (Tommi Ekholm, Hamed Ghoddusi, Volker Krey and Keywan Riahi, 2013. The effect of financial constraints on energy-climate scenarios. Energy Policy, in press, doi:10.1016/j.enpol.2013.04.001, preprint available at http://sal.aalto.fi/publications/pdf-files/pekh12b.pdf).	Noted. Not appropriate for the Introduction, considered in section 16..4.2.2
38738	16	6	39	6	39	It would be good to give an example of "innovative mechanisms" since it's unclear what this means in this context.	Noted. Text has been rewritten.
28196	16	6	42			Behind "consistent and long-term policies" it should be added: "as well as enabling frameworks"	Noted. Text has been rewritten.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
26413	16	6	44	6	44	For example, without financial accounting mechanisms that value carbon emissions, allowances, and reductions "on-balance sheet, at fair value", conducting valuation of effective mechanisms to finance climate change mitigation at a firm-by-firm level and at an industry-level are not possible. Furthermore, without financial accounting mechanisms in place, it is not possible to efficienctly determine climate chnage project taxes due that would in turn support local governance structures. I am referring to the taxes generated by the ongoing operations of the climate change mitigation project.	Rejected. This is too detailed for the introduction.
38734	16	6	6	6	9	The two references to "flows" are confusing-- is there a more inclusive word to account for guarantees and insurance?	Rejected. The use of "flows" in lines 6 and 9 is consistent. When guarantees and insurance lead to payments those payments are included.
22621	16	6	7			"Stadelmannnnn" should have fewer "n"s :-) (also in reference section)	Accepted.
29259	16	6	7	6	15	It would be helpful to clarify that the definition used here of climate finance is global. Many people use 'climate finance' to refer to flows from developed to developing countries.	Noted. Text has been rewritten.
22622	16	6	8			Also add reference to Clapp et al 2012, see http://www.oecd.org/env/cc/50293494.pdf	Accepted. Clapp et al. are quoted several times.
33331	16	6	8	6	15	If the definition includes all flows with a net mitigation or adaptation effect, it must also include even small investments in for instance the insulation of a house. I think this should be made more clear, as it differs from the way in which "climate finance" is often used in policy debates and academic literature.	Noted.Conceptually these are included, in practice data generally are not available.
28194	16	6	8	6	15	It says: "For this chapter climate finance is defined to consist of all financial flows whose expected effect is to reduce net greenhouse emissions or to enhance resilience to the impacts of climate variability and the projected climate change. This is a broad definition covering private and public funds, domestic and international flows, expenditures for mitigation and adaptation, and the costs of adaptation to current climate variability as well as future climate change. It covers the full value of the financial flow rather than the share associated with the climate change benefit; e.g. the entire investment in a wind turbine rather than the portion attributed to the emission reductions. " A footnote should be included pointing to the fact that there are differing perceptions as to if CCS or nuclear are understood as climate finance.	Noted. There are many unresolved definitional issues in relation to different definitions of climate finance.
22623	16	6	9			There is a problem with your definition as currently worded. At present, the definition would exclude expenditure on reporting, pre-feasibility studies, capacity building etc, as these activities do not have a mitigation or adaptation effect directly. this would be inconsistent with current practice in reporting climate expenditure e.g. under the GEF and under the OECD's DAC-CRS system. In order to be consistent, you would need to reword so that it reads "... whose expected DIRECT OR INDIRECT effect is to ..."	Taken into account in rewrite.
22624	16	6	9			Since some activities have both mitigation and adaptation effects, "or" should be replaced with "and/or"	Accepted.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24485	16	6	34	6	36	Although the statistic which covers finances between Annex 2 countries is not available, the mount of these flows is thought to be negligible. According to the web of Chine Developing Banks, the bank provided USD181 billion and RMB 61 billion in 2011 as financial cooperation. http://www.cdb.com.cn/english/Column.asp?ColumnId=86 It is better to introduce the fact financial of these flows as a new movement. Also we had better to follow the development of domestic finance market in the developing countries, such as in Thailand and Malaysia. Under Feed-in-Tariff, commercial banks in Thailand provided big amount of long term finance to PV projects although this market was developed by international finance including multilateral banks. (see Takashi Hongo, Green Finance in Asia, at New Story of “E” (Energy and Environment), on 10 August 2012, Nikkei Sangyo News) That article pointed the fact that domestic finance plays important role in emerging countries and become bigger even though still they have some limitation.	Noted. Comment confusing. Will move definition of climate finance under UNFCCC (para at l 17, p. 10) here. Data from a news paper report is not acceptable literature.
32429	16	6	4	6	4	Please provide a more specific reference to the WGI AR5 contribution, i.e., chapter/section.	Text has beed completely rewritten.
33937	16	6			15	analysis should be followed by the defination in the early part.see comment #2	Unclear comment.
33938	16	6			36	Climate finance under UNFCCC and how to enhance this finance should be the focus of this chapter.	Rejected. The mandate of the IPCC Plenary was to cover climate finance in developed and developing countries alike.
38739	16	7	14	7	14	add "or as combinations of the two" after "private sector"	Noted. Text has been completely rewritten.
22628	16	7	17			It is not just CPI who have done studies on this… need to expand the references given. For example, South Africa's DBSA have made presentations on this (Chantal Naidoo).	Rejected. The reference cited is a power point presentation.
22252	16	7	17	7	17	Too few sources.	Noted. We have to tried to identify additional ones.
22672	16	7	1	10	3	The Issue of CBDR and equity with regard to financing is not discussed. At times, the chapter reads entirely too descriptive and in many cases, especially as regards to scale of financing (16.2, pg. 7-10) and 16.5 (pg. 35) institutional arrangements for mitigation finance, there is not through exposition of the complex issues around issues such as equity and CBDR and how those related to the financing issues. As the OECD notes: All measures to address climate change have implications for regional and temporal equity. To the extent that the funds are provided for projects, the funding body must establish priorities and so implicitly or explicitly address regional and temporal equity. To the extent that the funds are provided for country programmes or national development strategies, regional equity is implicitly or explicitly addressed while priorities and their temporal equity implications are delegated to the national government	Noted. This discussion is covered in other chapters of the report.
25908	16	7		13		This section includes several repetitions across sub-sections. Information should be better integrated, repetitions should be avoided. This would contribute to reduce the length of the whole chapter.	Taken into account in rewrite.
24209	16	8				1.Assessed Budget Contributions should be listed as one of the climate finance "sources" (AGF WS6, 2010);technology, capacity building should be included in the "uses" (UNFCCC 4.3, 4.5 ; GEF 2012, FCCC/CP/2012/6)	Noted. The Figure has been revised. Tax revenues are listed as a source of capital (broader than assessed budget contributions).Uses reflect the scope of climate change which may or may not include technology and capacity buidling

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
24486	16	8		8		It is well illustrate the financial flow but there are some unclear arrows and boxes, □ "Household direct investments" is project-level equity. What kind instrument is it? If it is through project bind or other types of financial products, it is better to described "through capital market" □ What does "Balance sheet financing" here? Does this mean on-balance or corporate risk financing? If so, lenders to the corporate are not limited to corporate and institutional investors and both public and commercial banks provide big amount of financing. □ I am not sure what is the message of "recipients". It is not necessary to divide into developing and developed countries and it seems to be better to make one box.	Noted. Figure has been revised and simplified.
26414	16	8		8		No mention in the figure of generally accepted accounting principles or financial accounting and their impact on providing tax revenue supporting local governance … this must be addressed if proper firm-wide and industry-wide valuation of carbon emissions, allowances, and reductions is desired. I am referring to the taxes generated by the ongoing operations of the climate change mitigation project.	Taken into account. The figure has been completely revised.
29261	16	8				Suggest clarify title of figure to 'overview of global climate finance sources, intermediaries …including public and private finance'	Noted. Figure and title have been revised.
38740	16	8	1			What is the difference between the solid boxes and the dashed lines? Is the "government budgets" not considered a sources, or are they on the same plane as "household investments"? Shouldn't the "corporate actors..." box also go to "debt" boxes? Please consider and revise as necessary.	Noted. Figure has been revised and simplified.
24262	16	9				Please reflect (a) the financial weight and of each of the figures components and (b) their interdependecy, to guide the reader as well policy-makers in how to make the financial sector work for the transition.	Noted. Figure has been deleted.
28198	16	9				Behind "development banks" it should be added: "and funds"	Noted. Figure has been deleted.
33939	16	9			9	Add one sentence in the beginning of this paragrah:Domistic public fund is more often used to support privite sector investment,market and investment via domistic develop bank	Rejected. We believe the content would double what is already said the the current first sentence of the paragraph.
38741	16	9	10			better to say "private investors" than "corporations", no?	Noted. Figure has been deleted.
24210	16	9	15	9	20	replacing "e.g. world bank…a single project", with "e.g. UNFCCC、GEF、LDCF、SCCF、AF	Taken into account in rewrite.
33940	16	9	16	9	20	delete"e.g. world bank…a single project"and change to "e.g. UNFCCC GEF、LDCF、SCCF、AF"	Noted. We have changed the text to "or through multilateral institutions having several countries as shareholders, such as the World Bank, regional development banks, and multilateral climate funds."
22630	16	9	21			Heading is about flows, but content of para line 29-35 is about investments, not just flows (from one country to another). This is either inconsistent, or your definition of "flows" needs to be clarified at the top of the section.	Noted. Heading changed.
22629	16	9	22			One of the first studies to show that there is no comprehensive system for tracking climate finance flows is Buchner et al 2011, see http://www.oecd.org/env/cc/48073739.pdf Please add this reference. Also there should not be a capital T in therefore in the middle of the sentence.	Noted.
22253	16	9	26	9	26	There is no comprehensive system for tracking climate finance but there are attempts underway in many countries. See e.g. WB CPEIR, should elaborate.	Rejected. The purpose of the paragraph is to highlight the uncertain nature of the data, not to discuss tracking systems.
22631	16	9	29	35		It is difficult to understand what these numbers about "green" flows mean, without contrasting them to the "brown" flows that are already happening. This information is available at the following link: http://www.oecd.org/env/cc/Financing%20Climate%20Change%20brochure.pdf	Taken into account in rewrite.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
25909	16	9	29	9	30	Check the consistency of numbers (the text says: current climate finance = USD 343 to 385 billion, mitigation finance = USD 350 billion, more than the lower range of total finance).	Taken into account in rewrite.
38742	16	9	29	9	30	This sentence is not internally consistent. How can mitigation finance be pegged at USD 350B, with no caveats, when estimates of total climate finance are as low as USD 343B, and we can be quite certain that some of that includes adaptation?	Taken into account in rewrite.
38743	16	9	29	9	30	Need explanation as to what is included in Buchner's numbers and what is not included.	Taken into account in rewrite.
38744	16	9	29	9	31	These numbers need to be caveated, as there is only one study done that demonstrates this estimated range. We need to be clear that evidence is somewhat limited.	Taken into account in rewrite.
29262	16	9	29	9	30	This statement is confusing. Not clear what distinction is being made between 'climate finance' and 'mitigation finance' and why there is a range associated with the figure for climate finance but not for mitigation finance.	Taken into account in rewrite.
33941	16	9	33	9	35	Add "including inside developed country, inside developing country, and between developing and developed countries" before "goods or services" ; "over 70% of the total is private finance" need reference to support	Rejected. We introduced a box explaining the different concepts (understandings) of climate finance. Therefore, we do no repeat the explanation in the text. The 70% originates from Buchner et al. 2012 as do the previous numbers in that paragraph.
33332	16	9	39	9	39	It should be specififed how Buchner et al defines "climate finance", as it has very significant repercussions for which sums are included in the total sum.	Taken into account in rewrite.
28197	16	9	4			Behind "development banks" it should be added: "and funds"	Taken into account in rewrite.
24487	16	9	1	9	20	Among bilateral finance, we had better to consider 2 types of financing, concessional and non-concessional finance. “Plugging Energy Efficiency Gap with Climate Finance” (2012, IEA) describes the role of concessional and non-concessional finance well. Table 4 and 6 shows the amount of mitigation finance amount (source UNEP) and leverage ratio (source UN). Around 1/4 of public mitigation finance is non-concessional finance.	Noted. The demarcations between concessional and non-concessional funding are often not clearly defined.
31158	16	9		10		Given the difficulties in defining climate finance, this section could use better linkages/recognition of the difference between what "counts" as climate finance flows under the sources/data presented at the beginning of the section and what is accounted for under the UNFCCC system.	Noted. Section 16.1 will note that the term is used both for global climate finance and for flows to developing countries.
20291	16	9	22	9	35	Estimating current financial flows is very tricky. The first sentence notes that there is no comprehensive tracking system. A good reference for this is Clapp, C., J. Ellis, J. Benn and J. Corfee-Morlot (2012), Tracking Climate Finance: What and How? OECD/IEA Publishing, May 2012, http://www.oecd.org/env/climatechange/50293494.pdf, which outlines what we do know and don't know about estimating climate finance, and explicitly notes the lack of a comprehensive tracking system, particulary for the private sector flows.	Accepted. Reference was added.

Comment No	Chapter	From Page	From Line	To Page	To Line	Comment	Response
20292	16	9	29	9	30	The current estimate of climate finance from Buchner et al should be described here more thoroughly, especially as it is a policitally very sensitive issue in the negotiations and as it differs so much from the previous landscape report and from OECD work on the subject (see Clapp, C., J. Ellis, J. Benn and J. Corfee-Morlot (2012), Tracking Climate Finance: What and How? OECD/IEA Publishing, May 2012, http://www.oecd.org/env/climatechange/50293494.pdf) -- both of which were in the same ball park of around $100 bn. For example, I don't think the latest Buchner figures are reflecting North-South financing. The Clapp et al source gives a range of $70-120 bn for North-South climate financing. It should be noted that neither source takes into account additionality. At the very least, both estimates should be included in the chapter, since North-South climate finance is the figure the UNFCCC negotiations is focused on.	Accepted. Clapp et al estimate has been included.
21356	16	all				Let me welcome the addition of a Financing and Investment Issues chapter. However imperfect and maligned they may be, financial markets will have to play an important part in mitigation and adaptation. The team has clearly gathered an extensive body of evidence in this area for which it should be commended. In the following comments I highlight some additional issues and evidence arising principally, but not exclusively, from my own work which is focussed on energy and carbon finance see http://www.otago.ac.nz/accountancyfinance/staff/otago032953.html.	Noted. Will be taken into account in review.