INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

WMO UNEP

IPCC Fourth Assessment Report

Expert/Government Review of the Second-Order Draft

Chapter 13

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-1	A	0	0	0	0	Overall: Much improved compared to FOD! (Reimund Schwarze, DIW Berlin)	Noted
13-2	A	0	0	0	0	It would be helpful if it was made clearer whether particular conclusions on the performance of different policy approaches is based on actual experience, or theory. The problem with drawing conclusions from actual experience with tradeable certificate/permit measures is that performance of these 'designer' makets will depend on a wide range of design choices, scheme settings, the wider policy context etc. The problem with drawing conclusions from theory is that standard market models aren't likely to be appropriate for 'designer' markets that can be highly abstracted. (Iain MacGill, University of NSW)	Noted, included in 13.2.2
13-3	A	0	0	0	0	ii) As highly reputated senior officials (I refer to former UNEP Executive Secretary Töpfer as a prominent example) have often emphasized one big problem/obstacle in mitigating climate change are the unsustainable consumption patterns found in industrialised countries which are more and more copied by the more wealthier population in many developing countries. Already at UNCED in Rio de Janeiro (1992) this was seen as a problem - I refer to Chapter 4 of Agenda 21. I see that this important item and reason is missing in the chapter of WG3 that should analyse which are the reasons for the rise of emissions in industrialised countries. I see no mentioning of Chapt. 4 of Agenda 21, and subsequently no proposals how to remedy this problem with the unsustainable consumption patterns. And no mentioning of the fact that most of the countries have failed their task in changing the unsustainable consumption patterns. This is a big deficit and not excusable - how many pages have been written in the WG3 report for AR4 which are of much minor importance than the (missing) consumption pattern item? (Manfred Treber, Germanwatch)	Accepted. Change made to Ex sum and 13.2.1.8
13-4	A	0	0	0	0	i) I did not have time to read the chapter completely, but what I could read did not include one important 'effect' of the negotiations on climate change (under FCCC). I mean their emanation on the public worldwide through the reports, interviews and background broadcasts in the media before, during and after the COPs and especially in connection with the high level segment (see also my comment on chapter 13, page 47, line 38). (Manfred Treber, Germanwatch)	Noted
13-5	A	0	0	0	0	Consider including the following paragraph: There is broad agreement that, at low income levels, economic growth brings about greater environmental impacts for each unit of growth, compared to higher levels of	Noted already in text. 13.2. page 7

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						income. However, a closer look at the performance of individual economies (1) reveals that, even at low income levels, cross-country differences in environmental quality can be striking and are associated, in part, with the quality of the environmental regime in place. Indeed, the sophistication of a nation's regulatory regime and, perhaps more notably, its broader economic and social context all determine environmental outcomes as much as income levels do. Arguably, thus, failure to develop long-term, coherent and cost-effective policies is a key determinant of poor environmental performance. This is particulalry evident in the area of climate change, where policies stemming from (often, but not always) different government branches undermine (2), as opposed to reinforce, each other. (1) National environmental performance: an empirical analysis of policy results and determinants (In Environment and Development Economics 10: 391–434, 2005) (2) http://www.ssb.no/publikasjoner/DP/pdf/dp337.pdf (Daniel PUIG, United Nations Environment Programme)	
13-6	A	0	0	0	0	I did not find a discussion (nor inclusion in the chapter's References) of the US Department of Energy's Climate Change Technology Program (CCTP). The CCTP is an important initiative which connects the dots between the activities of the DOEs 14 energy R&D labs and climate change. The development of CCTP is an important policy initiative. The chapter is incomplete without reference to the CCTP. (Perhaps it would fit into section 13.2.1.5, pp 23 ff. Incidentally, the DOE's CCTP can be found at the website: www.climatetechnology.gov" (Christopher Green, McGill University)	Noted. R&D efforts are already in the text. If we would reference a programme of the USA we would have to reference programmes of other countries as well.
13-7	A	0	0	0	0	This is general commnet: As many countries, national research projects and the EU have started identifying "dangerous level of climate change" by providing with concrete targets for years such as 2050, it may be useful to include a section, or at least a table, that summarises the latest developments on midium to long-term (political and non-political research based) targets (such as WBGU, Energy White Paper of UK, MIES of France, Low-carbon society 2050 of Japan, and Swedish EPA figures). (Norichika Kanie, Tokyo Institute of Technology)	Taken into account. Will be included in 13.3.3.1
13-8	A	0	0	0	0	Chapter 13. There is a large difference between sections 13.2 and 13.3. While 13.2 emphasises insights from the scientific literature, 13.3 highlights more ongoing policy developments. Although the AR endeavours to give an overview of the scientific literature, my impression is that in 13.2 this results in very little new insights.	noted

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						(,)	
13-9	A	0	0	0	0	Please see my Commentary titled "Addressing Potential Abrupt Climate Change" which does not fit into this Excel spreadsheet box. I have accordingly asked Dave Rutu to circulate it to lead authors. It draws attention to a body of peer reviewed and gray literature which appears to have been largely overlooked in the SOD, although it was brought to attention previously in my comments on the FOD and features somewhat in this Chapter I am glad to see. The main point is that the literature mostly treats atmospheric CO2 as a flow pollution problem, to be addressed through a reduction in emissions. However CO2 is not a noxious gas, and therefore atmospheric CO2 is an excess stock problem with several possible answers. It is technologically much easier to extract CO2 from the atmosphere by land use improvements that increase biotic absorption and yield biomass fuels (de-fossilization) than it is do without any fuel other than hydrogen (decarbonisation). Although the best reference is Read and Parshotam (2006) this is still 'gray' and a sufficient basis for the suggested amendments to this Chapter is Read and Lermit (2005) which is already mentioned and Read (2006a). The purpose of the amendments is to draw attention to the need for dual instruments to meet dual objectives e.g. mitigation of greenhouse gases in relation to climate change as "a very long term problem" (Chapter 2) and precautionary measures related to two technology types (bioenergy and terrestrial carbon storage) in the event imminent abrupt climate change forces a more urgent approach, as discussed in new sub-section 2.3.4.1 in Chapter 2. Also, many potentially highly effective biosphere management actions do not easily lend themselves to the precision of measurement that makes them good candidates for project credits under the flexibility mechanisms. To present this aspect requires a brief review of proportional intruments such as Renewable Poertfolio Standards, which seems to be missing from the SOD and I provide some text distributed across pp 7, 10, 15, and 34 together with a note on Bilateral Bioenergy Partnerships which seems to fit in logically just ahead of 13.3.3.5.1 on FDI. and some text on capacity building at p69. . (Peter Read, Massey University)	Rejected, disagree
13-10	A	0	0	0	0	Please see my Commentary titled "Addressing Potential Abrupt Climate Change" which does not fit into this Excel spreadsheet box. I have accordingly asked Dave Rutu to circulate it to lead authors. It draws attention to a body of peer reviewed and gray literature which appears to have been largely overlooked in the SOD, although it was brought to attention previously in my comments on the FOD and	Rejected, disagree

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						features somewhat in this Chapter I am glad to see. The main point is that the literature mostly treats atmospheric CO2 as a flow pollution problem, to be addressed through a reduction in emissions. However CO2 is not a noxious gas, and therefore atmospheric CO2 is an excess stock problem with several possible answers. It is technologically much easier to extract CO2 from the atmosphere by land use improvements that increase biotic absorption and yield biomass fuels (de-fossilization) than it is do without any fuel other than hydrogen (decarbonisation). Although the best reference is Read and Parshotam (2006) this is still 'gray' and a sufficient basis for the suggested amendments to this Chapter is Read and Lermit (2005) which is already mentioned and Read (2006a). The purpose of the amendments is to draw attention to the need for dual instruments to meet dual objectives e.g. mitigation of greenhouse gases in relation to climate change as "a very long term problem" (Chapter 2) and precautionary measures related to two technology types (bioenergy and terrestrial carbon storage) in the event imminent abrupt climate change forces a more urgent approach, as discussed in new sub-section 2.3.4.1 in Chapter 2. Also, many potentially highly effective biosphere management actions do not easily lend themselves to the precision of measurement that makes them good candidates for project credits under the flexibility mechanisms. To present this aspect requires a brief review of proportional intruments such as Renewable Poertfolio Standards, which seems to be missing from the SOD and I provide some text distributed across pp 7, 10, 15, and 34 together with a note on Bilateral Bioenergy Partnerships which seems to fit in logically just ahead of 13.3.3.5.1 on FDI. and some text on capacity building at p69. . (Peter Read, Massey University)	
13-11	A	0	0	0	0	In terms of mitigating climate change there are a number of clear benefits with regard to regulation and this is in regard to for example: renewable energy feed-in-laws and mandatory targest which are market driven regulations see ch 4 p95; and to get the benefits from the mitigation potential of buildings building codes are required to name one see ch6. The general statement that regulation is not sufficient ignores these key regulations which have provided significant success. (Kirsten Macey, Climate Action Network Europe)	Noted
13-12	A	0	0	0	0	The chapter improved significantly. I have only minor comments, mainly related to references (Alexander Golub, Environmental Defense)	Noted
13-13	A	0	0	0	0	With regard to the sections on instruments it was mentioned that an assessment of	Taken into account

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						consumption patterns is missing. (Expert Review Meeting Paris, IPCC)	
13-14	A	0	0	0	0	the Chapter rather implicitly discusses the free rider issue and the measures needed to reach a wide international participation to international agreements, while this issue would deserve more attention. (Expert Review Meeting Paris, IPCC)	Accepted
13-15	A	0	0	0	0	The chapter has gained much in strength. Contents is clearer. (Gert de Gans, Kerkinactie / ICCO)	Noted
13-16	A	0	0	0	0	What is the function of the boxes? Is it to distinguish between academic literature and real world experiences? In that case large parts of text should be in boxes, particularly in section 13.3. Compare for instance the box on the EU-ETS and section 13.3.3.4.2. on the Kyoto Mechanisms. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Taken into account
13-17	A	0	0	0	0	Restructure to avoid 5 level headings (x.x.x.x.x) (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Rejected
13-18	A	0	0	0	0	Reduce the number of footnotes. Most are important enough to include in the main text. If they aren't, you may wonder if they should be in the report, unless they include references or brief definitions or so. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Noted
13-19	A	0	0	0	0	Chapter 13 has as many as 104 footnotes. They should be incorporated in the main body and/or should be cut down in number for user-friendliness. (Koji Kadono, Global Industrial and Social Progress Research Institute(GISPRI))	Noted
13-20	A	0	0	0	0	In Chapter 13, the reference OECD (2005d) should be corrected to OECD (2006) – as the book only came out this summer. Further, the correct title of the book is The political economy of environmentally related taxes. (Nils-Axel BRAATHEN, OECD)	Accepted
13-21	A	0	0	0	0	The chapter is very interesting and well written for a broad audience. The comments should be considered to help improve the contents and the editing further. Next to the detailed comments later, the main general comments are: 1) the Ex.Summary does not cover sufficiently the richness and balanced views of the full text (so I commented some aspects of the ExSumm that are handled well in the full text, and please do not reject the comment with "this is covered later on" but adapt the ExSumm because this is read by more people); 2) the chapter struggles with the 4 main criteria for assessing policy instruments (where to discuss in detail the criteria? stick to the 4 or broaden, but in what hierarchy? consistency in vocabulary,	noted

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						mainly cost-effectiveness and economic efficiency? evaluating the performance of instruments in theory versus in practice, ...); 3) the chapter authors seem to be kind people regarding established policy making. They seem very convinced of the criterium "political feasibility" for instruments and so refrain from analysing and criticising clearly the policy instruments adopted today. This is most clear when dealing with the EU ETS where often the "good news stories" prevail over the real performance [e.g.p.4 line 10 speaks of the "creation of an international carbon market" while the reality are national NAPs, several exchanges, thin and most OTC trading, etc. Also the distributional aspects get no word in the ExSumm while the full text could be more complete. The same kindness avoids the full discussion of the pricing/taxing aspects of instruments, because the official speak is anti-tax? (Aviel VERBRUGGEN, University of Antwerp)	
13-22	A	0	0	0	0	General comment: the chapter has substantially improved since its first version. The structure is clearer, the criteria have been better explained and the references to the relevant literature have greatly been enlarged. (Andrea BARANZINI, Geneva School of Business Administration)	Noted
13-23	A	0	0	0	0	General comment: I mainly have evaluated the chapter with respect to my previous comments and suggestions on its first version. I am very satisfied on how they have been integrated in the new version. (Andrea BARANZINI, Geneva School of Business Administration)	Noted
13-24	A	0	0	0	0	A lot of good material here. A general comment relates to the need for a consideration of national and trans-national policy measures. Policies help create markets (stimulating demand and investment to meet demand). However, national markets, generally speaking, are pretty small in relation to the scale required to make the global transition from high carbon to low carbon purchase choices. Feed in tariffs in one country, a levy in another and a grant scheme in a third – all for the same emerging renewable energy technologies – do not create a climate of confidence for investment at the scales required. A discussion of how policies can join up across national boundaries to create regional and eventually global markets which the multi-national suppliers of technology would regard as worth making accelerated serious investment would be well worthwhile. Realistically, given the late stage we are at, a reference should be made to the need for further work. Table 13.2 goes into this but I think it would be worth doing more in this area and publishing under IPCC auspices in a form specifically for policy makers, Ministers and their advisers. (Government of UK)	Noted

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13-25	A	0	0	0	0	Chapter 13 is almost void of cross-references to other chapters. The quality would increase substantially if the authors read the policy examples in the technology chapters and the discussions on innovation policy in chapter 11. (Government of Sweden)	Taken into account references will added in the chapter.
13-26	A	0	0	0	0	Overall, Chapter 13 does not reflect the assessment made by each of the preceding Chapters and does not maintain consistently with Chapters 4-10. As it stands, how Chapter 13 relates to the other Chapters is somewhat unclear. If consistently/clarification is not sought, the whole chapter should be deleted. (Government of Japan)	Noted.
13-27	A	0	0	0	0	This chapter lacks a paragraph, at least, about the important starting point of policies, not the least important of which is energy pricing, fuel pricing. It is suggested that this be inserted in the executive summary (which has a section on National Policies), in para 13.1.1. which is about types of policies, in 13.2.1.8 (about nonclimate policies). This issue is important: For most climate policy options, a main function will actually be to change the relative price between fuels, and to change the price of energy versus other goods and services. Thus, when fossil fuels for transport are priced about 300 to 500% higher in Europe than in the US, it contributes to European cities having a shorter average commute, a higher share for public and nonmotorized transport, and more fuel efficient (carbon efficient) cars. The literature cited above for summary for policy makers can be used. (Government of Norwegian Pollution Control Authority)	Noted
13-28	A	0	0	0	0	This chapter can be regarded as a good summary of the theme area and is well structured. Part 1 has a somewhat more analytical flavour than parts 2 and 3, which tend to be more descriptive. Even though Part 1 discusses all main types of instruments extensively, it tends to put particularly faith in market based instruments. It would be worthwhile to stress more that market imperfections can limit the effectiveness of market based instruments, also in countries with well established institutions. The building/real-estate sector is the standard example for this (e.g split incentives). Other instruments are in that case needed - usually alongside market based instruments - to enhance market functioning or sometimes to achieve goals in another way. (see also: (1) Geller H. and Attali, S. (2005), The experience with energy efficiency policies and programmes in IEA countries – learning from critics, IEA information paper; (2) Jakob, M. (2006), Marginal cost and co-benefits of energy efficiency investments, in A. Perrels, K. Ostertag and G. Henderson (eds.), Reshaping markets for the benefit of energy saving, Energy	Noted

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						Policy, Special Issue, Vol.34., No.2., pp. 172-187. (3) Parry, I.W.H. and R.C. Williams (1999), A second best evaluation of eight policy instruments to reduce carbon emissions, Resource and Energy Economics, Vol.21, pp.347-373.) (Government of Finland)	
13-1	B	0	0	0	0	we miss the notion that publishing future standards for appliances and processes is a very powerfull incentive, that is free of change (Government of Netherlands/Ministry for the Environment)	Rejected
13-2	B	0	0	0	0	we miss the notion that cooperation between governments should not preclude competion between firms, but rather help creating a level playing field, as both competition and cooperation have a role to speed-up technological change (Government of Netherlands/Ministry for the Environment)	Noted
13-3	B	0	0	0	0	The whole chapter contains very little discussion on initiatives by and the role of NGOs (Government of Netherlands/Ministry for the Environment)	Accepted, mention on gold standard added.
13-4	B	0	0	0	0	Well-designed voluntary partnerships and market transformation programs can make a significant difference and result in real emissions reductions. However, Chapter 13 largely ignores the successes and focuses more on the challenges and criticisms of voluntary approaches. The chapter should include examples of program evaluations that have noted areas of success. For example, Horowitz (2004) noted that "public programs significantly affect commercial sector electricity intensity." Similarly, Nadel (2003) noted that several market transformation initiatives have been successfully implemented in the U.S. and noted that they have "largely transformed markets and most have made substantial progress." For additional examples, see the U.S. EPA 2004 annual report on voluntary climate change programs, Lawrence Berkeley Laboratory 1998 and 2000 analyses of the Energy STAR program. U.S. Government (Government of U.S. Department of State)	Will consider references
13-5	B	0	0	0	0	There is insufficient discussion of the important role played by financial incentives to stimulate early adoption and maturation of advanced technology. These incentives, particularly "production credits", can serve as effective stimuli for introducing new technology on a broad scale. These mechanisms, even if instituted as bridging and hedging strategies, are typically much stronger than what is possible under current cap-and-trade price schemes [Montgomery, Senate testimony citation], and may be more institutionally and politically viable in many countries. In the U.S., for example, the Energy Policy Act of 2005 contains an array of climate friendly financial incentives for various advanced technologies, scored at	Taken into account in R&D section 12.2.1.5

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						$11.4 billion over 10 years. U.S. Government (Government of U.S. Department of State)	
13-6	B	0	0	0	0	There appears to be a bias in favor of international agreements involving national target setting and trading for greenhouse gases. This is most apparent in Table 13.6 (also included as Table SPM 3 and Table TS-22), which characterizes emissions trading as positive in terms of environmental effectiveness and cost effectiveness. The effectiveness of these approaches is a subject of debate in the literature, and will largely be a function of their design, as is the case with other approaches that the document treats more neutrally. There could also be more coverage of other international approaches. U.S. Government (Government of U.S. Department of State)	Taken in to account in revising the table
13-7	B	0	0	0	0	The treatment of R&D, technology development and technology cooperation, is grossly inadequate and exhibits strong bias (in favor of regulatory and other approaches), misses the point, and discounts the importance of R&D as an effective policy measure. Rather than describing R&D as an "ineffective" and "uncertain" measure "needed to be supplemented by policies promoting implementation", advances in technology should be seen as essential and enabling elements of a global transformation of energy and other GHG-emitting infrastructure. In this context, this genre of measure may be the most, not the least, effective in achieving long term UNFCCC goals. This shows up in a number of places in the text (see for example, R&D, Chapter 13 page.3, line 37-42, Chapter 13 ES, page, lines 37-43; Page 25, lines 42-47, SPM Table 3; TS Table TS-22; Table 13-6) U.S. Government (Government of U.S. Department of State)	Taken into account.
13-8	B	0	0	0	0	The primary reason for lack of effective policy regimes dealing with climate change and reduced emissions at meaningful scale is cost. There should be a strong and forthright acknowledgement that the cost of strategies that would be sufficiently effective to stabilize concentrations of greenhouse gases, given present circumstances, will far exceed the political capacities of national governments to effect and sustain them. The "implications for policy" should be a call for better, more affordable means and remedies, thereby enabling broadened consensus for incentivizing policies and measures. U.S. Government (Government of U.S. Department of State)	Rejected. Treated implicitly
13-9	B	0	0	0	0	The chapter needs to be more balanced in presenting both the successes and challenges associated with implementing voluntary agreements and actions. The text and tone differ significantly from Chapter 2 (section 2.5.3.1), which notes that market transformation programs and voluntary agreements can improve the	Noted

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						working of markets, reduce barriers (such as transaction costs, anti-competitive behavior, etc.) and create opportunities. Successful voluntary programs can lead to "enhanced market 13potential" (see Jaffe and Stavins 1994a and b) and thus result in additional mitigation. U.S. Government (Government of U.S. Department of State)	
13-10	B	0	0	0	0	General Comment: The treatment of R&D, technology development and technology cooperation, is critically inadequate and exhibits strong bias (in favor of regulatory and other approaches), misses the point, and discounts the importance of R&D as an effective policy measure. Rather than describing R&D as an "ineffective" and "uncertain" measure "needed to be supplemented by policies promoting implementation" (see SPM Table 3; TS Table TS-22; Table 13-6), advances in technology should be seen as essential and enabling elements of a global transformation of energy and other GHG-emitting infrastructure. In this context, this genre of measure may be the most, not the least, effective in achieving long term UNFCCC goals. U.S. Government (Government of U.S. Department of State)	See 13-7b
13-11	B	0	0	0	0	Delete Box 13.9. Given that there has not been any legal challenge to UNFCCC or Kyoto implementation measures, there does not appear to be any value in this discussion. In addition, the box contains several inaccurate statements, including the introductory sentence, which asserts that trade and climate regimes enjoy many common features. This is simply not the case – they are largely unrelated. In the examples section, only the first bullet offers an actual example of a possibly inconsistent measure. The others do not. In fact, the second bullet is inaccurate in its characterization of the Saudi submission to the WTO CTE. Finally, the box on climate and WTO is particularly odd in a section entitled "Coordination and harmonization of policies." U.S. Government (Government of U.S. Department of State)	Will be taken into account
13-12	B	0	0	0	0	A discussion of the US Department of Energy's Climate Change Technology Program (CCTP) needs to be included. The CCTP is an important initiative which connects activities of the DOEs 14 energy R&D labs and climate change. The development of CCTP is an important policy initiative. The chapter is incomplete without reference to the CCTP. (Perhaps it would fit into section 13.2.1.5, pp 23 ff. The DOE's CCTP can be found at the website: www.climatetechnology.gov" U.S. Government (Government of U.S. Department of State)	Same as 13.6.a
13-13	B	0	0	0	0	"Cheap and secure energy for economic growth" will not subside as a commanding	noted

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						imperative for national governments, which conflicts with dramatic reductions in greenhouse gas emissions. The escape from this dilemma, on the one hand, is the emergence of new and advanced technology, and on the other hand, clarification of the risks and benefits of various courses of action, or inaction, including greater specification of regional and local effects. In this context, investments in technology advancement and climate change science stand not as ancillary and uncertain activities, but as mainstream prerequisites to fundamental change on a global scale. U.S. Government (Government of U.S. Department of State)	
13-29	A	0	0	0	0	The whole chapter is improved from the previous draft. It is now rather balanced. (ANTOINE BONDUELLE, Université Lille II)	Noted
13-14	B	0	0	0	0	Many literature references are not admissable in IPCC reports (press releases, presentations, discussion papers, newsletters, technical notes, etc). This undermines the authority of IPCC assessments.Scrutinise the references and delete all non-qualified ones. Also lack of references in certain parts (especially 3.3); all IPCC references to follow standard format (IPCC (year), title, editors, publisher); for multi-author (more than 2) references use first author, et al,, ; many references are not in reference list at the end, but just in footnotes; correct that; references internally inconsisten (e.g. different names for same institute). (Bert Metz, IPCC)	Noted
13-1	C	0	0	0	0	Key messages of this chapter risk getting lost in the complexity of the numerous instruments considered. It may be useful to consider structuring the discussion around identifying that there are three fundamental types of instruments that must be brought to bear in order to mitigate climate change in an effective manner: (1) carbon pricing instruments, that internalise the environmental impacts, provide a direct economic incentive to utilise existing low carbon technologies, and an indirect incentive on market participants to innovate; (2) explicit innovation-oriented instruments, that directly support the emergence of new technologies, through from public funding of R&D through to various kinds of targeted market supports; and (3) instruments related directly to behavioural and organisational structures and preferences, including the correction of diverse market failures, including lack of awareness, institutional and contractual failures, etc. All these then need to be considered in terms of the case for international coordination of the responses. Some such more structured treatment might help to give greater clarity to the excellent detailed analysis embodied in the chapter. (Government of UK)	

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13-30	A	1	1	1	1	Many arguments in this chapter, in particular that of exec summary, are methodologically flawed and came to wrong conclusion. Many arguments are based upon theoretical literature and thought experiments alone. The results often contradict with ex-post case studies and findings from sectoral chapter 4-10. Major revision is necessary. (Taishi Sugiyama, CRIEPI)	Noted
13-19	B	2	0	5	0	Four different points could be usefully raised in this chapter and eventually the executive summary. As these are new I outline them here as general comments. 1. Policy uncertainty hinders investment in new & clean technology. Long-term and medium term policy targets, or clear foresight on carbon taxes, can play a role to reduce policy uncertainty and stimulate investment in key sectors, notably the power sector, to reduce ghg gases. See new work on real-options approaches to modelling technology investment and latest special issue of Energy Journal (Blyth and Yang 2006 forthcoming; Edenhofer et al. 2006; Reedman, Graham and Coombes 2006). The implication is that ghg policy today stimulates investment both in R&D and in dissemination of new technology, thus addressing technological and social inertia which can set in under conditions of policy uncertainty. 2. Adaptive management frameworks for climate policy can provide insights on ways to benefit from the emergence of new information over time and social learning to manage complex socio-environmental systems (Holling 1978; Lee 1993; Thompson et al. 2006). Such an approach suggests the need for development of common metrics over time to compare and assess progress within and across geo-political policy spaces – locally, nationally and internationally – as well as within and across sectors. Some effort to do this has been advanced under the Convention (SBI 2006) – see also synthesis of national communications NAI Parties demonstrating significant progress in some nations or regions, and lagging progress in others. Yet there is no mention of either the process or of the results of these reviews of progress; now nearly 15 years after implementation of the Convention it would seem to be timely for IPCC to address the question of collective progress in mitigation efforts across the countries participating in the climate regime – ideally by Annex I and non-Annex I groupings if not in a more detailed manner. 3. There are push and pull linkages between national (or sub-national) policy development and experimentation and the international regime. Fisher (Fisher 2004) has addressed this – and Rabe (already referenced) with a more focused look	1: taken into account 2: taken into account 3: taken into account 4: taken into account

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						at the US in particular. Yet there is also a broader literature that hints at this relationship by showing the growing strength of transational networks in climate policy and their influence on learning – dealing with their influence at different scales, ranging from international regime politics (Biermann and Dingwerth 2004; Fairhead and Leach 2003; Haas 1990; Haas 2004; Levy and Newell 2005; Newell 2000; Paterson, Humphreys and Pettiford 2003) and to local politics surrounding climate change (Betsill and Bulkeley 2004; Bulkeley and Betsill 2005). Also Haas writes on the influence of transnational epistemic networks on international environmental agreements (Haas 1990; Haas 2004). The Social Learning Group (Social Learning Group 2001) has looked across global environmental risk management and outlines essential notions of learning through management and how this has played out at national levels in a number of case studies. The case study on the US, for example, suggests that there has not been much learning across the global environmental regimes perhaps in part due the pluralistic politics of the US system(Clark and Dickson 2001), however says little on learning within each regime or across scales. The same study also considers how national capacities are stimulated through various institutional features of the international regimes which they work under (Clark, Jager and Eijndhoven 2001; Haas and McCabe 2001). Intuitively, as we move towards negotiations of a post-2012 regime for climate change, it would seem that growing policy experience on climate change – at national and sub-national levels -- will matter to the negotiation on next steps (e.g. see on a different issue – but he makes the case for social learning in public policy)(Hall 1993). 4. I support the attempt to cover different types of investment flows and discuss how these might be related to climate change mitigation objectives. However it would be useful to compare the volumes of these different flows and the ability to influence them through policies. I am aware of at least two attempts to do this (Boussard 2005; Ellis et al. 2006 in press). Interestingly CDM financing is significant in size when compared to GEF flows for climate change, but miniscule compared to FDI/ODA (see Ellis et al). Since the 1980s, FDI has tended to be the largest flow and but the policy levers to influence FDI towards climate-friendly technology and practices are inevitable national. ODA on the other hand is public money and coordinated internationally, as are ECA, and therefore some form of international collaboration and agreement on lending practices and principals should be possible and desirable to ensure coherence between donor and climate policies (e.g. through donor coordination). Environmental screening tools	

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						developed by the World Bank are promising, however there is a move away from project or sector based lending to structural adjustment or budget based lending which makes it impossible to use conventional tools to screen ODA lending projects for environmental performance (Boussard discusses this). On FDI, the current text mixes ECA with FDI – which is not entirely legitimate since it is unclear what share of FDI is affected by ECA. Also increasingly ODA is coupled with private sector financing to leverage larger amounts of money for investment thus its influence is greater than the absolute amounts of ODA would indicate. Finally large amounts of ODA also go to rapidly developing economies (e.g. China and India), which also tend to be the largest recipients of FDI (see Boussard). References Betsill, Michele M, and Harriet Bulkeley. 2004. "Transnational Networks and Global Environmental Governance: The Cities for Climate Protection Program." International Studies Quarterly 48:471-493. Biermann, Frank, and Klaus Dingwerth. 2004. "Global Environmental Change and the Nation State." Global Environmental Politics 4:1-22. Blyth, W., and Ming Yang. 2006 forthcoming. "Impact of climate change policy uncertainty on power investment." Pp. 56 in IEA/SLT(2006)11. Paris: IEA/OECD. Boussard, Bruno. 2005. "Development, Investment and Environment: In Search of Synergies." Pp. 59 in ENV/EPOC/GSP(2004)14/Final. Paris: OECD. Bulkeley, Harriet, and Michele M Betsill. 2005. "Rethinking Sustainable Cities: Multilevel Governance and the 'Urban' Politics of Climate Change." Environmental Politics 14:42 - 63. Clark, William, and Nancy Dickson. 2001. "Civic Science: America's Encounter with Global Environmental Risk." Pp. 259-294 in Learning to Manage Global Environmental Risks: A Comparative History of Climate Change, Ozone Depletion and Acid Precipitation, edited by [SLG] Social Learning Group. Cambridge, MA: MIT Press. Clark, William, Jill Jager, and Josee van Eijndhoven. 2001. "Managing Global Environmental Change: An Introduction to the Volume." Pp. 3-19 in Learning to Manage Global Environmental Risks: A Comparative History of Climate Change, Ozone Depletion and Acid Precipitation, edited by [SLG] Social Learning Group. Cambridge, MA: MIT Press. Edenhofer, Ottmar, Kai Lessmann, Claudia Kemfert, Michael Grubb, and Jonathan Köhler. 2006. "Induced Technological Change: Exploring its Implication for the Ecnomics of Atmospheric Stabilization." The Energy Journal Special Issue:57-107.	

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Ellis, Jane, Harald Winkler, Jan Corfee-Morlot, and Frederic Gagnon-Lebrun. 2006 in press. "CDM: Taking Stock, Looking Forward." Energy Policy. Fairhead, James, and Melissa Leach. 2003. Science, Society and Power: Environmental Knowledge and Policy in West Africa and the Carribbean. Cambridge: Cambridge University Press. Fisher, D.R. 2004. National Governance and the Global Climate Change Regime. Lanham MD: Rowman and Littlefield Publishers, Inc. Haas, P. 1990. Saving the Mediterranean: the Politics of International Environmental Cooperation. New York City: Columbia University Press. Haas, Peter M. 2004. "When does power listen to truth? A constructivist approach to the policy process." Journal of European Public Policy 11:569-592. Haas, Peter, and David McCabe. 2001. "Amplifiers and Dampeners: International Institutions and Social Learning in Management of Global Environmental Risks." Pp. 323-348 in Learning to Manage Global Environmental Risks: A Comparative History of Climate Change, Ozone Depletion and Acid Precipitation, edited by [SLG] Social Learning Group. Cambridge, MA: MIT Press. Hall, Peter A. 1993. "Policy Paradigms, Social Learning and the State: the Case of Economic Policymaking in Britain." Comparative Politics 25:275-296. Holling, C.S. (Ed.). 1978. Adaptive Environmental Assessment and Management. New York City: John Wiley & Sons. Lee, Kai N. 1993. Compass and Gyroscope: Integrating Science and Politics for the Environment. Washington D.C.: Island Press. Levy, David L., and Peter J. Newell (Eds.). 2005. The Business of Global Environmental Governance. Cambridge, MA and London: MIT Press. Newell, Peter. 2000. Climate for Change: Non-state Actors and the Global Politics of the Greenhouse. Cambridge: Cambridge University Press. Paterson, Matthew, David Humphreys, and Lloyd Pettiford. 2003. "Conceptualizing Global Environmental Governance:From Interstate Regimes to Counter-Hegemonic Struggles." Global Environmental Politics 3:1-10. Reedman, Luke, Paul Graham, and Peter Coombes. 2006. "Using a Real-Options Approach to Model Technology Adoption Under Carbon Price Uncertainty: An Application to the Australian Electricity Sector." The Economic Record 82 Special Issue:864-873. SBI, [Subsidiary Body for Implementation]. 2006. "Synthesis of reports demonstrating progress in accordance with Article 3, paragraph 2 of the Kyoto Protocol: Note by the Secretariat." in FCCC/SBI/2006/INF.2. Bonn: United Nations	

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Framework Convention on Climate Change. Social Learning Group, [SLG] (Ed.). 2001. Learning to Manage Global Environmental Risks: A Comparative History of Climate Change, Ozone Depletion and Acid Precipitation. Cambridge, MA: MIT Press. Thompson, Alexander, Paul Robbins, Brent Sohngen, Joseph Arvai, and Tomas Koontz. 2006. "Economy, Politics and Institutions: From Adaptation to Adaptive Management in Climate Change." Climatic Change 78:1-5. (Jan Corfee-Morlot, University College London (on leave from OECD))	
13-31	A	2	37	0	0	before "emissions taxes" insert "renewable portfolio standards and other proportional obligations" (Peter Read, Massey University)	Rejected, covered under these categories
13-32	A	2	37	2	37	before "emissions taxes" insert "renewable portfolio standards and other proportional obligations" (Peter Read, Massey University)	Rejected, covered under these categories
13-15	B	2	38	2	38	Replace "information" by "communication" (Government of Netherlands/Ministry for the Environment)	Rejected
13-16	B	2	40	2	40	Delete "also" (Government of Netherlands/Ministry for the Environment)	Accepted
13-33	A	2	44	0	45	Reducing emissions across all sectors and gases requires a portfolio of policies tailored to fit specific national and sectoral circumstances. (Michael Kohlhaas, German Institute for Economic Research)	Rejected
13-34	A	2	44	2	49	This paragraph is good. (Koji Kadono, Global Industrial and Social Progress Research Institute(GISPRI))	Noted
13-35	A	2	45	2	48	Why is administrative cost, including monitoring and enforcement, not included as a criterion? These costs are a key concern (or ought to be) where tradeable emission permits are employed. Failure to consider administrative/monitoring/enforcement costs creates a bias in favor of tradeable permits, apparently the policy-tool-of-choice of the contributors to Ch. 13. (Christopher Green, McGill University)	Rejected, subsumed under the available headings
13-17	B	2	45	2	48	Why is administrative cost, including monitoring and enforcement, not included as a criterion? These costs are a key concern (or ought to be) where tradeable emission permits are employed. Failure to consider administrative/monitoring/enforcement costs creates a bias in favor of tradeable permits, apparently the policy-tool-of-choice of the contributors to Ch. 13. U.S. Government (Government of U.S. Department of State)	Rejected, subsumed under the available headings

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-36	A	2	47	2	48	The defintion of the four criteria is fine here, but further on the chapter uses other terms, e.g. P.3 line 10 says "marks for economic efficiency" while here it is named "cost effectiveness". People familiar with the terminology will be able to process the synonyms but it may confuse other people. Can you check the whole chapter on consistency in such terms? Later in the chapter (p.28 line 41) economic efficiency is used to refer to general (allocative) economic efficiency, but this use is not maintained consistently. (Aviel VERBRUGGEN, University of Antwerp)	Accepted
13-37	A	2	48	2	48	Harmonise the use of "Institutional Feasibility" and "Political Feasibility" within this chapter (Reimund Schwarze, DIW Berlin)	Accepted
13-38	A	2	48	2	48	this senntence refers to "political feasibility", but section headings indicate that what is discussed beginning on pp. 30 and 75 is "institutional feasibility". (Jonathan Sinton, International Energy Agency)	Accepted
13-18	B	2	48	2	48	Replace "political feasiblity" by "institutional feasiblity" to correspond to the rest of the chapter (Government of Netherlands/Ministry for the Environment)	Accepted
13-39	A	3	0	3	25	The political difficulties of taxes and charges are discussed but not the political difficulty to implement a stringent emission trading system. This gives a somewhat biased picture of the advantages and disadvantages of taxes in relation to emission trading where ET seems to be the politically easier instrument to implement. It is true that it was easier to implement EU ET than common minimum taxes, but was that thanks to a design that allows for a rather weak system leading to small emission reductions?? (Government of Sweden)	Rejected
13-40	A	3	3	3	7	I strongly support the evaluation of instruments along the 4 criteria, especially the role of regulations and standards which see at present a renaissance as "smart regulation" (which also can strongly support innovations). This is however in contradiction to table 13.1 on page 33. (Government of Germany)	Taken into account in revising the table
13-41	A	3	4	0	5	The environmental effectiveness of regulatory measures and standards is impaired if they are set with respect to specific emissions as is mostly the case. In this case total emissions depend on the level of economic activity. Therefore, uncertainty is as large as in the case of e.g. taxes. (Michael Kohlhaas, German Institute for Economic Research)	Taken into account
13-42	A	3	4	3	8	As per comments to other chapters (ch 1, page 20), its important to be clear whether	Taken into account

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						technology R&D or deployment and diffusion of existing, or near commercial technology is being referred to - as different policies will be needed and different types of investment ('inducing innovation and technological change' is not very clear). In one set of consultations, financiers and investors preferred a policy environment which was 'loud, long and legal', to raise returns and reduce risk to an appropriate level (in Hamilton, 2005, van Aalst 2004). Price based instruments are not necessarily better or worse for investors, it depends on the design of the policy, and how stable it is perceived to be ref investing against it. Therefore in this section I would add something less emphatic about the superiority and inferiority - as it depends on point of view, and risk appetite. [Some background references on policies and finance issues include: O'Brien, V.S. and Usher E., 2004. Mobilising Finance for Renewable Energies, Thematic background paper' for the International Conference for Renewable Energies, Bonn; IEA, World Energy Investment Outlook, 2003; Hamilton, K., 2005. 'The Finance-Policy Gap: Policy Conditions for Attracting Long-Term Investment'. In Tang, K, ed., 2005. The Finance of Climate Change. London: Risk Books; Van Aalst, Paul, 2004. Innovative Options for Financing the Development and Transfer of Technologies, Background Information Paper, Prepared for the UNFCCC Workshop on Innovative Options for Financing the Development and Transfer of Technologies. 27-29th September, Montreal, Canada]. (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	
13-43	A	3	4	3	4	what is "environmental certainty"? (Aviel VERBRUGGEN, University of Antwerp)	Accepted
13-44	A	3	4	3	8	"Regulatory measures and standards generally provide certainty, but their environmental effectiveness depends on their stringency. They are preferable when strict limits are necessary for environmental protection. Within these limits or beyond regulatory compliance, other instruments such as price based ones can be used. Regulatory measures and standards secure equality and may induce – where required together with other instruments – innovation and technological change. The price of very strict regulations is a certain loss of flexibility for the stakeholders." (Government of Germany)	Accepted first sentence, rejected following sentences.
13-20	B	3	4	3	5	This section states: "Regulatory measures and standards generally provide environmental certainty, but their environmental effectiveness depends on their stringency." Suggest inserting between "effectiveness" and "depends" the phrase "and cost". [The same comment would apply to lines 9 and 10.] U.S. Government	To be taken into account when revising the table 13.1

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of U.S. Department of State)	
13-45	A	3	5	3	8	This passage would appear to be inconsistent with the discussion in Chapter 5 that concludes that fuel economy satndards have been shown to be effective, and that variability of fuel costs, even accounting for the role of taxes, has had much less of an impact. See Ch. 5, p.4, lines 36-41. In addition, the effect of the language in this passage and others in this section, e.g., "They may be preferable whe information or other barriers prvent firms and consumers from responding to price signals," gives primacy to a theoretical perspective, rather than to the empirical literature, like that cited in Ch. 5, and indicates that the impact of policies like standards is somehow negligible. (Jonathan Sinton, International Energy Agency)	Noted
13-46	A	3	6	3	8	This sentense is wrong. Regulatory measures have been successful in improving energy afficiency in buildings (ch 6) and automobiles (ch 5), for exapmle. Is there a case in which price based mechanisms turned out to be superior in inducing innovation and technological change? . See the followings for the ex-post analyses of carbon tax, direct regulation and emission trading systems (Greene, 1990; Burtraw, 1996; Kemp, 1997; Bellas, 1998; Andersen et al., 2000; Andersen, 2004: Lange and Bellas, 2005; Taylor et al., 2005). Greene, D.L., 1990. "CAFE or Price?: An analysis of the effects of federal fuel economy regulations and gasoline price on new car mpg, 1979-89." The Energy Journal, 11 (3): 37-57. Burtraw, D., 1996. "The SO2 Emissions Trading Program: Cost Savings Without Allowance Trades." Contemporary Economic Policy, 14 (2): 79-94. Rene Kemp, 1997. "Environmental Policy and Technical Change: A Comparison of the Technological Impact of Policy Instruments." Edward Elgar. Bellas, A., 1998. "Empirical Evidence of Advances in Scrubber Technology." Resource and Energy Economics, 20 (4): 327-343. Andersen, M.S., Dengsoe, N. and Pedersen, A.B., 2000. "An Evaluation of the Impact of Green Taxes in the Nordic Countries", TemaNord 2001: 561, Nordic Council of Ministers. Andersen, M.S., 2004, "Vikings and Virtues: A Decate of CO2 Taxation", Climate Policy, 4, pp.13-24 Lange, I., Bellas, A., 2005. "Technological Change for Sulfur Dioxide Scrubbers under Market-Based Regulation." Land Economics, 81 (4): 546-556. Taylor, M.R., Rubin, E.S., Hounshell, D.A., 2005. "Control of SO2 emissions from power plants: A case of induced technological innovation in the U.S."	Taken into account

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Technological Forecasting and Social Change, 72 (6): 697-718. (Taishi Sugiyama, CRIEPI)	
13-47	A	3	6	3	6	This sentence is not taking into account the significant amount of literature on environmental policies and the benefits of regulation. This sentence should be removed. (Kirsten Macey, Climate Action Network Europe)	Accepted
13-48	A	3	6	3	8	This general conclusion about the inferiority of standards is not supported by the material on page 8, where literature with different conclusions is quoted. Standards are common practice in the building sector and there is strong innovation (e.g. low-E glazing). (Government of European Community / European Commission)	Accepted
13-49	A	3	6	0	7	"However, they are generally viewed as inferior to price-based instruments in inducing innovation and technology ……" This sentenced should be modified. In the full text in chapter 13, page 8, line 20 it says that "the economics literature generally views regulatory standards as inferior …" . And line 29/30 elaborates "nevertheless, there are examples in the literature of technology innovation spurred by regulatory standards." These modifications should be reflected in the summaries. Proposal: change line 38-40 and in chapter 13, page 6, line 22 to "However, in the economics literature they are generally viewed as inferior to price-based instruments in inducing innovation and technology, but there are examples that technology innovation have been spurred by regulatory standards. (Government of Sweden)	accepted
13-50	A	3	7	3	8	This is too sweeping. There are many situations when regulation is the best way forward- often energy costs are a small fraction of operating or life-cycle costs, or the user has no control over the plant he/she/it has to operate, and so is unable to modify the emissions profile.Finally, energy costs are a future burden to the user, and so are often discounted or ignored by comparison with other factors. in all these cases, which are very common, regulation is SURELY best. (Andrew Dlugolecki, University of East Anglia)	Accepted
13-51	A	3	8	0	0	This statement (particularly the caveat) does not reflect the position in the buildings sector (Ann Gardiner, AEA Technology)	Accepted
13-52	A	3	8	0	0	Please replace the word 'stakeholders' by something more specific (industry, private investors..) (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Taken into account
13-53	A	3	9	0	15	Where taxes are "phased in", i.e. Increased gradually (in order to give energy users	Accepted

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						time to undertake adjustment measures), - as in Germany ("ecotaxes") or the UK ("fuel price escalator") - policy makers can observe the reaction to taxes and learn about the appropriate level (Michael Kohlhaas, German Institute for Economic Research)	
13-54	A	3	9	3	10	Wrong. Carbon tax is efficient just on theoretical literature and in thorugh experiment. Nordic countries introduced carbon tax but the "flat marginal costs" had never become reality due to competitiveness concerns. There is no single case in which flat carbon tax across sectores was implemented. See the referece cited above. (Taishi Sugiyama, CRIEPI)	Noted
13-55	A	3	9	3	13	I guess what was meant here was "cost-effective", not "economically efficient". Indeed, taxes and charges are economically efficient" because, on top of being cost-effective, they spontaneously adjust the amount of emission reductions to the actual costs, so they get closer to economic efficiency, which requires equalising marginal costs and marginal benefits, than arbitrary fixed short term measures such as provided by standards. So please change "economically efficient" with "cost-effective"... or "but" with "because they"... (Cédric PHILIBERT, International Energy Agency)	accepted
13-56	A	3	9	0	0	Difference between taxes and charges has not been made clear. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Noted
13-57	A	3	13	3	15	What makes fixing the level of taxes challenging is the uncertainty on marginal damage cost, not that of the link between price or behaviour. This would be the case if we knew what exact level of emissions is desirable - but we do not. (Fixing economically efficient ie optimal quotas would be difficult because of uncertainties on both abatement costs and benefits. Fixing appropriate level of taxes is only difficult because the uncertainty on damage costs.) Please correct the text. (Cédric PHILIBERT, International Energy Agency)	Taken into account, sentence deleted
13-58	A	3	13	3	13	"conceptually" this gives the wrong idea that it would not be possible "practically"; Poposal: cancel the word "conceptually" or write "conceptually and practically" (Aviel VERBRUGGEN, University of Antwerp)	Taken into account, sentence deleted
13-59	A	3	15	0	0	Perverse effects, including…. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Taken into account, sentence deleted
13-60	A	3	16	3	23	The proliferation of different tradable permit systems for greenhouse gases and otherwise (e.g. green and white certificate schemes) may however cause interaction effects that could hamper both economic and environmental efficiency of the instruments.	Taken into account

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of Finland)	
13-61	A	3	18	3	19	The text says that the distribution of allowances has implications for economic efficiency. This phrase needs further explanation. Generally speaking, once the cap is set, cap & trade is always efficient regardless of initial allocation. Total social cost of the scheme does not change because of the initial allocation, and cap & trade scheme is efficient in that it equalizes marginal abatement cost of all players. Initial allocation may affect efficiency, however in three ways. Firstly whether it covers total national emission or not, secondly whether it is free or not, and thirdly whether there exist hot-air or not. In the first and last cases, marginal abatement cost of all the players may not be equalized. If the writers of the text have these situation in mind, it will be better to add brief explanation here. (Mitsutsune Yamaguchi, Teikyo University)	Taken into account
13-62	A	3	19	3	19	The distribution of allowances has wealth implications and implications for profitability and competitiveness broadly speaking, but it has little effect on competitiveness at the margin and no effect of economic efficiency: whatever the initial allocation the emission reductions will happen in the same places. Please correct the text. (Cédric PHILIBERT, International Energy Agency)	rejected
13-63	A	3	19	3	21	Please precise "Experience with non-GHG trading systems has shown that banking, etc." (Cédric PHILIBERT, International Energy Agency)	Rejected, as it is implicit
13-64	A	3	19	3	19	implications are also at the distributional side: 'who gets how many allowances at what price (for free)' does not seem free of distributional consequences, and when one follows what happens in the ETS about windfall profits this point is illustrated in practice. The daily newsletter of POINTCARBON provides examples. There are also distributional issues of grandfathers versus new-comers, emitters included and omitted, countries participating or not, biases in burden sharings, uneven approaches in the national allocation plans, etc.. and positively the CDMs athough these are only 'linked' to the ETS. See this chapter p.7 (line 8-9). This is also discussed on p.14 line 8 to p.15 line 3, and should have some reflection in the ExSumm. (Aviel VERBRUGGEN, University of Antwerp)	Taken into account
13-21	B	3	21	3	21	Delete "it" (Government of Netherlands/Ministry for the Environment)	Accepted
13-65	A	3	24	3	29	Should distinguish between voluntary agreements that have rigor and once negotiated become binding vs. those that are truly optional and don't have a goal	Taken into account

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						that varies from BAU. (Joanna Lewis, Pew Center on Global Climate Change)	
13-66	A	3	24	3	29	The subjective comment starting with "on balance" is not reflected by the discussion in the full text and must be deleted. Furthermore, this paragraph clearly does not reflect that both voluntary agreements and voluntary actions have resulted in significant emissions reductions. The latter topic is discussed within the full text. (Nick Campbell, ARKEMA SA)	Accepted to delete on balance Rest is already taken into account
13-67	A	3	24	3	29	This assessment covers only voluntary agreements between industry and government. Equally, or perhaps more, important are voluntary actions, which companies, trade association or whole industries undertake on their own, without the direct involvement of government. Section 7.9.2.2 details some of these voluntary actions, and the substantial emissions reductions that some of them have accomplished. It also discusses the conditions necessary, e.g. top management commitment, that are necessary for their success. The section also states: “Early programs appear to have produced little benefit. For example, an evaluation of the Germany industry’s self-defined global warming declaration found that achievements in the first reporting period appeared to be equivalent to business-as-usual trends (Jochem and Eichhammer, 1999; Ramesohl and Kristof, 2001). However, more recent efforts appear to have yielded positive results.” Examples of those positive results are shown. The assessment of voluntary agreements should be accompanied by an assessment of voluntary actions. (Lenny Bernstein, L. S. Bernstein & Associates, L.L.C.)	Noted, Reflected later in the chapter
13-68	A	3	24	3	28	As a social appraisal for Japanese companies participating in the Keidanren (Japanese Business Federation), the Keidanren Voluntary Action Plan becomes a driving force which forces us to comply our own commitment. As a one of the evidence, the CDM credits which Keidanren companies have attained by the end of 2005, comes to 28million t-co2, nevertheless they are not imposed any caps by Japanese government. In case of the Japanese electric utility industry, they aim to further reduce CO2 emissions intensity (emissions per unit of user end electricity) by approximately 20% from the fiscal 1990 level by fiscal 2010. This target was set based on supply and demand forecasts at the time the Environmental Action Plan was drawn up in 1996 and on the anticipated development of nuclear power, among other considerations, and it assumes the industry’s highest level of commitment. According to their caluculation, the growth in total CO2 emissions will be held to around 9%, while total electricity consumption is expected to increase 36% over the	Noted, but we do not mention examples in the executive summary. The programmes in the main text box 13.4.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						fiscal 1990 level by fiscal 2010. (Shinichi Nakakuki, The Tokyo Electric Power Company)	
13-69	A	3	24	3	24	Delete 'and information campaigns' (Government of Spain)	Accepted
13-22	B	3	24	3	24	Include "Information campaigns" in the category "information instruments" (line 43) and not with voluntary agreements (Government of Netherlands/Ministry for the Environment)	Accepted
13-23	B	3	24	3	26	This section states: "Voluntary agreements … have played a role in the evolution of many national policies, but to date have generally yielded only modest results." The phrasing is too sweeping and is inconsistent with language elsewhere in this paragraph and chapter that shows that some programs have been successful. Moreover, the literature cited is for the most part quite old. Suggest that the final clause be modified to read: ", but the effectiveness varies widely among programs while some have been effective, others are yielding only modest results." U.S. Government (Government of U.S. Department of State)	Taken into account
13-24	B	3	24	3	29	This assessment covers only voluntary agreements between industry and government. Equally, or perhaps more, important are voluntary actions, which companies, trade association or whole industries undertake on their own, without the direct involvement of government. Section 7.9.2.2 details some of these voluntary actions, and the substantial emissions reductions that some of them have accomplished. It also discusses the conditions necessary, e.g. top management commitment, that are necessary for their success. The section also states: "Early programs appear to have produced little benefit. For example, an evaluation of the Germany industry's self-defined global warming declaration found that achievements in the first reporting period appeared to be equivalent to business-as-usual trends (Jochem and Eichhammer, 1999; Ramesohl and Kristof, 2001). However, more recent efforts appear to have yielded positive results." Examples of those positive results are shown. The assessment of voluntary agreements should be accompanied by an assessment of voluntary actions. U.S. Government (Government of U.S. Department of State)	Noted, Reflected later in the chapter, see 13-67 A
13-25	B	3	24	3	29	The Executive Summary of Chapter 13 states that "Voluntary agreements between industry and governments and information campaigns are politically attractive, raise awareness among stakeholders, and have played a role in the evolution of many national policies, but to date have generally yielded only modest results. On balance, it appears that the majority of voluntary agreements have achieved little	Accepted

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						emissions reductions beyond business as usual." (Emphasis added.) The highlighted criticisms of voluntary agreements do not fully reflect the balance of the conments in the underlying chapter. Thus, they should be either deleted or modified to reflect that balance. U.S. Government (Government of U.S. Department of State)	
13-70	A	3	26	3	27	Biased. The VA may have not achieved little emission reductions beynd business as usual. However, the same goes to Nordic carbon tax and EU ETS so far. Hence singling out and denouncing voluntary agreement is inappropriate. (Taishi Sugiyama, CRIEPI)	Rejected
13-71	A	3	26	3	28	Regarding the sentense starting with "with a few exceptions,….." , are there any major VA's that have failed to reduce emissions beyond BAU? If there are any, specific examples should be given. (Koji Kadono, Global Industrial and Social Progress Research Institute(GISPRI))	Rejected. There are examples also in chapter 7. no examples in the executive summary.
13-72	A	3	30	3	30	Insert ' Public participation, information and education campaigns, and other social instruments are used together with the other policy instruments, with positive results in general. To improve the results in terms of climate change mitigation, more sociological science is needed to design those campaigns'. (Government of Spain)	Taken into account
13-26	B	3	30	3	31	Change sentence to "Financial incentives are frequently used by governments in order to stimulate he diffusion of new, less GHG emitting technologies, products or behavioural patterns." (Government of Netherlands/Ministry for the Environment)	Accepted
13-73	A	3	34	0	0	Insert: In many cases subsidies, which are granted for other than environmental reason, e.g. for coal or agriculture, prove harmful for the environment. Direct ... OECD countries, and should be further reduced for environmental as well as economic reasons. (Michael Kohlhaas, German Institute for Economic Research)	Noted
13-74	A	3	35	3	36	mention of "only" OECD countries is wrong. In India e.g subsidy on coal price has declined historically at a very high rate. Several references exist.Coal Directory published by Coal Controller (various Issues) , CMIE (various issues) Report on Energy. Mention of developing country like India in this sentence will give the right signal that not only the price policy which matters. (Joyashree Roy, Jadavpur University)	Accepted, removed "OECD"
13-75	A	3	37	3	38	Replace 'can be an important' by 'is a key'. It is surely absolutely clear that 'new low GHG emitting technologies' will be required for the period 2050 to 2100, when, in stabilisation scenarios, continued economic development and increasing energy	Taken into account

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						consumption will be accompanied by decline of annual carbon emissions to very low levels. It is clear also that other policy instruments are not effective in promoting the development of technologies with well-deferred payoffs, no matter how large the payoffs will be. (Ian Cook, United Kingdom Atomic Energy Authority)	
13-76	A	3	37	0	0	Line 37 ff --- The discussion of an R&D policy is inadequate. Government support for R&D that is related to an energy technology race (without which, in my view, climate stabilization is not possible), is much more than a "special type of incentive". It would require governments to commit to finance and undertake long term R&D in new energy technologies and sources, possibly via competing international consortias, each made up of a few countries. Moreover, if governments cannot sustain such commitments over 30-50 year periods (line 42), then we might as well forget about climate stabilization. In fact, the annual cost of R&D commitments probably would be small compared to the cost of meeting Kyoto-type targets. (Christopher Green, McGill University)	Noted
13-27	B	3	37	3	42	Merge this bullet with the previous one as government support for R&D is an example of a financial incentive. (Government of Netherlands/Ministry for the Environment)	Rejected
13-28	B	3	37	3	0	Line 37 ff --- The discussion of an R&D policy is inadequate. Government support for R&D that is related to an energy technology race (without which climate stabilization is not possible), is much more than a "special type of incentive". It would require governments to commit to finance and undertake long term R&D in new energy technologies and sources, possibly via competing international consortias, each made up of a few countries. Moreover, if governments cannot sustain such commitments over 30-50 year periods (line 42), then climate stabilization becomes improbable. In fact, the annual cost of R&D commitments probably would be small compared to the cost of meeting Kyoto-type targets. U.S. Government (Government of U.S. Department of State)	Taken into account
13-29	B	3	38	3	46	Change "information instruments" to "communication instruments" and broaden this category to include different types of communication instruments besides labelling, such as information campaigns, involving citizens in policy making etc. (Government of Netherlands/Ministry for the Environment)	Rejected
13-77	A	3	39	3	39	After 'long-term.', insert 'Other policy instruments, dependent on regulations and/or financial incentives such as permit trading, are not sufficient to motivate the	Noted, relevant for main text not summary.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						development of innovation beyond the short-term, because of the inhibiting effects of uncertainties over the persistence of government policies. In particular, longer term development of innovative power sources, no matter how beneficial they may be, can only be supported by governments. During the period 2050 to 2100, most plausible stabilisation scenarios require rapid movement towards limiting annual carbon emissions to very low levels, whilst economic development continues and energy consumption continues to grow; it is unlikely that this can be accomplished without very strong efforts to develop and deploy the new technologies that can almost completely replace carbon-emitting technologies during the course of this century. Primarily, these technologies are carbon capture and storage, solar (substituted by other renewables where locally appropriate), fusion and advanced nuclear fission.' (Ian Cook, United Kingdom Atomic Energy Authority)	
13-78	A	3	40	3	41	Replace 'many energy research programmes, such as renewables' by 'energy research programmes'. This is clear from Figure 13.2(a). (Ian Cook, United Kingdom Atomic Energy Authority)	Rejected
13-79	A	3	40	3	42	Wrong. Japanese government has supported PV and other technologies for more than 3 decades already. Without this support PV would have looked totally different from what it is today. Consult ch. 4. See also (Watanabe, 1995; Geller and McGaraghan, 1998; US NRC, 2003; Gerard and Lave, 2005). Watanabe, C., 1995. "Mitigating global warming by substituting technology for energy: MITI's efforts and new approach." Energy Policy, 23(4-5): 447-461 . Geller, H., McGaraghan, S., 1998. "Successful government-industry partnership: the US Department of Energy's role in advancing energy-efficient technologies." Energy Policy, 26(3): 167-177. US NRC(National Research Council), 2003. "Energy Research at DOE: Was It Worth It?." Committee on Benefits of DOE R&D on Energy Efficiency and Fossil Energy, National Research Council. National Academy Press: Washington, D.C. Gerard, D., Lave, L.B., 2005. "Implementing technology-forcing policies: The 1970 Clean Air Act Amendments and the introduction of advanced automotive emissions controls in the United States." Technological Forecasting & Social Change, 72(6): 761-778. (Taishi Sugiyama, CRIEPI)	Taken into account
13-80	A	3	40	3	42	Biased. Tax rate changes annually and future quota is uncertain in ETS. No policy can be surely sustained for more than 3 decades. Singling out R&D and denoucing it is inappropriate.	Taken into account

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Taishi Sugiyama, CRIEPI)	
13-81	A	3	41	3	42	Delete " "… and there is little evidence…sustained support over 30-50 years." Figure 13.2 shows that total funding for energy R&D in IEA countries has been sustained for nearly 30 years. The rise and then decline of support for energy R&D in the 1980s could be interpreted as a blip on an otherwise constant funding rate. The data on R&D funding for renewables shows the same pattern, a peak in the 80s followed by essentially constant funding for 20 years. One can argue whether the level of funding is adequate, and whether it is allocated to the right objectives, but the evidence shows a long term commitment, that is in the range of 30 years for renewables and probably longer for energy R&D. (Lenny Bernstein, L. S. Bernstein & Associates, L.L.C.)	Taken into account
13-30	B	3	41	3	42	Delete " "… and there is little evidence…sustained support over 30-50 years." Figure 13.2 shows that total funding for energy R&D in IEA countries has been sustained for nearly 30 years. The rise and then decline of support for energy R&D in the 1980s could be interpreted as a blip on an otherwise constant funding rate. The data on R&D funding for renewables shows the same pattern, a peak in the 80s followed by essentially constant funding for 20 years. One can argue whether the level of funding is adequate, and whether it is allocated to the right objectives, but the evidence shows a long term commitment, that is in the range of 30 years for renewables and probably longer for energy R&D. U.S. Government (Government of U.S. Department of State)	Taken into account
13-82	A	3	42	3	42	After 'periods', insert 'Moreover, it is salutary to note that the total annual energy-related R&D expenditure (shown in Figure 13.2(a)) is equal to only one day of consumer spending on the international energy markets!' (Ian Cook, United Kingdom Atomic Energy Authority)	Taken into account
13-83	A	3	42	0	0	What is the 30-50 years based on? Would support over a 10-15 year period be feasible? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Taken into account
13-84	A	3	44	3	45	Add in the 'shareholders and other investors' after 'consumers' in line 44. From the perspective of shareholder and investor information, the Carbon Disclosure Project (ref www.cdproject.net) is a disclosure initiative to some of the world's largest companies, on behalf of 211 institutional investors who manage, this year, over $31 trillion. Their interest is to understand the exposure, of the companies they invest in, to both climate change and climate change policies, and the strategies those companies have in place for responding. (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	Taken into account

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-85	A	3	46	3	46	Include 'More R+D on this field is needed' after 'climate change'. (Government of Spain)	Rejected
13-86	A	4	1	4	4	These lines refer to interaction effects within and beyond the climate policy portfolio. This could be phrased even somewhat stronger. Governments and closely cooperating groups of countries could benefit considerably from solving incompatibilities in their climate policy portfolios. (Government of Finland)	Noted
13-87	A	4	8	4	11	It is hard to argue that Kyoto has set a "significant precedent" or that it has provided "a means to solve a long-term environmental problem." It could be easily argued that the Montreal Protocol has also set up financial mechanisms (the MLF) and has actually "solved" the ozone issue.K39 (Nick Campbell, ARKEMA SA)	Noted
13-88	A	4	10	4	16	is there evidence of the "creation of an international carbon market"? What there is so far cannot be named so. On p.4 line 16, you seem to agree with my comment. (Aviel VERBRUGGEN, University of Antwerp)	Taken into account
13-89	A	4	14	4	16	The text implies that a number of emissions trading schemes have been created in different nations. This is not yet the case, the sole functioning system is the ETS which is a regional system (and single). The USA has not yet a functioning system neither has Japan. (Nick Campbell, ARKEMA SA)	Rejected
13-90	A	4	14	4	16	The text implies that a number of emissions trading schemes have been created in different nations. This is not yet the case, the sole functioning system is the ETS which is a regional system. Canada has a potential sustem but which is not implemented (Jean-Yves CANEILL, EDF)	Rejected
13-91	A	4	16	4	16	"has yet to be implemented": could be read as policy prescriptive (Government of European Community / European Commission)	Taken into account
13-92	A	4	20	4	20	The reference to "all major emitters" in this statement sounds as a prescriptive language. Rationale: This is only one side of the debate. An opposite approach would state that Kyoto Protocol effects on atmospheric concentrations will be limited unless its first commitment period is followed-up by measures to achieve deeper reductions and the implementation of policy instruments by countries with identified major historical responsibilities in generating atmospheric GHG concentrations. (José Somoza , National Institute of Economic Research)	Taken into account
13-93	A	4	20	4	20	The reference to "all major emitters" in this statement sounds as a prescriptive	Taken into account

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						language. Rationale: This is only one side of the debate. An opposite approach would state that Kyoto Protocol effects on atmospheric concentrations will be limited unless its first commitment period is followed-up by measures to achieve deeper reductions and the implementation of policy instruments by countries with identified major historical responsibilities in generating atmospheric GHG concentrations. (Gladys Cecilia HERNANDEZ, Centre for World Economy Research)	
13-94	A	4	20	4	20	Suggesting to add "in accordance with the principle common but differentiated responsibilities" at the end, and delete "major emitter". (Government of China Meteorological Administration)	Taken into account
13-95	A	4	25	26	0	There is little evidence that market mechanisms contribute to (local) sustainable development. They tend to pursue least-cost emission reductions. Is there any reason to believe that sectoral approaches would do better on SD than the CDM? Delete "contribute to sustainable development and" (Harald Winkler, University of Cape Town)	Taken into account
13-96	A	4	25	4	29	Very subjective comment on sector focused mechanisms for which evidence does not seem to be presented in detail within the chapter. (Nick Campbell, ARKEMA SA)	Taken into account
13-97	A	4	29	4	29	Subjective comment on "determining additionality" - this is clearly detailed in the Marrakech Accords. (Nick Campbell, ARKEMA SA)	Taken into account, sentence deleted
13-98	A	4	29	4	29	CDM also has a distributional aspect (+ and -). The negative is that rich conutries like Singapore can benefit from converting its oil fired power plants in gas fired plants.Such cases may undermine the positive money and technology transfers in CDM in the least developed countries. (Aviel VERBRUGGEN, University of Antwerp)	Taken into account, sentence deleted
13-99	A	4	31	4	33	The statement that ”there is no evidence that investments in R&D activities will achieve the same level of emission reductions as quantitative emission objectives, such as the Kyoto Protocol, unless supplemented with policies to promote technology adoption” may be true. But, it creates a false impression, if not a false comparison. Without investments in energy R&D, quantitative emission objectives will ultimately fail. The important point to acknowledge is that the R&D is a necessary means to an emission reduction end. Moreover, commitments to the R&D means may be more credible than commitments to the emission reduction ends. That commitments to GHG reduction may lack of credibility is a central theme of the paper by Thomas Schelling, “What Makes Greenhouse Sense”,	Taken into account, sentence deleted

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Indiana Law Review, vol. 38:581-593 (cited in the References to Ch. 13). That paper, and the issues it raises, deserve careful consideration in Chapter 13. Another useful paper (not cited) in the same genre is: Lee Lane "Reflections on a Transatlantic Climate Policy", Climate Policy Center, Washington, DC, March 2006, presented at a European conference earlier this year.) (Christopher Green, McGill University)	
13-100	A	4	31	4	33	Biased. There is no evidence that emission target approach can secure enough participation in near future too. (Taishi Sugiyama, CRIEPI)	Taken into account, sentence deleted
13-101	A	4	31	4	31	Very strange and subjective comment on choosing the "wrong technology" implying the need to select "winners and losers" - must be deleted. (Nick Campbell, ARKEMA SA)	Taken into account, sentence deleted
13-31	B	4	31	4	33	The statement that "there is no evidence that investments in R&D activities will achieve the same level of emission reductions as quantitative emission objectives, such as the Kyoto Protocol, unless supplemented with policies to promote technology adoption" may be true. But, it creates a false impression, if not a false comparison. Without investments in energy R&D, quantitative emission objectives will ultimately fail. The important point to acknowledge is that the R&D is a necessary means to an emission reduction end. Moreover, commitments to the R&D means may be more credible than commitments to the emission reduction ends. That commitments to GHG reduction may lack of credibility is a central theme of the paper by Thomas Schelling, "What Makes Greenhouse Sense", Indiana Law Review, vol. 38:581-593 (cited in the References to Ch. 13). That paper, and the issues it raises, deserve careful consideration in Chapter 13. Another useful paper (not cited) in the same genre is: Lee Lane "Reflections on a Transatlantic Climate Policy", Climate Policy Center, Washington, DC, March 2006, presented at a European conference earlier this year.) U.S. Government (Government of U.S. Department of State)	Taken into account, sentence deleted
13-102	A	4	35	4	36	Biased. It may take more time to negotiate target and timetable only without looking at incentives of countries. (Taishi Sugiyama, CRIEPI)	Taken into account, sentence deleted
13-103	A	4	39	4	45	There is a logical link between a broad participation and envrionemtnal effectiveness, yes, but what is the link to cost? Cost for whom? The marginal value of a dollar or a Rupee spent on mitigation is greater for a poor person than for a rich person; therefore if richer countries pay for mitigation, it is less costly. For non-Annex I Parties, "universal participation" would be more costly, not less. I	Taken into account, added sentence on regional costs.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						would suggest removing "will be more costly and" in line 41. And specifying where the global commons argument has been made previously in IPCC reports. (Harald Winkler, University of Cape Town)	
13-104	A	4	39	4	41	Withparticipation from amjor emitters we cannot achieve first best solution as implied here. Onlyunder universal participation we can have first best solution. With any other number we can have second best or thrird best silution if we consider participation from majot emitters can give second best solution. The paragraph may be rewritten to avoid conceptual inconsistency. (Joyashree Roy, Jadavpur University)	Taken into account, “second best” deleted
13-105	A	4	43	5	2	Please include "type and nature of commitments (binding/non-binding, fixed/indexed, national/sectoral, price capped or not)" (Cédric PHILIBERT, International Energy Agency)	Taken into account, previous para
13-106	A	4	43	4	45	the criteria listed here are more and wider than the 4 criteria set forward above (Aviel VERBRUGGEN, University of Antwerp)	Accepted
13-107	A	5	3	5	3	Add, perhaps new alinea: A key element in the international debate is whether binding absolute targets are necessary for an effective climate policy or not. In contrast with the European Union so far main industrial nations, e.g. USA, China, India, oppose binding absolute targets, which may lead to a deadlock for a post 2012 global climate agreement. As an alternative to absolute targets permit trading based on relative targets for main industrial sectors can be considered (Schyns 2005 a). Sector targets, for example for electricity ton CO2/MWh actually produced, may be differentiated regionally (EU, USA, China, India, etc.) and coming together during a transition period of 15-20 years. Schyns, Vianney, 2005 a. Climate change challenges and the search for a sustainable policy, pp 1-4, 37. Paper presented at the 8th International Conference on Carbon Dioxide Utilization (ICCDU-VIII), June 20-23, Oslo. Note to authors: most likely you may leave this reference out here, you may also alter the proposed text. (Vianney Schyns, DSM and SABIC)	Taken into account, in different para
13-108	A	5	4	5	12	It is interesting that 2 C has been chosen as an example - this should be changed as it could effectively be seen as a directional comment from IPCC. Furthermore, the "broad consensus" must be defined - if this is a result from Chapter 1 it must be stated as such and NOT hidden behind such loose wording. (Nick Campbell, ARKEMA SA)	Noted
13-109	A	5	4	5	12	1.It is worth stating what is implicit here, that goals have to be framed in terms of emssions levels. Temperature is a lagged variable.2.The range of 40-95% is too wide for practical planning- it needs to reframed as narrower bands, dependent on a	Noted

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						second variable eg climate sensitivity. (Andrew Dlugolecki, University of East Anglia)	
13-110	A	5	4	5	4	A few authors state that it would be better to agree on the adoption and implementation of an instrument, in casu a carbon tax. This would bring more effectiveness than goals that are not effective because of changing realities or that are not lived upon. See e.g. Cooper, 1998 (reference list of chapter 13). (Aviel VERBRUGGEN, University of Antwerp)	Noted
13-111	A	5	6	5	9	International long term goal of GHG reduction must be based on the sound scientific and economic analysis which considers the time necessary to the technological development and in-depth discussions among involved parties. But the goal of 2 degree above the pre-industrial level is neither a fully-fledged scenario nor recommended target. (Shinichi Nakakuki, The Tokyo Electric Power Company)	Noted
13-112	A	5	7	5	11	There is no reference to the litereture, and there is no broad concensus at all. Delete the sentences from line 6 to 11. (Koji Kadono, Global Industrial and Social Progress Research Institute(GISPRI))	Taken into account
13-113	A	5	8	5	8	Replace "30%" with "40%" according to page 49, line 7 of this chapter (Government of Germany)	Accepted
13-114	A	5	9	5	11	Presumably you mean emissions in developing countries need to be lower. Replace "deviate from" with 'deviate below' and again for 'deviate substantially below. (Harald Winkler, University of Cape Town)	Accepted
13-115	A	5	9	0	11	"Emissions in developing... " needs to be clarfied: "...need to deviate.." is not clear at all (Michael Kohlhaas, German Institute for Economic Research)	Accepted
13-32	B	5	14	5	33	No initiative by an NGO is mentioned (Government of Netherlands/Ministry for the Environment)	Accepted, sentence on initiatives added.
13-116	A	5	17	0	0	The 'key role' does not seem to be not in line with the ' limited geogr scope' (line23), the 'limited..scope' (line 29), 'less than optimal' (line 30) (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Accepted
13-117	A	5	20	5	20	The majority of the actions are undertaken by "associations" and this should be added as such. It is a subjective view that the prominent reason for action is that associations and companies are trying to influence governments actions, in many cases the second stated reason is actually the driving force. (Nick Campbell, ARKEMA SA)	Rejected
13-118	A	5	30	5	33	This is too dismissive.1 How can there be any evidence of an impact on national emissions or policy, when these are relatively recent moves?At the least the	Taken into account

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						qualifier"yet" should be inserted, but even that is too negative.2. The success of sub-nationl moves is ultimately that national policy should come into line with mitigation. Therefore framing this assessment so that sub-national moves are unsuccessful unless supplemented by national policy is incorrect. (Andrew Dlugolecki, University of East Anglia)	
13-33	B	5	30	5	33	This section states: "There is no evidence indicating that independent actions by corporations, sub-national governments, NGOs or other civil groups can, by themselves, lead to significant national emission reductions, unless supplemented by national government policies." However, there cases in which national policies reflect underlying trends not initiated by government action. Suggest revising this sentence to read: "When these independent actions by corporations, sub-national governments, NGOs or other civil groups are supplemented by national government policies, their effectiveness in reducing national emissions is enhanced." U.S. Government (Government of U.S. Department of State)	Taken into account
13-119	A	5	31	5	34	Recent California climate policy makes this statement somewhat questionable (since such a large state that it has the potential to lead to substantial emissions reductions). (Joanna Lewis, Pew Center on Global Climate Change)	Taken into account
13-120	A	5	40	5	40	Indian energy efficiency programmes are one of the major success stories. Chapter 7 has references as well as NATCOM from Government of India (2004) has several examples. (Joyashree Roy, Jadavpur University)	Accepted
13-121	A	5	42	5	45	A very strong statement on non-climate policy priorities that seems inappropriate in an IPCC assessment. (Nick Campbell, ARKEMA SA)	Reject
13-34	B	6	0	0	0	Continue using the following categories of policy instruments in the chapter: regulations and standards, taxes and charges, tradable emission permits, voluntary agreements, communication instruments, financial incentives, trade and development assistance (Government of Netherlands/Ministry for the Environment)	1 Good suggestion
13-122	A	6	3	6	8	long sentence (Heleen Groenenberg, Energy Research Centre of the Netherlands)	4 Noted
13-123	A	6	9	0	0	other arrangements' - please specify (Heleen Groenenberg, Energy Research Centre of the Netherlands)	4 Perhaps we should delete
13-124	A	6	11	0	0	Chapter 6 on…. and Chapter 10 on….	4 Noted

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Heleen Groenenberg, Energy Research Centre of the Netherlands)	
13-125	A	6	16	0	18	Nevertheless, you may wich to link up to CBAs of CC mitigation policies in which costs of mitigation and avoided CC damaged are compared to determine optimal abatement levels. Contact WGII? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	2 To do much on this would expand the scope too much.
13-126	A	6	22	0	0	"emission taxes and charges …." remove "emission". Not only emission taxes could be part of a national policy but also other taxes - for example energy taxes, vehicle taxes - can be used to reduce GHG emissions in a mix of climate, energy and transport policies. (Government of Sweden)	1 Agreed Drop "emissions" as an adjective
13-35	B	6	22	6	22	Delete "emission" before "taxes and charges" since taxes and charges are also possible on other products within climate policies (Government of Netherlands/Ministry for the Environment)	1 Agreed
13-127	A	6	23	0	0	Difference between taxes and charges has not been made clear. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	2 Not necessary to clarify distinction.
13-36	B	6	24	6	24	Repalce "information instruments" by "communication instruments" (Government of Netherlands/Ministry for the Environment)	2. "Information" is more widely used
13-37	B	6	25	6	26	Merge "subsidies and incentives, research and development" into one category called financial incentives. (Government of Netherlands/Ministry for the Environment)	2 Not the same thing
13-128	A	6	31	6	46	In the case of climate the risk profile of effects that are to be avoided or reduced seems to become a relevant 5th criterion in its own right. Recent studies on economic effects of adaptation indicate that assessment of effects for OECD countries on the basis of average changes can be misleading since such an approach implies that risks following from more extreme events are inadequately taken into account (e.g. Perrels, A., Rajala, R., Honkatukia, J. (2006), Appraising the Social-economic Impacts of Climate Change for Finland, Report of Work Package 12 of the FINADAPT project, Helsinki. www.environment.fi/syke/finadapt (Government of Finland)	2 We say that there are other factors but we are focusing on the four main ones
13-129	A	6	34	0	0	Positive environmental outcomes' - vague wording (Heleen Groenenberg, Energy Research Centre of the Netherlands)	4 Noted
13-38	B	6	37	6	37	The definition of distributional considerations is very unclear. Distributional considerations cannot be simply defined as the distributional consequences, this is rather meaningless (Government of Netherlands/Ministry for the Environment)	4 There is some ambiguity here which we should clear up

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-130	A	6	38	0	0	…other dimensions of distribution, including…. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	4 Noted
13-131	A	6	41	0	0	* P. 6, 41 and elsewhere: 'institutional feasibility'. In summaries, e.g. Executive Summary and SPM, some times 'political feasibility' and some times 'institutional feasibility' are used. Either use only one of these concepts, or explain the difference between them and use the two concepts in a consistent manner. (Government of Norwegian Pollution Control Authority)	1 Political feasibility should be nixed, institutional feasibility will be used.
13-132	A	6	44	6	45	An important additional criteria is 'the effectiveness of the policy framework/measure for attracting capital and influencing longer term investment flows'. I will submit some additional paragraphs, with references (there is a small number of publications that describe elements of this, some of which are in my comment to this chapter above (page 3, lines 4-8). This factor is also relevant to the role policy plays in different parts of the technology spectrum, something I have tried to raise in comments to other chapters (refer to ch 2, re lines 61, and 62) - and governing why it is important to be rather precise about what is being meant by some of the descriptive terms in that discussion (e.g. innovation). (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	2 This is part of institutional feasibility
13-133	A	6	44	0	0	administrative costs are included in the criterion on cost-effectiveness -> skip (Heleen Groenenberg, Energy Research Centre of the Netherlands)	1 True
13-134	A	6	45	0	0	What are dynamic considerations? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	4 Delete here but discuss making the right intertemporal tradeoffs.
13-135	A	7	0	7	0	In Box 13.1, before 'Taxes and Charges' insert Renewable Portfolio Standards and other proportional obligations - a requirement on suppliers of energy carriers (usually electricity generators) for a proportion of supply to be sourced in a policy-desirable way. They can be fixed or dynamic and if tradable, are similar to tradable emissions permits. (Peter Read, Massey University)	4 RPS is a regulation unless the obligation is marketable in which case it is a tradeable permit.
13-136	A	7	0	0	0	Section 13.2.1.1: Instruments should be evaluated not only based on their design characterists. The stringency of a specific instrument is equally if not more important for its environmental and economic effectiveness. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	2 Not sure what the comment is here.
13-137	A	7	0	7	0	Box 13.1: The definition of "Taxes and Charges" is limited to "a levy imposed on each unit of emissions by a source". This limits the instrument to the 'emission tax' but there is more variety in this instrument for meeting the objectives, e.g. taxing fuels/energy/materials, conversion technologies, products, property, etc.. that has some link or can have some link to GHG emissions. In practice (e.g. because of	1 Good point. Could add: "Levy could be imposed on products or processes that are indirectly related to emissions, such as energy consumption.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						international competition pressures) it will often be necessary to leave or substitute or complement the ideal emission levy, and construct suitable tax structures. Can the authors be more complete here? In the text (box 13.3 e.g.) the tax variety gets attention. (Aviel VERBRUGGEN, University of Antwerp)	
13-138	A	7	1	0	0	In Box 13.1, before 'Taxes and Charges' insert Renewable Portfolio Standards and other proportional obligations - a requirement on suppliers of energy carriers (usually electricity generators) for a proportion of supply to be sourced in a policy-desirable way. They can be fixed or dynamic and if tradable, are similar to tradable emissions permits. (Peter Read, Massey University)	4 See 13-135
13-139	A	7	1	13	0	Final point in Box 13.1 on 'Non-Climate Policies', I think the term 'important influence' is useful to be consistent with page 27 (rather than 'beneficial climate-related effects'). Page 27, line 8, states 'There are a number of non-climate national policies that can have an important influence on GHG emissions.' In relation to national policies driven by energy security, ch3, page 97 states these can have 'strong alignment' with climate goals, which is also useful. (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	4 Change “beneficial” to “significant”
13-140	A	7	1	7	1	Feed in tariffs and technology quota systems (such as green electricity certificates and renewable energy portfolio standards) are surprisingly not included in Box 13.1. They could be included under subsides and incentives. In this case the explanation needs to be changed since it is not funding from a government to an entity but a redistribution between "entities". Otherwise they could get one or two paragraphs of their own. They should also be described in more detail in section 13.2.1 (and not only included in a footnote in section 13.2.1.4). Cross-reference could be made to Section 4.5.1. (Government of Sweden)	1 Add “price supports” to list of subsidies. But do not mention feed-in tariffs in the Box Under tradeable permits add sentence: “Permit systems may also be used to indirectly control emissions, such as with tradeable renewable energy credits.
13-39	B	7	1	7	3	Box: these are not general definitions, but are sometimes just examples specific for the climate change context (such as the R&D definition) or contain a judgment (such as the flexiblity of performance standards) (Government of Netherlands/Ministry for the Environment)	2 Not judgment – consensus of literature. Definitions need to be edited
13-141	A	7	2	35	46	In 13.2 there may be a collation of congenital practices of the nature of social and ritual regulations in climate related matters; (Government of India)	2 Do not understand the comment.
13-142	A	7	3	27	38	Missing from this list of national policy instruments are programs that promote best practices, such as Natural Gas Star in the U.S. (www.epa.gov/gasstar), which has	4 Included in voluntary programs

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						now been internationalized as the Methane-to-Markets Partnership (www.mthanetomarkets.org). Another example is the German-Indian program to promote energy efficiency in Indian industry (IGEN/BEE (Indo-German Energy Program in cooperation with Bureau of Energy Efficiency under Ministry of Power), n.d.: Success Stories. www.energymanagertraining.com/new_success.php). These programs promote the exchange of information between companies in the same industry. Companies, even the largest, have limited managerial, technical, and financial resources. They cannot focus a high level of attention on all aspects of their business simultaneously. Having similar companies demonstrate cost effective technology for controlling GHG emissions is a powerful too for technology diffusion. In most cases only "no-regrets" options are involved, but in theory there is no reason why the approach could not work to meet a mandatory target. (Lenny Bernstein, L. S. Bernstein & Associates, L.L.C.)	
13-40	B	7	3	27	38	Missing from this list of national policy instruments are programs that promote best practices, such as Natural Gas Star in the U.S. (www.epa.gov/gasstar), which has now been internationalized as the Methane-to-Markets Partnership (www.mthanetomarkets.org). Another example is the German-Indian program to promote energy efficiency in Indian industry (IGEN/BEE (Indo-German Energy Program in cooperation with Bureau of Energy Efficiency under Ministry of Power), n.d.: Success Stories. www.energymanagertraining.com/new_success.php). These programs promote the exchange of information between companies in the same industry. Companies, even the largest, have limited managerial, technical, and financial resources. They cannot focus a high level of attention on all aspects of their business simultaneously. Having similar companies demonstrate cost effective technology for controlling GHG emissions is a powerful too for technology diffusion. In most cases only "no-regrets" options are involved, but in theory there is no reason why the approach could not work to meet a mandatory target. U.S. Government (Government of U.S. Department of State)	4 See 13-142
13-143	A	7	7	0	0	"For example, permits allocated free to existing firms represent a valuable asset transferred from government to industry to acknowledge the transition difficulties for fixed investment in long lived equipment and processing technology. Auctioned permits and emission taxes generally impose heavier burdens on polluters." (Catherine Beard, Greenhouse Policy Coalition)	3 True but not necessary to elaborate because of space constraints. Not appropriate here, but addressed in 13.2.1.3

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-144	A	7	12	0	0	"Voluntary measures are often favoured by industry because of their flexibility and potential lower costs, but are often opposed by some environment groups because of their lack of accountability and enforcement." (Catherine Beard, Greenhouse Policy Coalition)	2. Comment is identical to the text.
13-145	A	7	16	0	0	Section 13.2.1: refer to Farinelli, U., T. B. Johansson, K. McCormick, L. Mundaca, V. Oikonomou, M. Örtenvik, M. K. Patel, F. Santi, "White and Green": Comparison of market-based instruments to promote energy efficiency, Journal of Cleaner Production, 2005, Vol. 13, pp. 1015-1026. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	2. What is the result from the paper that we would be referring to? We don't just add papers that are related to an area. The cited paper uses the MARKAL model to simulate some policies. Comment noted.
13-146	A	7	16	0	0	Sction 13.2.1: Refer to: Donald Hanson and John A. "Skip" Laitner, "An integrated analysis of policies that increase investments in advanced energy-efficient/low-carbon technologies" Energy Economics 26: 739-755. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	2. What specific result from the paper that we would be referring to?
13-147	A	7	18	0	0	Section 13.2.1.1. Refer to: Blok, K., Enhanced Policies for the Improvement of Electricity Efficiencies, Energy Policy, 2005, Vol. 33(13), pp. 1635-1641. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	2 What specific result from the paper that we would be referring to?
13-148	A	7	18	0	0	The top-runner approach in Japan has proved to be effective for energy saving and should be mentioned in the text. (Koji Kadono, Global Industrial and Social Progress Research Institute(GISPRI))	2. Not relevant here is addressed in a box.
13-149	A	7	20	0	0	Section 13.2.1.1: Few references here. Does the text present recent insights? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	2 Lots of references already.
13-41	B	7	20	7	20	Remark: regulation is broader than just standards. It could for instance also involve that certain activities or substances are banned (Government of Netherlands/Ministry for the Environment)	1 Accept Add to line 20 on p 7 the phrase "product bans"
13-42	B	7	25	0	0	"sequestration" should be "capture and storage" (standard terminology) (Bert Metz, IPCC)	1 Agreed
13-150	A	7	40	10	5	Section 13.2.1.1 - Comment: IPCC obviously has the opinion, that regulatory measures are only preferable when information and other barriers prevent firms and consumers from responding to price signals. In conclusion regulatory measures should only be the last option – only for such cases in which other in-struments are not successful (see page 3 [5]). This would be a huge reduction of the applica-tion of regulatory measures. The reasons of this estimation haven't been explained, neither in the summary nor in the long text. But it seems that the report has analyzed only economic literature (see page 8, [45]). We have doubts whether this is a sufficient basic to evaluate the success of regulatory, especially legal measures.	3 We should add a qualifying sentence on p 8, line 31: "It should be noted that in some contexts regulations and standards are the preferred options because of difficulties in implementing other types of policies."

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Regulatory measures have advantages com-pared to all other instruments: They are legally binding for all persons, they are appropriate to constitute demands and prohibitions and they cause in generally less cost. Doubtless regula-tory measures need a strict and consequent application, execution and monitoring. But they are an important and equitable part of the environmental law and convenient to solve some of the problems by reducing GHGs. Governments should not only use it, if other instruments are not applicable. (Government of Germany)	
13-151	A	8	1	0	0	Section 13.2 This section presents a lot of well-established insights and could be a lot shorter. (,)	4 Noted
13-152	A	8	20	8	31	This paragraph takes only literature from economics and not environmental policy which due to the nature of the subject 'Mitigation of climate change', it ought to. There are a number of literature on the comparisons between regulations vs. markets, there are a number of examples of succesful regulation programs in other fields such as CFCs, SOx which the authors could draw upon. Sometimes regulations include economic penalties, such as fines, or implicit rewards, such as recognition and appreciation by regulators, authorities, or consumers. This section should conclude that a systematic approach to evaluating policy instruments and other institutional designs is bound to enhance the efficiency of future decisionmaking. see: Harrington, W; Morgenstern, R.D and Sterner, T (2004) Overview Comparing Instrument Choices in Harrington, W; Morgenstern, R.D and Sterner, T (eds) Choosing Environmental Policy: Comparing Instruments and Outcomes in the United States and Europe. (Kirsten Macey, Climate Action Network Europe)	3 Good point, though I think we cite Harrington et al. We should also cite Freeman and Kolstad (2006) which is a treatement on non-economic and economic issues.
13-153	A	8	20	8	31	In order to mitigate the inefficiency effects of regulation performance standards at higher aggregation levels (e.g. entire building or neighbourhood) are applied as well. The key problem is that is some sectors markets do not function well (at least not just by themselves). The building/real-estate sector is a typical point in case (see also general remark above). Enhancement of market functioning is often important to make environmental/sustainability policies more effective. Next to some performance standard system that may require measures aiming at lowering the cost of information collection and processing, e.g. voluntary agreements have a kind of platform function in this case on the basis of which info exchange services can be provided more easily and effectively. (Government of Finland)	4 Noted. This seems like a secondary issue.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-43	B	8	20	8	31	The California experience with air quality standards could also be relevant here (Bert Metz, IPCC)	2. Comment are unclear.
13-154	A	8	33	8	35	It is misleading to characterise energy-efficiency regulation as somehow not really about mitigation- a primary motive for energy efficiency regulation IS mitigation, it is not merely a co-benefit. (Andrew Dlugolecki, University of East Anglia)	4 This is just a difference of emphasis.
13-44	B	8	33	8	33	Add "emissions of" between "reduce" and "greenhouse gases" (Government of Netherlands/Ministry for the Environment)	1 Change made.
13-155	A	8	45	0	0	Box 13.2 sets out an energy efficiency standard. If you refer to it here, the box should illustrate why China needs standards rather than market-based regulations. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	2 We are not in a position to evaluate the desirability or optimality of the Chinese policy but rather to report on it.
13-156	A	8	47	0	0	What are transitional settings? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3 Delete “transitional”
13-157	A	9	0	9	0	Box 13.2: The bldg construction industry in China is not accountable for 37 percent of the country's total energy consumption. According to official statistics, the construction sector alone is about 17% of end use energy consumption; building construction specifically must be smaller than 17%. In addition, I'm unclear why a policy that has yet to be implemented is highlighted in this chapter--why not highlight a success story? Also, this chapter does not include energy policies as part of the portfolio of "climate" policy options that are discussed--this is the first time building standards are mentioned, and no other energy efficiency or renewable energy policies are discussed in this chapter, which focuses specifically on climate policy options, like cap and trade, etc. This should be kept consistent. Box 13.3 alternatively highlights a rare case of a climate change levy, and 13.4 the largest carbon trading system in the world, and therefore are appropriate. It would be good to highlight a developing country climate policy, but the way this chapter has been defined, this will be hard to find. Such examples, therefore, are perhaps better put in Chapter 12, unless this chapter is restructured to include non-climate motivated policies that reduce GHG emissions. (Joanna Lewis, Pew Center on Global Climate Change)	3 Box revised.
13-46	B	9	0	0	0	box 13.2: literature references missing (Bert Metz, IPCC)	3 Box revised reference will be added
13-158	A	9	6	9	9	this in fact is a crucial and common situation, and should NOT be buried in the middle of a paragraph at the end of a list of neagtive observations on regualtory PAM.Regulation is VITAL. (Andrew Dlugolecki, University of East Anglia)	4 Noted

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-159	A	9	7	0	0	other barriers' - specify (Heleen Groenenberg, Energy Research Centre of the Netherlands)	4 Noted
13-160	A	9	10	0	15	Box 13.2. "The building construction industry … account for 37 percent of the country's total energy consumption" the building construction industry here should be building sector. Building construction industry means in China the sector which does civil engineering work. (Yanjia Wang, Tsinghua University)	3. Box revised.
13-161	A	9	11	9	11	Box 13.2 should be edited for clarity and idiom. (Jonathan Sinton, International Energy Agency)	3 Box revised.
13-162	A	9	11	9	11	Box 13.2 appears to contain some errors of substance and lacks references. For a review of China's energy standards, see R.M. Yao, Li B.Z, and K. Steemers, 2005, "Energy policy and standard for built environment in China", Renewable Energy, 30(13):1973-1988; S.W. Lang, 2004, "Progress in energy-efficiency standards for residential buildings in China", Energy and Buildings 36(12):1191-1196. The second paragraph should be revised in light of these references. In addition, activity in appliance and lighting standards is leading to substantial improvements in efficiency, cf. W. Lu, 2006, "Potential energy savings and environmental impact by implementing energy efficiency standard for household refrigerators in China", Energy Policy 34(13):1583-1589; J. Lin, 2005, "A light diet for a giant appetite: An assessment of China's fluorescent lamp standard", Energy, 30(10):1873 1887. Additional reports on building and appliance energy standards can be found on the website of the energy Foundation's China Sustainable Energy Program, www.efchina.org, where work on energy efficiency in industry and transportation can also be found. (Jonathan Sinton, International Energy Agency)	3 Box revised.
13-163	A	9	11	9	11	Although Yao et al. note that buildings account for 23% of energy use, according to IEA data--which include biomass, the major source of household energy in China's rural areas--building energy use (residential and commercial sectors) was 35% of final energy use in 2004, counting electricity at end-use value (International Energy Agency, 2006, Energy Statistics of Non-OECD Countries, Paris: OECD\IEA). IEA energy balances are based on China's own energy balances and its estimates of biofuel use. The second sentence of Box 13.2 should read, "Buildings consume more than one third of all final energy in China, including biomass fuels (IEA 2006)." (Jonathan Sinton, International Energy Agency)	3. Box revised.
13-164	A	9	13	10	2	broader policy processes' -> vague wording	1 Text revised

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Heleen Groenenberg, Energy Research Centre of the Netherlands)	
13-165	A	9	13	10	2	This paragraph implies that economic incentives are better than regulatory standars and developing countries adopt economic instruments over time as their economies grow. But as previously described in page 8(from line 43), there are many cases where standards are preferable. What kind of instrument is better is a matter specific to a country and situation so the text should avoid judging which is superior. (Koji Kadono, Global Industrial and Social Progress Research Institute(GISPRI))	3 Misreading of paragraph. It is a balanced paragraph.
13-45	B	9	13	10	2	This paragraph fails to discuss which instruments are currenlty being used and preferred in developing countries (Government of Netherlands/Ministry for the Environment)	1 Good point.
13-166	A	10	2	0	0	New Section 13.2.1.1a. Renewable Portfolio Standards and other proportional obligations// new line// Proportional abatement obligations generalise the concept of the Renewable Portfolio Standard which has been used in several States in the USA, sometimes in rather poorly designed formats (reference to be supplied) and oblige suppliers of energy products to produce a proportion of them sustainably. For instance a proportion of renewable energy in electricity generation, or a proportion of biofuel in filling station sales. Good design requires tradability of the obligation so that those suppliers that can make use of a sustainable resource at least cost (e.g. by being located in a windy region) can, at the going price, discharge the obligation of another supplier less fortunately placed. An announced pathway for ramping up the proportion over time both provides a long term investment signal and induces behaviour that mimics conventional innovation behaviour, where successful firms maintain prices high enough to finance the start-up costs of introducing a new product line. Thus there is no excess revenue (as from taxes or auctioned emissions permits) to be recycled and there is asymmetry of small price increases to generalist consumers and large internal subsidy to specialist innovaters (Read 1997). Ramping up can be made to enable dynamic efficiency (i.e.that internalises the learning-by-doing externality that arises with specialist suppliers). This is because ramping up results in a initially high reward for early innovation that provides early learning and a lower reward for later learning, when the industry meets reducing benefits from contiuing innovation as it moves down the 'experience curve' (Read, 2000, 2000a). Proportional obligations can relate to particular technology types (such as bio-energy and carbon storage that are specific to precautionary policy related to the threat of abrupt climate change) or to the general range of renewable technologies relevant to meeting Kyoto Protocol	3 A new section not justified but addressed in the text.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						commitments. A particular arrangement for "Allocating Permits Usefully" provides a mechanism for integrating the proportionality principle into an emissions trading scheme (Read, 2006a). (Peter Read, Massey University)	
13-167	A	10	2	0	0	New Section 13.2.1.1a. Renewable Portfolio Standards and other proportional obligations// new line// Proportional abatement obligations generalise the concept of the Renewable Portfolio Standard which has been used in several States in the USA, sometimes in rather poorly designed formats (reference to be supplied) and oblige suppliers of energy products to produce a proportion of them sustainably. For instance a proportion of renewable energy in electricity generation, or a proportion of biofuel in filling station sales. Good design requires tradability of the obligation so that those suppliers that can make use of a sustainable resource at least cost (e.g. by being located in a windy region) can, at the going price, discharge the obligation of another supplier less fortunately placed. An announced pathway for ramping up the proportion over time both provides a long term investment signal and induces behaviour that mimics conventional innovation behaviour, where successful firms maintain prices high enough to finance the start-up costs of introducing a new product line. Thus there is no excess revenue (as from taxes or auctioned emissions permits) to be recycled and there is asymmetry of small price increases to generalist consumers and large internal subsidy to specialist innovaters (Read 1997). Ramping up can be made to enable dynamic efficiency (i.e.that internalises the learning-by-doing externality that arises with specialist suppliers). This is because ramping up results in a initially high reward for early innovation that provides early learning and a lower reward for later learning, when the industry meets reducing benefits from contiuing innovation as it moves down the 'experience curve' (Read, 2000, 2000a). Proportional obligations can relate to particular technology types (such as bio-energy and carbon storage that are specific to precautionary policy related to the threat of abrupt climate change) or to the general range of renewable technologies relevant to meeting Kyoto Protocol commitments. A particular arrangement for "Allocating Permits Usefully" provides a mechanism for integrating the proportionality principle into an emissions trading scheme (Read, 2006a). (Peter Read, Massey University)	Duplicate comment, see 13-166
13-168	A	10	4	0	0	Kohlhaas and Meyer (2005) discuss how political and legal constraints (in particular EU law) affect the efficiency of environmental taxation in the case of the Ecological Tax Reform in Germany. See Kohlhaas, M., Meyer, B.: Ecological Tax	3 This reference and sentence will be added.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Reform in Germany - Economic and political analysis of an evolving policy. In: Michael T. Hatch [ed.]: Environmental Policymaking: Assessing the Use of Alternative Policy Instruments. Albany, New York: State University of New York Press, 2005. (Michael Kohlhaas, German Institute for Economic Research)	
13-169	A	10	4	12	1	Sometimes the present oil price increase are confused with the cabon tax policy although the mechanism or feedback to the society is quite different. IPCC will have to summarize the difference between the phenomena as a result of market activities and the environmental policies. (Toshihiko Masui, National Institute for Environmental Studies)	2 Not sure why we need to do this.
13-47	B	10	4	11	23	a discussion of the political acceptability of taxes is missing, which is a dominat consideration for applying this instrument (Bert Metz, IPCC)	1 Add new paragraph at beginning of line 16, p10.
13-48	B	10	4	0	0	This section could be broadened to include other taxes and charges, besides those directly on emissions, such as energy taxes, differentiatied road taxes and other types of pollution taxes. These taxes are named in Box 13.3 but should be included in the main text in order to make clear that the instrument is not limited to direct emission taxes and charges (Government of Netherlands/Ministry for the Environment)	1 Add paragraph at line 25, p10:
13-170	A	10	6	0	0	fee, tax, charge - difference? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	2 Words used for same purpose, though with different political overtones.
13-171	A	10	6	10	14	A few comments: 1) footnote 3 is extremely tedious to understand; maybe add a footnote to explain the footnote or just cancel footnote 3; 2) the references cited on line 11 are somewhat grotesque, because it explains what an environmental economics textbook explains better; 3) when teaching some basic economics, one could perhaps add that an optimal emission tax (equal to the flat marginal damage costs) brings us to a first best outcome [see also the reference to "general economic efficiency on p.28, line 41]. (Aviel VERBRUGGEN, University of Antwerp)	1 Clarify text.
13-172	A	10	19	10	20	In evaluating.. policy measures. This sentence is not very informative. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	4 Noted
13-173	A	10	29	10	38	In some countries, taxes are "phased in", i.e. Increased in smal steps over time in order to give energy users the opportunity to undertake adjustment measures, e.g. in Germany ("ecotaxes") or the UK ("fuel price escalator"). In such a framework, policy makers can observe the reaction to taxes and learn about the appropriate level. See Kohlhaas, M., Meyer, B.: Ecological Tax Reform in Germany -	4 Noted. Not significant enough to discuss

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Economic and political analysis of an evolving policy. In: Michael T. Hatch [ed.]: Environmental Policymaking: Assessing the Use of Alternative Policy Instruments. Albany, New York: State University of New York Press, 2005. (Michael Kohlhaas, German Institute for Economic Research)	
13-174	A	10	36	10	38	Thus .. new sources.' Obviously... This sentence is not very informative. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3. Delete next to last sentence and word "Thus that starts the last sentence.
13-175	A	11	1	11	16	These are interesting considerations, but are they the result of recent research? You may want to put them in some 'open questions' or 'suggestions for further research' section at the end. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3 Good point. Paragraph should be rephrased.
13-49	B	11	5	0	0	delete "tax" (Bert Metz, IPCC)	1 Done
13-50	B	11	5	11	5	Replace "is not tax" by "is not taxed" (Government of Netherlands/Ministry for the Environment)	1 See 13-49
13-176	A	11	8	0	16	We can read there "Should the emitters always pay the tax directly (such individual automobile owners) or should the tax be levied on more convenient points (such as the petrol refinery)? These questions are not easy to answer, and the answer is as much political or practical as it is economic". My opinion is that, even if the answer is in part "political or practical", as mentioned in the report, it is also economic. This opinion results from recent works by Cremer, Gahvari and Ladoux. (if only one has to be cited, choose this one: "Tax design with endogenous earning abilities and consumption and production externalities, with applications to France", see attached paper). In their paper, the authors study the question of optimal taxation of polluting emissions in a very general context. Polluting emissions are resulting from energy use as an input by the firms and energy used as a good by the households. Households have heterogeneous preferences (in particular with respect to energy) and productivities (there are "rich" and "poor" people in the economy). That means that emissions taxation has redistributive consequences. The paper answers the questions: what to tax? What is the optimal tax level? The answers are the following: both types of emissions have to be taxed, but the tax on emissions resulting from the use of energy as an input must be Pigovian, while the tax on energy used as a final good is not. The authors show that, in the particular case of the French economy, the optimal tax on energy used as an input is 10%, and the optimal tax on energy used as a consumption good is 3.6% only (this is much more less than the Pigovian tax). This result emerges in France because	1 Add paragraph after line 16 on p11: Cremer et al (2003) develop an empirical model to study the use of taxes to control emissions in France. They conclude that energy should be taxed differentially as an input to production vs. in final consumption. Their work also suggests the usefulness of empirical economy-wide models to develop green tax policies. Ref: Title: **Environmental taxes with heterogeneous consumers: an application to energy consumption in France** Author(s): Cremer H, Gahvari F, Ladoux N Source: JOURNAL OF PUBLIC ECONOMICS 87 (12): 2791-2815 DEC 2003

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						energy taxation is regressive (benefits to the "rich" and hurts the "poor"). In other contexts, the result could be reversed. In other words, the optimal tax on emissions resulting from the use of energy as a final good could be larger than the Pigovian tax. The results above also mean that theory of the double dividend, interpreted as a theory that tells us that environmental taxes have to be put above the Pigovian tax, is not a general theory. (Norbert LADOUX, University of Toulouse and IDEI)	
13-177	A	11	9	0	0	"Should the tax revenue go into government treasury, be used to offset other taxes (i.e. the double-dividend effect) or …." Remove the parenthesis and its text. The term "double-dividend" does not just mean to compensate an increase in environmental taxes by reducing other taxes (for example on labour). There must also be a total welfare benefit of the tax changes to be a "double-dividend" effect. (Government of Sweden)	2 Double dividend means a gain from the environmental tax and a gain from reducing the labor tax.
13-51	B	11	12	11	13	Replace "where the tax should be levied" by "who should pay the tax" (Government of Netherlands/Ministry for the Environment)	2 That would change the sense of the sentence.
13-178	A	11	18	11	23	Some other sources show higher long run elasticities, e.g. The overview paper "Demand Responsiveness in Electricity Markets" by Lafferty Ronald et all.(2001), (US Office of Markets, Tariffs and Rates, FERC) quote among others Carol Dahl (USDOE, 1993) "This wide variance lead to 'cautious' observations that the studies [= 2 aggregate demand, 21 residential, 7 commercial, and 18 industrial] show a long-run price elasticity for aggregate demand for electricity to be near -1.0". Similar results are obtained for the long-run price elasticity of electricity intensity for a sample of the wealthiest OECD nations by Verbruggen A. '.Electricity intensity backstop level to meet sustainable backstop supply technologies', Energy Policy 34 (2006), pp.1310-1317. Mostly electricity use is considered to be less price sensitive than energy use in general, strenghtening the argument that the values mentioned should be completed with other findings. The LR price elasticity discussion is related to the discussion on "induced technological development and diffusion" (chapters 2 and 11). (Aviel VERBRUGGEN, University of Antwerp)	3 Revise the paragraph to discuss elasticity as a measure of the effectiveness of a tax.
13-179	A	11	20	0	21	"With short run elasticity ranging between -0,13 and -0,26. However, long run elasticities are considerably higher (-0,57 to -0,46)." Studies on price elasticities for petrol have shown higher elasticity values than the ones mentioned in the text. Grahams, D. and Glaister, S. (2002) The demand for automobile fuel: a survey of elasticities, Journal of transport economics and policy, 36, pp 1-26, finds after a	3 See 13-178

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						comprehensive review in the research literature that price elasticities for petrol are around -0.3 in the short term and -0.6 to -0.8 in the long run. (Government of Sweden)	
13-180	A	11	25	12	0	Box 13.3: Kohlhaas (2005) found that the Ecological Tax Reform in Germany reduced CO2 emissions by 2 to 3 percent or 10 to 25 mtCO2 per year. Kohlhaas, M.: The economic effects of an environmental tax reform in Germany. In: H. Ashiabor et al. [eds.]: Critical Issues in International Environmental Taxation: International and Comparative Perspectives, Vol II, Richmond 2005 or, alternatively, Bach, S., M. Kohlhaas, B. Meyer, B. Praetorius und H. Welsch: The effects of environmental fiscal reform in Germany: a simulation study. In: Energy Policy 30 (2002) 803-811. (Michael Kohlhaas, German Institute for Economic Research)	3 Box will be replaced and the reference will be considered for the text..
13-181	A	11	25	11	25	To add in line 8 of Box 13.3 'Examples of CO2 and Motor fuel Taxes' after .. In which the tax is actually implemented. To add an additional example of the study results: 'Results of the study of the introduction of CO2 tax in Lithuania showed that a tax of 13.3 EUR/ton causes about 6% of CO2 reduction comparing with "business as usual scenario" and leads to significant additional income to the state budget but, at the same time, causes one of the highest level of electricity and heat price. (Source: Danish Energy Authority, 2003, Environmental Related Energy Sector Programme-Lithuania. Enhancement of the Use of Local and Renewable Energy Sources-Lithuania. Impact of measures. Elaborated by Lithuanian Energy Institute, 2003 cited in Streimikiene and Bubniene 'Impact of Carbon Tax for Greenhouse Gas Reduction and Economy', Engineering Economics, Kaunas Technological University, 2005 (1). ISSN 1392 – 2785, psl. 23 – 29; (Kirsten Macey, Climate Action Network Europe)	3 Take into account when drafting the text to replace the Box.
13-182	A	11	25	12	1	Box 13.3 on UK CCL. No mention is made of one outstanding and innovative feature of the UK CCL and CCAs - that they were announced in advance. Since the Cambridge Econometrics report on the CCL concludes, with strong econometric evidence, that the announcement effect was substantial and long-term, it is certainly worth a mention, if not a paragraph in the main text. The result is important in that it shows how the costs of policies may be greatly reduced, or their effectiveness increased by advanced planning and consultation. These are major issues for climate policies and for governments seeking to encourage industries to reduce emissions and keep costs to industries as low as possible.The effect is an information effect, perhaps best included in section 13.2.1.7 (Government of UK)	3. Not appropriate here, consider for Box 13.6 on the CCL.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-52	B	11	26	0	0	Box 13.3: in the first line replace "notes that" by "the" (Government of Netherlands/Ministry for the Environment)	1 Delete “notes that” Box deleted
13-183	A	11	27	0	0	(first line in Box 13.3): delete “notes that”. (Government of Norwegian Pollution Control Authority)	1 Done
13-184	A	11	29	0	0	the tax rate' - please introduce tax first (Heleen Groenenberg, Energy Research Centre of the Netherlands)	1 Box deleted
13-185	A	12	2	17	35	Section13.2.1.2: subheadings would help (Heleen Groenenberg, Energy Research Centre of the Netherlands)	2
13-186	A	12	2	17	35	Chapter 13.2.1.3 apparently only deals with cap-and-trade systems, as opposed to, for example, the Canadian plans for a "Large Final Emitters" system which would be baseline-and-credit. If so, this should be specified. (Government of Germany)	2 Large Final Emitter system was a proposal that probably will not be implemented.
13-187	A	12	16	14	6	The report argues that economy-wide coverage of a trading system is superior to partial coverage. However, covering sectors such as transport or the residential sector poses significant methododological and design challenges which should be reflected. Upstream coverage as outlined on page 14 could be one approach, but upstream entities may simply pass on the costs to consumers, the sensibility of whom to price signals is at least doubtful. (Government of Germany)	2 .
13-188	A	12	17	0	0	Section 13.2.1.3 - It appears sometimes questions on the ability of emisisons trading system (especially with a short term design in time) to deliver proper economic signals for long term investment in low carbon technologies, especially the non yet mature ones (costs and risks). recently litterature has emerged on concepts like "carbon hedge" and "carbon contracts" that could allow a minimum carbon price for investors, and that could work aside an emisisons trading system. This fact could be reflected in the report, may be in that section, and one of the references identified : Carbon contracts and energy policy : an outline proposal, D. Helme and C. Hepburn, New College and St Hugues College, Oxford, October 2005 (avalilable on the web, reference provided aside my review) (Jean-Yves CANEILL, EDF)	2 Already in footnote 17.
13-189	A	12	23	0	0	Correct citation is Böhringer and Löschel, 2005 (Andreas is the first name) (Michael Kohlhaas, German Institute for Economic Research)	1 Done.
13-190	A	12	23	12	23	The reference should say "Boehringer and Loeschel", rather than "Bohringer and Andreas" (Joachim Schleich, Fraunhofer Institute Systems and Innovation Research)	1 See above.
13-191	A	12	23	17	35	Other design features of permit tradying system which might merit discussion are	2 Borrowing already in footnote 20. Linking

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						potential borrowing provisions and provisions for the recognition of external units, such as CERs, ERUs or units from other trading systems. In this vein, it might make sense to shift lines 34-44 on page 53 to this subchapter. (Government of Germany)	and Kyoto units is part of the international section
13-192	A	13	0	14	0	Box 13.4 - 2nd paragraph. The ETS does not necessarily continue in 5 year periods post-2012. This can be modified. It is referred to as a "learning by doing" phase not a "warm-up". (Nick Campbell, ARKEMA SA)	2 Article 11.2 specifies that it continues in 5 year periods. To be checked. Change wording to Phase 1.
13-193	A	13	0	13	0	in Box 13.4; third para, line 6: insert "for a very brief period" after "Prices rose" (Government of European Community / European Commission)	1
13-194	A	13	0	13	0	in Box 13.4; third para ,line 5: delete: ,,,"tCO2 equv., mainly of certified emission reduction (CERs)",,,,, and replace it with "allowances" (Government of European Community / European Commission)	1
13-195	A	13	0	13	0	in Box 13.4 third para, line 7: insert "first plant level" after "dropped dramatically when" (Government of European Community / European Commission)	1
13-196	A	13	0	13	0	in Box 13.4 4th para, first line: replace "significant" with "many" (Government of European Community / European Commission)	1
13-53	B	13	0	0	0	Box 13.4, third paragraph: replace "the CDM program" by "CDM" (Government of Netherlands/Ministry for the Environment)	1
13-54	B	13	0	0	0	Box 13.4, second paragraph. Replace "The program continues in five-year phases thereafter" by "The program could continue in five-year phases thereafter as soon as a decision is taken by the Member States on continuing the ETS after 2012." (Government of Netherlands/Ministry for the Environment)	2 See 13-192
13-55	B	13	0	0	0	box 13.4 :footnotes 9 and 10 are not admissable as reference under IPCC rules; LETS Update Project reference not listed (admissable??) (Bert Metz, IPCC)	1 Footnotes deleted
13-197	A	13	1	0	0	Box 13.4, last para.: Name miss-spelled: Matthes et al. 2005 (Michael Kohlhaas, German Institute for Economic Research)	1
13-198	A	13	1	0	0	Box 13.4, 'Consistency in National Allocation Plans': include Kolshus and Torvanger (2005). (Government of Norwegian Pollution Control Authority)	2 Not peer reviewed.
13-199	A	13	5	13	7	box 13.4. European Trading system : "the share of quotas allocated to industry is not 20% in France" (according to your source, data effectively consolidated in 2004 by EC/EEA mentionned 125,2 Mtons of annual allocated for 2005-2007, while finally the lastest figures is 150,5 Mtons which gives about 26 % vs 1990. IF	3 This section will be deleted.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						REPORT speaks about EMISSIONS SHARE, YEAR HAS TO BE MENTIONNED, as industry in France reduced it emissions from 20% since 1990 ! such figures is around 23 % actually, but vary each year. (Brigitte POOT, Total s.a.)	
13-200	A	13	21	13	24	box 13.4. European Trading system : The sentence (world bank data) "In 2005, 374 million tCO2 eqv. mainly CERS... .with an average price over US$ 7,23" IS CONCERNING KYOTO FLEXIBLE MECANISMS AND NOT ETS QUOTAS TRADED in Europe for whose the price was an average of 20 euros on the full year average (from 8 euros in january to 21 euros in december) confer Caisse des Depots publication mentionning a volume of 12% of allocated quotas exchanged on the market meaning around 260 Mtons (http://www.caissedesdepots.fr/FR/publications/fiche0.1.1.php, see nr 5) (Brigitte POOT, Total s.a.)	3 This section will be deleted.
13-201	A	13	26	13	26	The statement that 374 Mt, mainly CERs, were transacted, requires clarification. From the context it would seem that this statement is about transactions in the EU ETS, but the reference to CERs and the quoted prices suggest that the statement refers to all kinds of emissions trading. (Government of Germany)	3 This section will be deleted.
13-202	A	13	29	13	29	To add at the end of the 3rd paragraph an additional author in the brackets (Bubniene, Ciegis, 2006). Several analysis conclude that this initial allocation represented a very small reduction from business as usual emisions (Grubb, et al., 2005, Betz et al.2004, Reilly and Paltsev, 2005, Bubniene and Ciegis, 2006). Source: Ciegis and Bubniene 2006, Improvements of Economic Effectiveness of the European Emission Trading Scheme: Influence of Allocation Methods, Economics, Vilnius University 2006 (73). ISSN 1392-1258, psl.: 19-33; (Kirsten Macey, Climate Action Network Europe)	1 Cite original paper
13-203	A	13	29	13	29	At the end of the third paragraph of the box 13.4 to add an additional sentence: ' Moreover, the NGO assessment of the EU ETS emission caps for 2005-07 concludes that the majority of them are not in line with their corresponding national climate change targets or energy strategies and that only 2 Member States set targets lower than business as usual scenario. (Source: Climate Action Network - Europe, April 2006, National Allocation Plans: 2005-7: Do they deliver? Key Lessons to Member States' for 2008-12, ISBN 90-810-3721-8) (Kirsten Macey, Climate Action Network Europe)	2 Not peer reviewed
13-204	A	14	0	14	0	Add at the end of Box 13.4: High Level Group Competitiveness, Energy and the Environment: The European Commission installed a HLG of which one of the	1 Add text on competitiveness cite papers from special issue of Climate Policy.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						topics is the EU ETS. In its first report of 2 June 2006 the HLG concludes that present allocation rules show shortcomings in terms of environmental effectiveness and competitiveness, the latter especially caused by the higher electricity prices. The HLG recommends improvement of the EU ETS in three stages: (1) the next weeks and (2) in the next months for implementation in the second trading period and finally (3) in the review of the ETS' Directive for implementation post 2012. Specific recommendations for the period before end of 2006 are to give stronger signals towards low carbon technologies, to provide for a level playing field for new investments across the EU and to investigate how rules, especially for new entrants and closure, can be more harmonised, including the possibility for using a benchmarking approach. European Commission, First Report of the High Level Group on Competitiveness, Energy and the Environment, 2 June 2006. http://ec.europa.eu/enterprise/environment/hlg/hlg_en.htm (Vianney Schyns, DSM and SABIC)	
13-205	A	14	0	14	0	Box 13.4: "374 million tCO2 eq (mainly CERs) transacted ...". Is it possible to give some idea about the total amount of CERs to allow the reader to ponder the number mentioned. Is there any information about the net inflow and outflow in the market, i.e. are it a given set of CERs that are traded many times or always fresh ones? (Aviel VERBRUGGEN, University of Antwerp)	3 Sentence deleted.
13-206	A	14	0	14	0	in Box 13.4 add as additional last sentence: "Empirical studies of the effect on power prices are complicated by the fact that in parallel to the introduction of the EU ETS international energy prices have surged dramatically, which does also inflate electricity prices." (Government of European Community / European Commission)	3 Cite Sijm Climate Policy 2006
13-56	B	14	0	0	0	Box 13.4, last paragraph: replace "larger share allowances" by "larger share of allowances' (Government of Netherlands/Ministry for the Environment)	1
13-207	A	14	2	0	0	point of obligation' (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3
13-208	A	14	8	14	8	More detail on the market distortions and differing incentives for investment caused by different formula for new entrants would be helpful. (Government of Germany)	2 Additional detail not needed
13-57	B	14	9	14	9	Delete "allowances" to ensure consistency in language throughout the main text (Government of Netherlands/Ministry for the Environment)	1 Accepted
13-209	A	14	15	14	15	Footnote 14 should include reference to Weitzman, M. 1994. Prices vs. Quantities, The Review of Economic Studies, Vol. 41, No. 4 : 477-491. He was the first to	2 Not new literature

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						discuss hybrid approach. (Alexander Golub, Environmental Defense)	
13-210	A	14	15	14	17	The AR4 should reflect research, not political discussions, therefore delete last sentence of the para "Recently, windfall profits to electricity utilities have been an important issue in the political discussion about the allocation for the second phase of the EU ETS (see box on EU ETS)." (Government of European Community / European Commission)	3 Text revised to note this is a subject of research.
13-211	A	14	17	14	17	To add an additional sentece: 'Some European Governments are contemplating sectoral auctioning more seriously in the wake of complaints over windfall profits in the electricity sectors. (Source: Sijm, J. P.M. Donkelaar, M. ten; Hers, J.S. Scheepers, M. J. J.; Chen, Y. ECN Beleidstudies, CO2 price dynamics. A follow - up of the implications of EU emissions trading for the price of electricity, 2006. Cited from Climate Action Network, 2006, April 2006, National Allocation Plans 2005-7: Do they deliver? Key lessons to Member States' for 2008-12) (Kirsten Macey, Climate Action Network Europe)	2 Already cited in the EU ETS box
13-212	A	14	17	0	0	Please add a paragraph on the impact on energy-intensive industries: RELATIONSHIP OF THE EU ETS WITH energy-intensive INDUSTRY: Energy intensive industries are critical concernign the impact of the ETS on their competitiveness and the environmental efficiency of the scheme. Energy-intensive industry sectors like aluminium state that early closure of existing plants may take place resulting in carbon leakage. The ETS has generated costs directly and indirectly, namely through the pass-through of carbon value as opportunity costs in the power price. The resulting transfer of wealth from power consumers to power producers is estimated as €7 billion per year in Germany alone. The International Energy Agency (IEA) has analysed the impact of a price of €20/tCO2 on iron and steel (both basic oxygen furnace and electric arc), cement, paper and aluminium. Assuming that these sectors would receive 10% less allowances than in their business-as-usual case, IEA estimated that cement sector would incur a 7% production cost increase and aluminium sector – while facing only the indirect costs – would see its production costs increase by 8%. As an example calculated by cement industry experts, assuming industry would have to buy all allowances with €27/tCO2 – CO2 prices reched €30/t in the first trading period -– there would be a 30% cost increase for a tonne of cement produced (i.e. by €20 €/t of cement at 65€/t average) instead of the current free allocation of the ETS Directive. The freight rates to import cement to the EU are between €11.5 and 13 €/t of cement from	3. Adding text on competitiveness in the box.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Mediterranean area and 20 €/t of cement from the Far East. At the moment 14% of EU consumption is imported. According to a study commissioned by UNICE, carbon leakage for energy intensive sectors was estimated at 19%. (See also the European Commission websit, DG Industry High Level Group on Competitiveness, Energy and Environment; Ad hoc Group 2 EU Emissions Trading Scheme; Chairman Issues Paper: http://ec.europa.eu/enterprise/environment/hlg/docs/c_i_p_2.pdf). Industry demand urgent action from policy makers to fix the damaging, unintended impacts on power prices: "More work needs to be done on the Emissions Trading Scheme (ETS)", Theo Walthie says in a Cefic press release on 6 June 2006."Lessons learnt from the first trading period now need to be taken into account for the second phase (2008-2012). We must reduce the complexity (e.g. by excluding SMEs) and limit the impact on power prices. These electricity price increases damage the chemical industry and we cannot wait until 2013 for a solution". (Peter Botschek, European Chemical Industry Council (Cefic))	
13-58	B	14	29	14	31	This makes it seem as if no current policies do this. One could say "can create additional incentives," but am not overall convinced how meaningful this statement is. Just seems like pointing out the obvious. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-59	B	14	31	14	0	Change "deliver the identified potentials" to "realize potential emissions reductions." : The assessment should not imply that emissions reductions are an "all or nothing choice" with a decision to be made between achieving "the" potential or doing nothing. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-60	B	14	33	14	36	Term "essential" makes it policy prescriptive. In a scientific sense, this statement cannot be proven. The following sentence just says that "all mitigation and stabilization studies imply a positive 'price of carbon'…" U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-213	A	15	0	15	0	Footnote Nr 15: add in the end of the footnote: "in the first phase of the scheme (2005-2007)," (Government of European Community / European Commission)	1
13-61	B	15	2	15	24	While this section suggests that it provides "general conclusion[s] about the performance of [the] policies" listed subsequently, it does not (except in the case of voluntary agreements), and in most cases cannot.Moreover, the four criteria	2 Not related to this text

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						listed—environmental effectiveness, economic efficiency, equity, and political feasibility—are not applied consistently, if at all, to the policies listed. Regulatory measures and standards: This section says these "may be preferable". Compared to what? Taxes and charges: This section says these are "economically efficient." Compared to what? Taxes and charges: This section says their "environmental effectiveness depends on stringency." What about the impact of stringency on cost? Voluntary agreements: This section states "With few exceptions, the majority has achieved little reduction beyond the baseline." Why is this one policy singled out for this type of assessment compared to a baseline? How have the other policies performed compared to a baseline? Delete this sentence. Financial incentives: This section says the "economic costs are generally higher" for financial incentives. Compared to what? U.S. Government (Government of U.S. Department of State)	
13-62	B	15	2	15	0	Change "the incentives required" to "incentives". : The assessment should not imply that emissions reductions are an "all or nothing choice" with a decision to be made between achieving "the" potential or doing nothing. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-63	B	15	4	15	6	Does the literature indicate this? The authors of Chapter 13 seem to establish this taxonomy themselves, rather than referring to existing literature. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-64	B	15	5	15	7	The statement does not appear to be consistent with the underlying chapter, which establishes its own taxonomy (environmental efficiency, etc) rather than drawing from an existing source or in reference to wide use by policy makers. It is also inconsistent with the taxonomy in the underlying chapter (which refers to "institutional feasibility" a more encompassing and accurate term for the discussion in Chapter 13). U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-214	A	15	12	15	12	Should "allocation based on historic measures" be replaced by "allocation based on historic emissions"? (Joachim Schleich, Fraunhofer Institute Systems and Innovation Research)	1
13-215	A	15	12	15	12	is the word "measures" right? Or is it "emissions"? (Aviel VERBRUGGEN, University of Antwerp)	3 It is measures
13-216	A	15	15	15	35	Ellerman et al make the point that while the auction vs. allowance question is important re: distributional impacts, the environmental effectiveness of a cap-and-	3 Already covered by TAR

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						trade program is not adversely affected by decisions re: allocation. (Joanna Lewis, Pew Center on Global Climate Change)	
13-217	A	15	15	15	15	Add: The lack of industry support for auctioning is argued to be based on the application of this concept in certain geographical regions, e.g. the EU for the EU ETS, while there is no carbon constaint with auctioning in the competing geographical regions. Auctioning is argued to be an effective method, but only if applied globally. Schyns, Vianney, 2005 b. Options and consequences for the allocation of allowances to electricity producers. study presented at the European Chemical Regions Network (ECRN) meeting 21-22 December 2005 in Maastricht and presented to the High Level Group (see Schyns, 2006 a). (Vianney Schyns, DSM and SABIC)	3
13-218	A	15	16	0	0	There has been more work on benchmark-based allocation as an alternative way of grandfathering, which would stimulate early action. See e.g Ahman, M., and K. Holmgren (2006): Harmonising new entrant allocation in the Nordic energy sectors – Current principles and options for EU ETS phase II, TemaNord 2006: 515; DTI (2005); EU Emissions Trading Scheme Benchmark Research for Phase 2, Final report prepared by Entec UK Limited, and NERA Economic Consulting, London; UCE (2005): Benchmarking energy efficiency for CO2 emission allocation in the EU, Utrecht Centre for Energy Research; Groenenberg, H., and K. Blok, Benchmark-based emission allocation in a cap-and-trade system, Climate Policy, Vol. 2, 2002, pp. 105-109. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3 Sentence added
13-65	B	15	22	15	24	(1) After "Financial incentives" on line 22, add "AND SUBSIDIES". (2) Add a new sentence at the end of line 24 that would read as follows: "However, such incentives might divert scarce resources from other worthwhile societal tasks and needs." U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-66	B	15	23	0	0	"updating output based allocation methodologies" what does that mean? (Bert Metz, IPCC)	3 Text revised
13-67	B	15	26	15	28	This statement is oversimplified and borders on policy prescriptive. Even if the government puts in all of those things, technology transfer is a complex, poorly understood issue. Private sector technology innovation depends a lot on funding for basic science, in national labs, universities, etc. and that state of science in a country, which is not captured here. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-68	B	15	26	15	31	No mention is made here, or in the supporting chapter, of public-private research	2 Not related to this text

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						partnerships. Many U.S. Department of Energy R&D programs are cost-shared, for example. Also, there is no mention of the importance of protecting intellectual property. U.S. Government (Government of U.S. Department of State)	
13-219	A	15	28	15	28	Suggestion: delete "Finally,". (Vianney Schyns, DSM and SABIC)	1
13-220	A	15	30	15	30	The production subsidy of output based allocation and hence the higher overall cost to achieve a absolute environmental target is based on the price elasticity of the demand of products. Kuik (2005) shows that various Applied General Equilibrium (AGE) economic models have quite different assumptions on key elasticities and many expect a rather low response. Schyns (2005) assumes from practical experience that price elasticity is a second order effect if cap & trade is applied globally compared with the shortcomings of ex-ante allocation which are regarded as first order effects. These shortcomings are the disincentive for efficient winners of market share and lack of incentive for efficient new entrants. Ex-ante caps with removal of allowances after closure are hindering (earlier) replacement of obsolete high polluting plants. The model Kuik used assumes a better than average efficiency for Dutch industry. The results of his simulations are that under relative targets (PSR - Performance Standard Rate) overall costs decline in cases in which the Dutch producers have no national (domestic) ceiling. The better assumed Dutch efficiency causes higher emissions in the Netherlands but lower emissions overall. Kuik, Onno 2005 (PhD). Climate changes policies, international trade and carbn leakage: an applied general equilibrium analysis, pp 24-25 and pp 130-132. Schyns, Vianney, 2005 b, pp 47. Options and consequences for the allocation of allowances to electricity producers. study presented at the European Chemical Regions Network (ECRN) meeting 21-22 December 2005 in Maastricht and presented to the High Level Group (see Schyns, 2006 a). (Vianney Schyns, DSM and SABIC)	3
13-221	A	15	31	0	0	Add "The scheme for Allocating Permits Usefully mentioned in Section 13.2.1.1a is designed to set up a dynamically efficient market that internalises the learning-by-doing externality for policy desirable innovative projects, with the reward for innovation a multiple M times the penalty to consumers caused by the price of emissions permits. This is achieved by allocating M permits (M initially high and reducing over time) to (the few) firms at the point of policy obligation in exchange for a single innovative project based certificate. Apart from achieving the dynamic efficiency gain noted previously, this arrangement improves the integrity of the	3 Related to international section.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						emissions cap since project based certificates are not an offset against the permit requirement (as with JI and the CDM as presently operated) but simply a currency for obtaining permits - if projects are defective then there is excess demand to emit and the price of permits rises. Since the leakage risk is removed, and since industry has a collective interest in keeping the price of permits down, self regulation 'poacher turned gamekeeper' is effective in minimising project defects and transactions costs can be kept down, thus further facilitating a generous flow of innovative projects (Read 2006a)." (Peter Read, Massey University)	
13-222	A	15	31	15	31	Add "The scheme for Allocating Permits Usefully mentioned in Section 13.2.1.1a is designed to set up a dynamically efficient market that internalises the learning-by-doing externality for policy desirable innovative projects, with the reward for innovation a multiple M times the penalty to consumers caused by the price of emissions permits. This is achieved by allocating M permits (M initially high and reducing over time) to (the few) firms at the point of policy obligation in exchange for a single innovative project based certificate. Apart from achieving the dynamic efficiency gain noted previously, this arrangement improves the integrity of the emissions cap since project based certificates are not an offset against the permit requirement (as with JI and the CDM as presently operated) but simply a currency for obtaining permits - if projects are defective then there is excess demand to emit and the price of permits rises. Since the leakage risk is removed, and since industry has a collective interest in keeping the price of permits down, self regulation 'poacher turned gamekeeper' is effective in minimising project defects and transactions costs can be kept down, thus further facilitating a generous flow of innovative projects (Read 2006a)." (Peter Read, Massey University)	Same as 13-221
13-69	B	15	33	15	36	This section states the impact of Kyoto's first commitment period likely will have little impact on global emissions. What about its impact on Kyoto-country emissions (i.e., for those countries that have undertaken targets)? It further states the economic impacts are "likely to be small". This appears to be a policy judgment. How is small defined? And small compared to what? U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-70	B	15	33	15	35	The sentences in this paragraph should be reversed, as the information from the second is more significant than that contained in the first. Substitute "the most notable achievements" with more neutral terminology, such as "noteworthy effects" are…". Add "array of policies in developed countries." U.S. Government	2 Not related to this text

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of U.S. Department of State)	
13-71	B	15	33	15	36	Highlights achievements of Kyoto Protocol in bold, but leaves the fact that its effect on GHG emissions is "likely to be small" in plain text. Results vs. process. Policy prescriptive. Would reverse the statement order and corresponding formatting. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-72	B	15	33	15	36	Delete first sentence, or expand it to note that UNFCCC has also stimulated policies outside of the Kyoto Protocol framework." : Significant policy development is occurring outside of as well as within the Kyoto Protocol, including multiple international technology cooperation agreements in areas such as carbon dioxide capture and sequestration, energy efficiency, and methane capture and use. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-223	A	15	36	15	38	the conclusion that market power 'typcially has not been a problem in emissions trading' is surprising given the poor performance of the EU ETS in this regard and its high price volatility. Perhaps the issue is the definition of market power - the EU ETS appears to be driving what might be better termed tacit collusion. Regardless, its performance to date and likely performance to 2012 should be highly concerning to the authors of this chapter, and therefore better addressed. (Iain MacGill, University of NSW)	3 Check for relevant literature and address in the EU ETS box
13-73	B	15	38	15	39	Delete parenthetical phrase, whose placement suggests that it is a definition of "cost-effective." Cost-effective has a specific meaning that is not equivalent to the range of attributes in parentheses. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-224	A	15	40	16	12	I would strongly advise using "fixed" and "indexed" targets instead of "absolute" and "relative" targets. A first reason is that the reader may confuse the nature of the target itself with the stringency it brings about, ie think that only absolute targets would lead to absolute reductions, and that relative targets can only lead to relative reductions, ie below a growing baseline and not below a reference year - and all this would be wrong. The second reason is that Ellerman and Wing 2003 have clearly shown that there is a full continuum of indexed targets between the two "pure" forms of fixed targets and "intensity targets", which should be defined as targets expressed in GHG emissions per unit of economic output. Philibert and Pershing (2002), Baron and Philibert (2005) have also made the point repeatedly. (Cédric PHILIBERT, International Energy Agency)	3 Add "indexed" to footnote
13-225	A	15	40	16	12	In the discussion the right balance between type and stringency of targets should be	3 Generic discussion of stringency

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						struck! The emphasis is very much on type of targets now, while stringency may well be at least as important for their economic and ecological effects and their acceptability. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	
13-74	B	15	40	16	12	The problems with intensity targets that refer to GDP in times of economic recession (i.e increasing intensity when emission do not fall as rapidly as GDP) need to be covered. The paragraph lists the various study outcomes on absolute vs relative targets in an emissions trading system, but fails to draw conclusions (several results are contradictory). It would be useful for the reader to get some sort of conclusion. The last sentence is strange: "although" in line 11 probably should be "and" (Bert Metz, IPCC)	3 Text to be added
13-226	A	15	41	15	41	I would strongly advise not using the loose concept of "voluntary targets". In any international agreement targets can only but be voluntarily adopted by the countries. However, to ensure fairness in the distribution of efforts targets are usually negotiated amongst countries, ie they are not adopted only on a unilateral basis. This needs be the case even with respect to developing countries as far as emissions trading is allowed, or a country could simply water down any global agreement with its own target. So all targets need be voluntary and negotiated. There is thus no room for a specific concept such as "voluntary targets". (Cédric PHILIBERT, International Energy Agency)	3 Sentence deleted
13-227	A	15	41	0	0	adopt --> replace by 'consider adopting' (Heleen Groenenberg, Energy Research Centre of the Netherlands)	1
13-228	A	15	41	15	41	what means non-Kyoto Parties here ?? If it mean the US say US (Government of European Community / European Commission)	3 Sentence deleted
13-229	A	15	41	15	41	delete "consider": and replace it with: "implement or consider to respectively implement" (Government of European Community / European Commission)	3 Sentence deleted
13-230	A	15	42	16	12	Are there no results on the advantage of intensity targets in providing solid ground (at least more solid than the 1990/1995 emission data) for the initial allocation (burden sharing) of rights? (Aviel VERBRUGGEN, University of Antwerp)	3 Sentence deleted
13-75	B	15	42	15	44	To the list of long-term goals, add the following: “carbon intensity or carbon-equivalent intensity”. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-76	B	15	42	15	43	All sound like some form of a target (except maybe the last one). What about other	2 Not related to this text

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						long-term actions? U.S. Government (Government of U.S. Department of State)	
13-231	A	16	0	16	0	Footnote Nr. 21: add in the end of the footnote the sentence: From phase two onwards allowing banking is mandatory. (Government of European Community / European Commission)	1
13-77	B	16	3	16	5	This statement seems subjective and presumptuous. It would seem to imply that there is already an effective and less costly approach against which other approaches can be compared (perhaps Kyoto?). This has certainly not been demonstrated. It also implies that alternative approaches on a more limited scale have no chance for success. It can certainly be argued that a smaller, targeted group of emitters might work together to demonstrate a more sustainable and climate-friendly trajectory, and that working in a bottom-up fashion through such targeted groups may have more success than a top-down process involving all major emitters. Delete the lines or reword the sentence to include the possibility of success for a smaller, targeted group of emitters. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-232	A	16	5	16	5	Add after ... growth: The present allocation rules of the EU ETS with ex-ante caps for individual companies based on historical emissions were intensively debated in the High Level Group (HLG) on Competitivensess, Energy and the Environment. Schyns (2006) presented a list of shortcomings to the HLG. It is argued that competitiveness is affected in case of unlucky reference years and more fundamentally because winners of market share must buy allowances while losers of market share, usually higher polluters, are protected. The environmental effectiveness of present allocation practices is weak because innovative production technologies, combined heat and power (CHP) and carbon capture and sequestration (CCS) are not stimulated in contrast with the stated objectives of the EU Directive. The absence of incentive by the present allocation rules based on historical emissions for CCS is also presented by Cozijnsen (2005). As a solution to the observed weaknesses Schyns proposed the use of benchmarks for the main products under the scheme (electricity, steel, cement, refineries and major chemicals) which provide for a coverage of 85%-90% of the emissions under the EU ETS. Benchmarks are argued to be less cumbersome than often assumed provided that key principles are obeyed: benchmarks are output related, same benchmarks need to be used for incumbents and new entrants and simplicity requires to refrain from second order effects. Furthermore it is suggested to apply a dynamic approach with ex-post adjustments of production to remedy the issues of	3

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						competitiveness: to eliminate electricity windfall profits and to provide a free undistorted market without punishment of market share winners. To combine the virtues of a dynamic benchmarking allocation with the EU ETS requirement of an absolute total cap Schyns recommended the use of a contingency reserve, needed in case industrial production turns out to be higher than projected when establishing the benchmarks. Cozijnsen, Jos, 2005. Towards the use of CO2 Capture and Storage in the EU Emissions Trading System", July 19, 2005, Jos Cozijnsen, for SenterNovem and the Netherlands' Ministry for Public Housing, Spatial Planning and the Environment. Schyns, Vianney 2006. Outline of Vianney Schyns' contribution to ad hoc group 2 of the High Level Group on Competitiveness, Energy and the Environment, meeting 30th March 2006. http://ec.europa.eu/enterprise/environment/hlg/hlg_en.htm (Vianney Schyns, DSM and SABIC)	
13-233	A	16	5	16	5	I suggest you to add that Philibert (2005b) showed that indexed targets would only remove part of the economic uncertainty attached to abatement costs, and that this part is likely to be small with respect to developing countries. (Cédric PHILIBERT, International Energy Agency)	2 Relevant to international context
13-78	B	16	6	16	8	"Market mechanisms could" / "Transaction costs could" – what about might in both cases? U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-234	A	16	7	16	12	Suggestion: move the observations of Kuik and Mulder and Quirion to page 15 (in the bloc of lines 17-30). (Vianney Schyns, DSM and SABIC)	2
13-79	B	16	7	16	7	The environmental argument for expanding the mechanisms is the subject of debate in expert literature, and this paragraph does not reflect this. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-235	A	16	10	16	13	The quote of Quirion (2005) should be slightly different to be clearer : Instead of "that in most plausible cases, both an emissions tax and an absolute target are superior to an intensity target, although..." but rather ""Finally, Quirion (2005) argues that in most plausible cases, either an emissions tax or an absolute target are superior to an intensity target, although…" (ANTOINE BONDUELLE, Université Lille II)	1
13-236	A	16	10	16	10	In the mainstream economic literature cost of Kyoto Protocol is usually overstated because ancillary benefits are not substracted. See, for example, Golub, Markandya & Marcellino. 2006. Does the Kyoto Protocol Cost too much and Create Unbreakable Barriers for Economic Growth? Contemporary Economic Policy.	2 Not relevant here

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Available online July 20th, 2006. (Alexander Golub, Environmental Defense)	
13-80	B	16	11	16	11	"superior" on the basis of what criteria? U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-237	A	16	12	16	25	Current language re: safety valve is not balanced. Only covers positive aspects and doesn't identify some concerns re: safety valve. For example, capping the price may cap risk but it also can cap rewards to firms so some may be less willing to invest in new technologies and just pay the fee. Also, a safety valve could sacrifice environmental effectiveness (not a true "cap"). So in effect, it would serve to be a nonbinding cap and would interfere with linkage in a global carbon market. A low carbon price implies small benefits of taking action today which might not be the case if severe, irreversible changes occur to our climate system. See Pew Center Timing Workshop proceedings and specifically paper by: Azar, Christian and Stephen H. Schneider "Are Uncertainties in Climate and Energy Systems a Justification for Stronger Near-Term Mitigation Policies?" available in conference proceedings: www.pewclimate.org/global-warming-in-depth/workshops_and_conferences. (Joanna Lewis, Pew Center on Global Climate Change)	1 Text revised
13-238	A	16	13	16	13	Add: Berends and Schyns (2006) find that absolute ex-ante targets based on historical emissions for individual companies create problems with the environmental effectiveness. Older polluting plants are protected and combined heat and power as well as carbon capture and storage are not stimulated. Cap & trade rules also act against the liberalization process of the electricity market, competition on margins by the fight for market share is penalised. The German government (Germany 2004) also argues that ex-post adjustments of production are better for the environmental effectiveness, but the EU Commission has forbidden the ex-post adjustments in their first national allocation plan. Germany has contested this prohibition at the Court of First Instance (filed in September 2004, verdict expected by the end of 2006). A similar solution to combine the virtues of relative and absolute targets is presented by Berends and Schyns (2006). Two provisions can serve to guarantee an absolute total cap: (1) a contingency reserve needed if production is higher than projected when the benchmarks were established; (2) in case of even higher growth not to grant the extra allowances but to grant instead "forward credits", which will be given as allowances in the next trading period. Berends, Jan, Schyns, Vianney 2006. Toewijzing emissierechten moet anders. Economisch Statistische Berechten (ESB) 14 July 2006 (see also	2

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						English translation with some additions). Germany 2004, Complaint against EU Commission about the prohibition to apply ex-post adjustments in the first German national allocation plan 2005-2007, 23 September 2004. (Vianney Schyns, DSM and SABIC)	
13-239	A	16	14	16	24	The discussion of price caps/safety valves may be too positive. The claim that a postponement of emission reductions is of "less concern" requires substantiation. Moreover, price caps undermine the basic principle of emissions trading by decoupling the market price from the marginal abatement costs, which probably lowers economic efficiency. (Government of Germany)	1 Text revised
13-81	B	16	14	16	44	This paragraph should also mention some disadvantages of price regulations, such as market distortion (Government of Netherlands/Ministry for the Environment)	1
13-240	A	16	24	16	24	I suggest you to add that Philibert (2005b) showed that it is possible to have emissions trading between countries even if some have price caps and others do not, or if there are different price cap levels; this would necessitate that countries "making use" of the price cap are no net sellers on the international markets. Philibert and Pershing (2002) and Philibert (2006) showed that a price cap could allow adopting more ambitious targets generating higher expected benefits, though at lower expected costs. A price cap could also facilitate the adoption of targets by more countries. Philibert, Cédric (2006, forthcoming), Certainty vs. Ambition in Mitigating Climate Change, IEA Working Paper Series, IEA, Paris, October. (Cédric PHILIBERT, International Energy Agency)	2 International issue
13-241	A	16	24	16	25	insert at the end of the para an new sentence: "However, no work has been done so far to analyse the effects of a price cap on incentives for technological developments and no practical experience is at hand with permit trading schemes with a price cap." (Government of European Community / European Commission)	3 Already addressing price cap
13-242	A	16	26	17	2	The paragraph starting with “Experience with trading programs” needs to be improved. It is because the description remains preliminary: 1) the reference “Jacoby and Ellerman 2004” is basically a study on safety valves (as cited in the preceding paragraph) and thus it is not appropriate here; 2) another reference “Ellerman et al. 2000” is a book. The specific chapter applicable here should be pointed out; 3) the reference “Kruger and Pizer (2004)” is not found in the list. It should be reconfirmed. Notice that on these banking topics (eg. arbitrage relations, mitigating effects for	3

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						prices spikes and investments, flexibility in planning, efficiency losses, etc.), there can be found much more studies in the literature to be cited. An example includes Maeda (2004) which assesses from a theoretical point of view the effects of banking provisions on permit prices and market behavior. Maeda, Akira (2004). Impact of Banking and Forward Contracts on Tradable Permit Markets. Environmental Economics and Policy Studies 6(2) 81-102. (Akira Maeda, Kyoto University)	
13-243	A	16	26	17	2	From the text I understand that there are no disadvantages whatsoever attached to banking. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3 Add a qualifier to banking statement
13-82	B	16	35	0	0	why "mandatory"? (Bert Metz, IPCC)	1 Delete mandatory
13-244	A	16	36	17	2	Questions can be raised about the methodologies and the quality of this study results - authors may wish to consider deleting the sentence: "On the basis of a simulation carried out in Germany with companies and with a student control group, Schleich et al. (2006) argue that an EU-wide ban on banking would lead to efficiency losses in addition to those losses which arise from the lack of inter-temporal flexibility." (Government of European Community / European Commission)	2
13-255	A	17	0	78	0	One important private companies' initiative, which should be mentioned here, is a partnership for Climate Action that includes BP, Shell, Dupont, etc. Companies set emission target. Some of them introduce company-wide emission trading. (See Common Elements. 2002. Environmental Defense (www.environmentaldefense.org)). Also, I would suggest to mention initiative of Russian Power Generation Company "United Energy System-UES" that is accountable for 1/3 of Russian carbon dioxide emission. They created emission inventory and emission monitoring system even before Russia ratified Kyoto Protocol and started to manage GHG (See Dudek D, Golub. A. Petsonk A., Safonov G., Saparov M. 2002. Emission Inventory on Company Level: Lessons from Russia. Mitigation and Adaptation Strategy for Global Change. No 7: 155-172. (Alexander Golub, Environmental Defense)	2 This voluntary action and is mentioned in the Box 13-11
13-83	B	17	1	17	0	This is the first instance in which 4 out of the five Approaches listed have been mentioned. There is no discussion of them. Moreover, this list of approaches does not match the list of policies and instruments listed in paragraph 27 on page 15	2 Not related to this text

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(lines 1-24). Indeed, the four criteria that appear across the top of the table have been (in one wording or another) juxtaposed with the bulleted list of policies and instruments in paragraph 27, the bulleted list of conclusions in paragraph 30, and now the list of Approaches in this table. Paragraphs 27 and 30 and Table SPM.3 need to be reconciled. Further, there is no hint as to how these criteria were applied. U.S. Government (Government of U.S. Department of State)	
13-84	B	17	1	17	0	The scoring (+, ?, -, 0) is inconsistent with parts of the text. For example, 'Can be effective, depending on participation, stringency and compliance' in the upper left box receives a '+', which implies a stronger statement than that given. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-85	B	17	1	17	0	Table SPM3 - What does "0" mean? U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-86	B	17	1	17	0	Table SPM.3, last row, entry under "Environmental Effectiveness", modify the last sentence as follows: "ALTHOUGH some development policies may have negative effect on climate CHANGE (e.g., producing electricity using local coal may increase energy security but increase climate damages), SUCH POLICIES, BY CONTRIBUTING TO ECONOMIC GROWTH AND ALL ITS ANCILLARY BENEFITS — INCLUDING THE CAPACITY TO ADAPT TO NOT JUST CLIMATE CHANGE BUT CURRENT CLIMATE AND CLIMATE VARIABILITY — MIGHT PROVIDE NET BENEFITS TO SOCIETY FOR SEVERAL DECADES INTO THE FUTURE BY REDUCING OVERALL CLIMATE-SENSITIVE DAMAGES IN ADDITION TO CLIMATE-CHANGE-RELATED DAMAGES." [Note: Inserts are shown in UPPER CASE; deletions are not shown.] : We should distinguish between "climate" and "climate damages" on one hand, and "climate change" and "climate change damages" on the other. Most of the damages we see today are due to climate and its inherent variability. In the future, as climate changes, the damages due to climate change will probably grow (all else being equal) and eventually exceed those due to the "baseline" climate (for lack of a better term). Until that occurs, the benefits of increasing adaptive capacity to cope with current climate (and variability) will exceed the benefits of reducing climate-change-related damages. See Goklany (2003, 2005a, 2006a) for a more detailed explanation. References: (1) Goklany, IM. 2003. Relative Contributions of Global Warming to Various Climate Sensitive Risks, and Their Implications for	2 Not related to this text

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Adaptation and Mitigation. Energy & Environment 14: 797-822. (2) Goklany, IM. 2005a. A Climate Policy for the Short and Medium Term: Stabilization or Adaptation? Energy & Environment 16: 667-680. (3) Goklany, IM. 2006a. Integrated Strategies to Reduce Vulnerability and Advance Adaptation, Mitigation, and Sustainable Development. Mitigation and Adaptation Strategies for Global Change, forthcoming. U.S. Government (Government of U.S. Department of State)	
13-87	B	17	1	17	0	Table SPM.3 Row 5: Finding that technology cooperation generally does not meet criterion seems to run counter to emphasis and importance placed on technology development and transfer throughout report. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-88	B	17	1	17	0	Table SPM.3 The value signs [+,-,?] are misleading, as they are entirely context dependent. They should be deleted. For example, "environmental effectiveness" of national emission target depends on participation, stringency and compliance (currently low on all counts) – so this should be "?" The same is true of each of the categories – the effectiveness or ineffectiveness of an agreement in addressing any criterion is dependent on its specific design. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-89	B	17	1	17	0	Table SPM. 3. Rather than describing R&D as an "ineffective" and "uncertain" measure "needed to be supplemented by policies promoting implementation" (see SPM Table 3; TS Table TS-22; Table 13-6), advances in technology should be seen as essential and enabling elements of a global transformation of energy and other GHG-emitting infrastructure. In this context, this genre of measure may be the most, not the least, effective in achieving long term UNFCCC goals. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-90	B	17	1	17	0	Table as a whole - Way too wordy to follow easily. Other problems, e.g Approach – National emission targets and emission trading Cost Effective – Highly efficient and cost effective. Is this accurate? How much data is currently available? Comments on Kyoto – SPM 15, 33-36 - say that the "impact of first commitment period is likely to be limited." U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-91	B	17	1	17	0	Table 3 - This table is confusing. What, for example, is the relationship between sectoral agreements, coordinated policies and measures, technology cooperation, and development-oriented actions? Each can be defined as falling within another's remit. These need definition, at a minimum (for example, it appears that	2 Not related to this text

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						"technology cooperation" here means technology R&D, but this is not a commonly understood limitation in the field. The references to "common but differentiated responsibility" are out of place and should not be included. Also, the use of "institutional feasibility" appears to differ from its meaning in Chapter 13. U.S. Government (Government of U.S. Department of State)	
13-92	B	17	1	17	0	Table 3 - Row 2, box 3: Delete "which may run counter to the concept of 'common but differentiated responsibility' as this is reflects one interpretation of the relevant UNFCCC provision. Moreover, the proposition "All countries would be treated equally" is not necessarily correct. Sectoral agreements have been posited in a whole range of forms, and need not treat countries or entities equally. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-93	B	17	1	17	0	Table 3 - Row 1: Box 3: Add "Allocation issues present significant challenges" Allocation also poses institutional challenges and is relevant for Box 4 on this Row. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-245	A	17	4	17	10	A compliance regime whose goal is strict adherence to the cap should also contain a provision that paying excess emission penalties does not exempt entities from covering their emissions with permits ("make good provision"). (Government of Germany)	2 point made in the footnote
13-246	A	17	8	17	8	delete the word "absolute" (Government of European Community / European Commission)	1
13-247	A	17	29	17	31	Wang et al. (2004) find cost savings from the potential use of tradable permits for SO2 in China and they note several areas of capacity building that would support national implementation. This experiment in China has not been fully operartional. There are many reasons behind the failure with number one being lack of institutional settings. See Zhang Anhua (2006), SO2 emissions trading in china's electricity sector, China Energy. (Government of China Meteorological Administration)	3 Reference to be checked
13-248	A	17	31	0	0	several areas of capacity building, such as… (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3
13-249	A	17	31	17	35	findings? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3
13-250	A	17	37	20	14	This assessment covers only voluntary agreements between industry and government. Equally, or perhaps more, important are voluntary actions, which	3 Reference added in the footnote

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						companies, trade association or whole industries undertake on their own, without the direct involvement of government. Section 7.9.2.2 details some of these voluntary actions, and the substantial emissions reductions that some of them have accomplished. It also discusses the conditions necessary, e.g. top management commitment, that are necessary for their success. The section also states: "Early programs appear to have produced little benefit. For example, an evaluation of the Germany industry's self-defined global warming declaration found that achievements in the first reporting period appeared to be equivalent to business-as-usual trends (Jochem and Eichhammer, 1999; Ramesohl and Kristof, 2001). However, more recent efforts appear to have yielded positive results." Examples of those positive results are shown. The assessment of voluntary agreements should be accompanied by an assessment of voluntary actions. (Lenny Bernstein, L. S. Bernstein & Associates, L.L.C.)	
13-251	A	17	37	20	12	VA is described as "the majority has achieved little reduction beyond the baseline". However, it is true that depending on the approach to implement VA, it can be effective and the text should be modified to reflect this. (Government of Japan)	4 Some VAs noted as being successful
13-94	B	17	37	20	15	This section needs to include (or refer to) the material in chapter 7 on the effectiveness of voluntary agreements in order to reconcile the different messages that now come from ch 13 vs ch 7. It may be necessary to make a further distinction between the various types of voluntary agreements, negotiated agrements and voluntary action to get a balanced conclusion (this is an issue that will be reflected in the SPM); the issue of "threat"as mentioned on page 18, line 30, needs more in depth analysis; can it be demonstrated based on the literature that under such circumstances the effectiveness of VA's is much better? (Bert Metz, IPCC)	3 Differences between chapters relate mainly to voluntary actions rather than voluntary agreements
13-95	B	17	37	20	14	This assessment covers only voluntary agreements between industry and government. Equally, or perhaps more, important are voluntary actions, which companies, trade association or whole industries undertake on their own, without the direct involvement of government. Section 7.9.2.2 details some of these voluntary actions, and the substantial emissions reductions that some of them have accomplished. It also discusses the conditions necessary, e.g. top management commitment, that are necessary for their success. The section also states: "Early programs appear to have produced little benefit. For example, an evaluation of the Germany industry's self-defined global warming declaration found that achievements in the first reporting period appeared to be equivalent to business-as-	See comment 13-250

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						usual trends (Jochem and Eichhammer, 1999; Ramesohl and Kristof, 2001). However, more recent efforts appear to have yielded positive results." Examples of those positive results are shown. The assessment of voluntary agreements should be accompanied by an assessment of voluntary actions. U.S. Government (Government of U.S. Department of State)	
13-252	A	17	39	20	15	A sensible and well discussed section on voluntary agreements that does not support the conclusion on page 3 as discussed above. (Nick Campbell, ARKEMA SA)	3 The executive summary has been revised
13-253	A	17	39	20	15	The general tone about volunatary agreements seems negative. Please note that some of them have been very effective, see the comment above (Kjell Oren, Norsk Hydro ASA)	3 The text has been revised
13-254	A	17	46	0	0	footnote 23: reference to box 13.2 not correct. Why must this be a footnote? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	1 Corrected Box 13.5
13-96	B	17	48	17	0	Footnote 23 the references "Box 13.2" on "voluntary approaches". However, Box 13.2 concerns China's energy efficiency mandates and has nothing to do with voluntary agreements. Presumably the reference is meant to be to Box 13.1, which defines various GHG policy instruments but does not define "voluntary approaches". Suggest striking the reference "See Box 13.2" as it is not necessary. U.S. Government (Government of U.S. Department of State)	3 Reference corrected
13-97	B	18	5	18	8	What about "may realize?" Though it may be accurate, no experiment has been performed on this yet. Next line says: "two-way relationship between climate change mitigation and sustainable development can be mutually reinforcing but may not always be so" – Two sentences appear mildly contradictory or at least not extremely useful to a policy maker. U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-256	A	18	9	18	10	Insert after page 17 line 41 (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3 The text has been deleted
13-98	B	18	15	18	19	Reword for clarity: 'On the other hand, climate change and associated response policies could have significant impacts on development: positive, by avoiding climate change damages and making development more sustainable; potentially negative, by competing with other viable development objectives.' U.S. Government (Government of U.S. Department of State)	2 Not related to this text
13-257	A	18	21	18	24	This section overall tends to give a negative impression of VA's. Need neutral arguments.	3

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Koji Kadono, Global Industrial and Social Progress Research Institute(GISPRI))	
13-258	A	18	21	18	24	see above No1 (Shinichi Nakakuki, The Tokyo Electric Power Company)	2 Unclear
13-99	B	18	36	0	0	footnote 24 is very unclear (Bert Metz, IPCC)	1 Footnote clarified and moved to references
13-259	A	19	3	0	0	What is meant by the structure of a voluntary agreement? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3 Sentence is out of place. Text will be revised.
13-260	A	19	5	19	45	Again, this section seems to mix up various voluntary programs – some that are aimed at getting actual reductions and have enforceable commitments (e.g., in Japan) and others (like the U.S. plan) that do not rely on established rigorous criteria, by design allow for continuing emissions growth and do not include enforceable commitments (or the threat of future sanctions if not met). See, for example, Kenichiro Yamaguchi and Naoki Matsuo's chapter, "Climate Change Mitigation in Japan" in Claussen et al, Climate Change: Science, Strategies, and Solutions, Brill publishing, 2001. See also: http://www.fri.fujitsu.com/en/erc/people/ikuta/2003a.pdf (Joanna Lewis, Pew Center on Global Climate Change)	3 Text will be added. Reference may be useful.
13-100	B	19	12	19	25	This text presents a lengthy summary of the U.S. GAO 2006 review of the US Climate VISION and Climate Leaders programs. The text makes some errors. It says that ". . . only 38 of 74 participants had set a goal." In EPA's Climate Leaders program, participants commit to submit annual inventories and then to establish a reduction goal. Since its inception in 2002, the program has grown to over 80 participants. Because not all participants joined in 2002, it is inaccurate to use the number of participants with established goals as a measure of success in the program. Further, it states "It also finds that some goals were intensity based and others emission based, some were domestic and others global . . . ." These goals were widely publicized. This flexibility is a strength, not a drawback, of the approach. The text provides no basis for implying this is a problem. The form of the goal bears no relation to its environmental effectiveness. The same sentence continues " . . . there was no policy for deciding on the consequences of not progressing to achieve the agreed upon goals" when in fact GAO referred not to the sector goals but to completing what it refers to as "key programmatic steps," a different thing entirely. The text further points out that GAO (citing EIA) notes that emissions are projected to grow by 14% by 2012. By implication, this phrasing challenges the effectiveness	3 Review the GAO report

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						of these programs. However, GAO also points out that the Climate VISION program covers just 40 to 45% of total US emissions (and when the power sector is removed, that is reduced too around 7 to 12%). Without a proper analysis of the extent to which Climate VISION sectors impact the EIA's projection for total U.S. emissions, this lacks context. In addition, these programs are designed to achieve intensity improvements, not absolute reductions. The larger point is there is nothing in this text that discusses the effectiveness of either of these programs, and there is nothing that discusses the structure of the voluntary agreements under either Climate VISION or Climate Leaders. Accordingly, there is nothing presented concerning these two programs that has any relevance to the paragraph's lead sentence that "The structure of a VA largely determines whether it is effective at reducing emissions beyond business-as-usual levels." U.S. Government (Government of U.S. Department of State)	
13-101	B	19	12	19	25	Section 13.2.1.3 should be more balanced in presenting both the successes and challenges associated with implementing voluntary agreements and actions. The text and tone differ significantly from Chapter 2 (section 2.5.3.1), which notes that market transformation programs and voluntary agreements can improve the working of markets, reduce barriers (such as transaction costs, anti-competitive behavior, etc.) and create opportunities. Successful voluntary programs can lead to "enhanced market potential" (see Jaffe and Stavins 1994a and b) and thus result in additional mitigation. Well-designed voluntary partnerships and market transformation programs can make a significant difference and result in real emissions reductions. However, Chapter 13 largely ignores the successes and focuses more on the challenges and criticisms of voluntary approaches. The chapter should include examples of program evaluations that have noted areas of success. For example, Horowitz (2004) noted that "public programs significantly affect commercial sector electricity intensity." Similarly, Nadel (2003) noted that several market transformation initiatives have been successfully implemented in the U.S. and noted that they have "largely transformed markets and most have made substantial progress." For additional examples, see the U.S. EPA 2004 annual report on voluntary climate change programs, Lawrence Berkeley Laboratory 1998 and 2000 analyses of the Energy STAR program. References: Marvin J. Horowitz, 2004. Electricity Intensity in the Commercial	3 Check references

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Sector: Market and Public Program Effects, p. 135. Nadel, Steven et al. April 2003. Market Transformation: Substantial Progress from a Decade of Work U.S. EPA, ENERGY STAR and Other Voluntary Programs, 2004 Annual Report (www.epa.gov/cppd) Lawrence Berkeley Laboratory, 1998. Savings Potential of ENERGY STAR Voluntary Labeling Programs U.S. Government (Government of U.S. Department of State)	
13-261	A	19	19	19	19	It .. 2012. How relevant is this here? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	1 Sentence dropped
13-262	A	19	48	0	0	footnote 25: why footnote (Heleen Groenenberg, Energy Research Centre of the Netherlands)	1 Moved into the text
13-263	A	20	0	21	0	In discussing the use of subsidies, consider citing reports on how these have worked in the past in order to design an effective program. Alic, John A., David C. Mowery, and Edward S. Rubin, US Technology and Innovation Policies: Lessons for Climate Change, published by Pew Center on Global Climate Change, Arlington VA, November 2003. Also, Larry Goulder's report finds that achieving an environmental goal through subsidies alone can cost as much as an order of magnitude more than when combined with a carbon tax or cap. Lawrence H. Goulder, Induced Technological Change and Climate Policy, published by the Pew Center on Global Climate Change, Arlington, VA, October, 2004, p. 28. (Joanna Lewis, Pew Center on Global Climate Change)	3 Check the Goulder paper and other literature on the cost-effectiveness of subsidies
13-271	A	20	0	23	0	This section confuses some issues: subsidies for production (e.g. German coal which does not subsidize consumption) or consumption (e.g. Kerosene in India); subsidies on energy for e.g. social or economic reasons which harm the environment and those which are meant to stimulate less harmful energy options. With respect to agriculture, the restructuring of subsidies with respect to environmental goals might be interesting. Currently, the message of the section is not clear at all. (Michael Kohlhaas, German Institute for Economic Research)	4
13-106	B	20	0	0	0	box 13.5: add references (Bert Metz, IPCC)	1 Websites will be added
13-264	A	20	4	20	12	The disentanglement of additional measures from a baseline under business as usual conditions remains very difficult. Monitoring, ex-ante and ex-post evaluation should be adequately designed and interlinked. This should also include a macro-level decomposition analysis of greenhouse gas emission changes from year to year	4

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(an example is the MONIT system, see: Boonekamp P. (2006), Improved methods to evaluate realised energy savings, PhD Thesis, Utrecht University (Government of Finland)	
13-265	A	20	10	20	15	In 1997, The Norwegian Ministry of Environment and the Norwegian Aluminium Industry entered into a volunatry agreement to reduce the specific emissions of greenhous gases from primary production and anode production by 55% within 2006, compared to 1990. In 2005, the result was 62 % reduction, according to the report from the Norwegian Pollution Control AUthority (http://www.sft.no/nyheter/brev/klimagasser_aluminium_md030406.pdf - unfortunately, in Norwegian only, but please see the graph at then end) (Kjell Oren, Norsk Hydro ASA)	2 Not peer reviewed
13-266	A	20	13	20	14	Box 13.5 lists the European automobile effeicency program. This is now seen to be in grave danger of not achieving its objective- another example of why VA's do not work. (Andrew Dlugolecki, University of East Anglia)	4 Whether VAs are effective or not does not affect their inclusion in the BOx
13-267	A	20	13	0	0	Box 13.5: European automobile agreement is not an example of a national VA (Heleen Groenenberg, Energy Research Centre of the Netherlands)	1 Drop “national”
13-102	B	20	14	20	0	For completeness, an entry for Climate VISION should be added, as follows: “Climate VISION: An agreement between 14 energy-intensive U.S. industrial sectors (represented by trade groups) and the government to reduce the greenhouse gas emissions intensity of industrial operations. See: http://www.climatevision.gov” U.S. Government (Government of U.S. Department of State)	2 One program per country is enough.
13-268	A	20	16	0	0	Section 13.2.1.4 Aguayo and Gallagher (2005) duscuss the rationale for using subsidies to correct environmental externalities. They show that, despite WTO restrictions in the use of subsidies (derived from the Agreement on Subsidies and Countervailling Measures) developed countries use widespread subsidization to steer R&D in energy efficiency and environmentally sound technologies. The EU expended in 2003 as much as 8.6 billion euros in subsidizing environment and energy-saving activities and an additional 5.3 billion euros in subsidizing overall R&D. The US R&D subsidies in the energy sector in the period 1985-2005 included $11.9 billion USD to fossil fuels, $11.9 billion USD to nuclear energy, $8 billion USD to energy conservation, and $6.2 billion USD to renewables. Developing countries, on the contrary, lack the resources to spend anywhere near what developed countries can in terms of subsidies. Mitigation policy should be informed of such regional asymmetries. Reference: Aguayo, F. and K. Gallagher,	3 Relates to the R&D. Check the report for citable references

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						2005: Preserving Policy Space for Sustainable Development: the Subsidies Agreement and the WTO. Trade Knowledge Network, International Institute for Sustainable Development. Winnipeg, Manitoba. (Francisco Aguayo, El Colegio de México)	
13-269	A	20	16	21	21	Feed in tariffs and technology quota systems (such as green electricity certificates and renewable energy portfolio standards) should get one or two sections of their own or be treated thoroughly in section 13.2.1.4. Cross-reference could be made to Section 4.5.1. Section 13.2.1.4 is focussed on "bad" subsidies for carbon intensive technologies but only treat the important issue of technology specific incentives for carbon neutral technologies in passing. This is not sufficient. Incentives that create markets for specific technologies does not only stimulate cost reduction of promising low and zero carbon technologies through learning and scale economies but also create actor groups in favour of stricter economy wide climate policies. Reference could be made to Sandén and Azar 2005 (reference in chapter 11) and to section 11.6.3. (Government of Sweden)	3 Redraft section to include subsidies that reduce emissions and strike better balance.
13-103	B	20	16	23	3	this section deals almost exclusively with environmentally harmful subsidies. Incentives for mitigation are hardly mentioned. Add more material on the latter (Bert Metz, IPCC)	3 See 13-269
13-104	B	20	16	23	3	This section does not elaborate financial incentives for reducing GHG emissions, but only focuses on subsidies that are increasing emissions. Suggest to include the next section on R&D in this section as a form of financial incentives. (Government of Netherlands/Ministry for the Environment)	3 See 13-269
13-105	B	20	16	20	0	General Comment: This section is critically inadequate. The focus is almost entirely on subsidies for fossil fuels. There no mention of the many subsidy and incentive programs that many nations use to promote renewables, clean energy, energy efficiency, etc. For example, the U.S. has subsidized ethanol production and renewables for many years. The Energy Policy Act of 2005 contains among it provisions a number of incentives, including tax credits, loan guarantees, and standby support coverage for regulatory delays for new nuclear plants. These mechanisms, not just in the U.S. but in other countries, need broader treatment. U.S. Government (Government of U.S. Department of State)	3 See 13-269
13-270	A	20	20	20	20	feed-in tariffs and footnote 28: for completeness, the EU also proposed and some member states/regions experienced systems of "tradable green certificates". After publication of the renewable energy directive, the EU commission favoured TGCs	3 Move footnote 29 into the text.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						as the best market-based instrument. Practical experiences however have proven to be less successful, and some countries that organised TGC systems are turning back to feed-in tariffs (e.g. Italy, the Netherlands); also the EU (Dec.2006) redraw its support for TGC and now favours rather straight feed-in tariffs. While I understand that this point cannot be developed very extensively here, it may provide many lessons that tradable systems hold many promises in theory but may fail in practice e.g. due to unacceptable high windfall profits enclosed, e.g. Verbruggen A. "Flanders' Tradable Green Certificates System Performance (January 2002 – May 2005)", December 2005, 21p., forthcoming in Mez L. ed. 'Green Power Markets – Case Studies and Perspectives' (2007) (Aviel VERBRUGGEN, University of Antwerp)	
13-272	A	21	5	21	6	Subsidies can also play a key role in supporting local technology industries, (e.g. Joanna I. Lewis & Ryan H. Wiser. "Fostering a renewable energy technology industry: An international comparison of wind industry policy support mechanisms." Energy Policy, in press-on website). (Joanna Lewis, Pew Center on Global Climate Change)	3 Check the paper
13-107	B	21	5	0	0	"changes" should be "increases" (Bert Metz, IPCC)	1
13-273	A	21	6	21	6	It should be emphasised here that support mechanisms for 'new' technologies such as renewable energy are very important not just for near term emissions reductions, but for longer term infrastructure changes (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	3
13-108	B	21	10	21	12	Chapter 12 mentions the positive aspects of these so called "poverty tariffs" in terms of achieving a price signal for energy use without making life more difficult for poor people; so this aspects also needs to be taken into account here. (Bert Metz, IPCC)	3 Review text, footnote 29 and check Chapter 12
13-274	A	21	17	21	17	…7.5 B euro….2.0 B Euro…. B= billion? (José Somoza , National Institute of Economic Research)	1
13-275	A	21	17	21	17	…7.5 B euro….2.0 B Euro…. B= billion? (Gladys Cecilia HERNANDEZ, Centre for World Economy Research)	1
13-109	B	21	17	21	18	Euro >> US dollar (Bert Metz, IPCC)	3
13-110	B	21	21	21	0	Under this section on "subsidies and incentives", no discussion is provided for the important role played by financial incentives to stimulate early adoption and maturation of advanced technology. These incentives, particularly "production credits", can serve as effective stimuli for introducing new technology on a broad	3 Incorporate together with 103-b

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						scale. These mechanisms, even if instituted as bridging and hedging strategies, are typically much stronger than what is possible under current cap-and-trade price schemes [Montgomery, Senate testimony citation], and may be more institutionally and politically viable in many countries. In the U.S., for example, the Energy Policy Act of 2005 contains an array of climate friendly financial incentives for various advanced technologies, scored at $11.4 billion over 10 years. U.S. Government (Government of U.S. Department of State)	
13-276	A	21	24	0	0	footnote 29: why footnote (,)	1 Moved into text
13-278	A	22	0	0	0	Figure 13.1 show "selected OECD countries". How did these countries get selected? Is other countries' share really negligible? (Koji Kadono, Global Industrial and Social Progress Research Institute(GISPRI))	1. Figure dropped
13-111	B	22	0	0	0	fig 13.2: unreadable (Bert Metz, IPCC)	3 Figure may be dropped, but if kept will be updated and improved
13-277	A	22	5	0	0	Figure 13.2 Have you noted that chapter 4 has the 2006 version of this figure included as Figure 4.6.1? I would recommend to keep the (updated)figure in ch 4, as the detailed information on R&D investments in the various energy technologies fits with the description of technological options in that chapter. See however also the simplified fig 1.9, which chapter 1 uses in a nice argument. (Peter Bosch, IPCC TSU)	3 Consider dropping Fig. 13.2 and replace with a reference to Fig 1.9. Consider using some of the text from Chapter 1 discussing Figure 1.9
13-112	B	23	5	0	0	footnote 32: it is very unusual to include "diffusion" into the definition of R&D; are you sure you want to cover all of the implementation issues? (Bert Metz, IPCC)	1 Change footnote to exclude “diffusion” which is covered in the subsidies section
13-279	A	23	7	23	17	The paragraph discusses R&D as a national policy and addresses tools that governments resort to. There are a lot of studies in this area, and some of comprehensive studies are done by OECD. In particular, OECD (2006) presents a synthesis of case studies on the innovation of energy technologies across several countries. These studies examine the drivers of energy innovation; the processes of knowledge creation, diffusion and exploitation; and the roles of public/private partnerships, intellectual property rights and globalization in the innovation process. This report and related OECD studies are worth being referred. OECD (2006). Innovation in Energy Technology: Comparing National Innovation Systems at the Sectoral Level. OECD Publishing. (Akira Maeda, Kyoto University)	4 Tirpak to get the report.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-280	A	23	7	25	47	national policies are mentioned, as well as international cooperation, but regional efforts are not mentioned. A descrption of the EU framework research program (FP5th, 6th and 7th) should be given as this has been and will continue to be an efficient driver in many countries (EU countries and associated). (VARET jacques, French Geological Survey)	2 International included regional
13-281	A	23	7	25	47	The section fails to link R&D to actual product and process innovation (uptake) and hence it neither recognises the role of learning and of so-called learning curve based policies (see e.g. Wene, C.O. (2000), Experience curves for Technology Policy, IEA). In fact learning plays also a role in technology transfer (discussed in Part 2) as it enables a widening of the learning base. (Government of Finland)	2 The section is about policies, not the process of technology commercialization
13-282	A	23	19	23	20	Also might want to mention what percent of this was spent on nuclear, and the implications of this for using R&D to actually discover new, climate-friendly technologies. (Joanna Lewis, Pew Center on Global Climate Change)	3 Add “nuclear”
13-283	A	23	20	23	20	Add the word "developed" as follows: …. that amount was spent in only seven developed countries. (José Somoza , National Institute of Economic Research)	1
13-284	A	23	20	23	20	Add the word "developed" as follows: …. that amount was spent in only seven developed countries. (Gladys Cecilia HERNANDEZ, Centre for World Economy Research)	1
13-285	A	23	21	23	21	Replace "indystry" by "private sector" (José Somoza , National Institute of Economic Research)	1
13-286	A	23	21	23	21	Replace "indystry" by "private sector" (Gladys Cecilia HERNANDEZ, Centre for World Economy Research)	1
13-287	A	23	26	23	31	It might be productive to note that as a percent of national GDP support for energy R&D has been in decline for the better part of three decades across the OECD yet nation's support for other forms of R&D (e.g., medical, defense, IT) has been increasing signficantly. What's going on with energy R&D across the world? Simply communicating the funding history for energy R&D is not the whole story. Looking to the literature for some insight about why these changes occured is likely more useful information. See for example. PJ Runci, JJ Dooley and LE Clarke. Energy R&D Investment in the Industrialized World: Historic and Future Directions. Issues in Science and Technology. Spring 2006, pp. 10-11. PJ Runci and JJ Dooley. Energy Research and Development. Encyclopedia of Energy. Elsevier Science, Spring 2004. JJ Dooley. “Unintended Consequences: Energy	3 Check the papers. Relate to the material from Chapter 1 on research spending

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						R&D in Deregulated Market." Energy Policy. pp. 547-555. June 1998. (James Dooley, Battelle)	
13-288	A	23	27	23	27	Replace 'with 50 percent allocated to fission and fusion' by 'with 40 percent allocated to fission, 10 percent to fusion'. Fusion is totally distinct from fission, with major safety and environmental advantages and much larger fuel supplies, and receives much less funding, so should be treated separately. (Ian Cook, United Kingdom Atomic Energy Authority)	2 Not important
13-115	B	24	0	0	0	fig 13.3 does not belong here (Bert Metz, IPCC)	1 Now in section on participation 13.3.2.
13-113	B	24	4	25	5	reference should be made to the technology paragraph of chapter 2 that covers this issue in more detail and then only the specific things for ch 13 to be added. Reformulate the paragraph (Bert Metz, IPCC)	3 Check chapter 2
13-114	B	24	8	0	0	"appropriate" >> "receive" (Bert Metz, IPCC)	2 "appropriate" is more accurate
13-289	A	25	0	26	0	Chapter 13.2.1.6. The text in this chapter concerns trade, foreign direct investments (FDI) and ODA. Trade are not a policy instrument and FDI and ODA are not specifically climate policies. These instruments are also discussed in chapter 13.2.1.8 and all text under 13.2.1.6 should be transferred and incorporated in 13.2.1.8. (Government of Sweden)	1 Move and edit to focus on domestic policies
13-290	A	25	7	25	18	The issue of intelectual property rights and patents is discussed at several point in this section and in other chapters of the report. It is reasonable to deduce from the literature that a strong patent system can harm diffusion of relevant technologies and subsequent technological learning, thereby hindering mitigation objectives. Detailed patent design can, on the contrary, foster mitigation policies. See attached file IPRs_SOD.doc for the complete argument and references. (Francisco Aguayo, El Colegio de México)	3 To be considered in the section on international technology transfer
13-291	A	25	11	25	15	?? What is the relation between these sentences? Has the UNFCCC triggered diffusion through licencing/royalties? Why? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	4
13-292	A	25	20	20	29	Refer to Luiten, E.E.M. and K. Blok, The success of a simple network in developing an innovative energy-efficient technology, Energy, Vol. 28, 2003, pp. 361-391.(NWS-E-2003-6); Luiten, E. and K. Blok, Stimulating R&D of industrial energy-efficient technology. Policy lessons-impulse technology, Energy Policy, 2004, Vol. 32, pp. 1087-1108.	3 Check the references

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Heleen Groenenberg, Energy Research Centre of the Netherlands)	
13-293	A	25	24	25	24	a quote like "subsidies such as the carbon tax" may puzzle a lot of readers (Aviel VERBRUGGEN, University of Antwerp)	1 Change “subsidies” to “incentives” or drop “such as a carbon tax”
13-294	A	25	40	25	40	I note that in 2001, an IEA Committee on wind energy development quoted findings that R&D accounts for about 40% of technology cost reductions (performance and design improvement), with commercial installation/market experience the other 60% (economies of scale). IEA R&D Wind Executive Committee, 2001, “Long-term research and development needs for wind energy for the time frame 2000 to 2020”, October 2001. I'm not sure whether that finding has been updated. (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	2 not peer reviewed
13-295	A	25	44	25	44	After 'technologies', insert 'This is particularly pertinent to the period 2050 to 2100, during which most plausible stabilisation scenarios require rapid movement towards limiting annual carbon emissions to very low levels, whilst economic development continues and energy consumption continues to grow; it is unlikely that this can be accomplished without very strong efforts to develop and deploy the new technologies that can almost completely replace carbon-emitting technologies during the course of this century. Primarily, these technologies are carbon capture and storage, solar (substituted by other renewables where locally appropriate), fusion and advanced nuclear fission.' (Ian Cook, United Kingdom Atomic Energy Authority)	3 Redraft the last sentence of the paragraph to talk about need for R&D for the next 30 to 50 years.
13-296	A	25	45	25	47	This statement sounds prescriptive ("There is little evidence….nuclear power"). The wording of this sentence should be changed to indicate that according to registered evidences up-today most governments have not been capable of providing sustained support for energy R&D programmes (...). Rationale: Probably what has been lacking is the political willing of those governments to proceed in that direction, rather than their capacity to do so. (José Somoza , National Institute of Economic Research)	3 Sentence has been changed
13-297	A	25	45	25	47	This statement sounds prescriptive ("There is little evidence….nuclear power"). The wording of this sentence should be changed to indicate that according to registered evidences up-today most governments have not been capable of providing sustained support for energy R&D programmes (...). Rationale: Probably what has been lacking is the political willing of those governments to proceed in that direction, rather than their capacity to do so. (Gladys Cecilia HERNANDEZ, Centre for World Economy Research)	3 Sentence has been changed
13-116	B	25	45	25	47	The sentence, “There is little evidence to indicate that governments, in general, are	3 Sentence has been changed

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						capable of providing sustained support for energy R&D programmes over a 30-50 year time period, with the exception of nuclear power" is misleading. It implies that since only a few governments were supporting energy research in only nuclear power 50 years ago, we cannot be sure that government-supported energy R&D for low carbon-emitting technologies will continue for the next 50 years. While the levels of funding in R&D on various energy technologies will ebb and flow over the years, there is no reason to believe that it will be halted altogether based on history alone. History would indicate just the opposite—once energy R&D is started it does not stop. U.S. Government (Government of U.S. Department of State)	
13-298	A	25	47	0	0	What is the basis for the 30-50 year period? Would there be support a period of, say, 15-20 years? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3 Sentence has been changed
13-299	A	25	49	26	10	This section is too short and incomplete. There is only reference to the OECD countries. Openness to trade (mentioned in page 26, line 1-2) is not what characterises OECD trade performance (export subsidies and domestic production support are still dominant drivers in the Common Agricultural Policy of EU, the USA and other OECD countries). There is not reference to the wide trade liberalisation occurred in most of the developing world, and its implications. ODA is only mentioned in the section title, with no reference in the text. As this section is mainly related to international issues, we would propose to improve the text and merge it with the corresponding section in 13.3 International CC Agreements and other Agreements. For instance: Trade issues, under "Coordination / harmonisation of policies" pp. 60-63; Foreign Direct Investment, under 13.3.3.5.1, pp 66-67; and Official Development Assistance, under 13.3.3.5.2, pp 67-68 (José Somoza , National Institute of Economic Research)	3 This section moved into 13.2.1.8
13-300	A	25	49	26	10	This section is too short and incomplete. There is only reference to the OECD countries. Openness to trade (mentioned in page 26, line 1-2) is not what characterises OECD trade performance (export subsidies and domestic production support are still dominant drivers in the Common Agricultural Policy of EU, the USA and other OECD countries). There is not reference to the wide trade liberalisation occurred in most of the developing world, and its implications. ODA is only mentioned in the section title, with no reference in the text. As this section is mainly related to international issues, we would propose to improve the text and merge it with the corresponding section in 13.3 International CC Agreements and other Agreements. For instance: Trade issues, under "Coordination / harmonisation	3 Text moved into 13.2.1.8 and revised

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						of policies" pp. 60-63; Foreign Direct Investment, under 13.3.3.5.1, pp 66-67; and Official Development Assistance, under 13.3.3.5.2, pp 67-68 (Gladys Cecilia HERNANDEZ, Centre for World Economy Research)	
13-117	B	25	49	26	10	This section does not include any discussion on trade as a possible instrument in climate policy (Government of Netherlands/Ministry for the Environment)	3 Text moved into 13.2.1.8 and revised
13-301	A	26	1	26	10	Section 13.2.1.6 This section could be linked more clearly to climate change mitigation. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3 Text moved into 13.2.1.8 and revised
13-302	A	26	10	26	10	The gains from trade in favour of developing countries are however a controversial issue. A recent modelling test based on the World Bank's LINKAGE model (Ackerman, 2005), shows that the world distribution of trade gains derived from trade liberalization favours disproportionately the developed countries; developing country gains are not only substantially lower in terms of per capita GDP, but are in turn concentrated in a handful of nations. Reference, Ackerman, F., 2005: The shrinking gains from trade: a critical assessment of the Doha Round Projections. Tufts University, GDAE Working Paper, no. 05-01, http://www.ase.tufts.edu/gdae/Pubs/wp/05-01ShrinkingGains.pdf (Francisco Aguayo, El Colegio de México)	3 Text moved into 13.2.1.8 and revised
13-303	A	26	12	26	12	As per comment above on Information Instruments in the Executive Summary (page 3, line 44) reference shareholders and investors as key users of information, and the Carbon Disclosure Project as an international initiative to improve access to relevant information in that area. (,)	1 Put into Box 13.11
13-118	B	26	12	0	0	Suggest to broaden this section to "communication instruments" and to include information campaings, involving citizens in climate policy making etc. (Government of Netherlands/Ministry for the Environment)	3 Information is the standard term
13-304	A	26	14	27	4	A worthwhile initiative that is not covered here is the Carbon Disclosure Project(CDP), that is supported by institutional investors wich control about 25% of the global stock markets by value (over 20 trillion USD!) The fourth CDP report is launched on 18 September 2006 in New York with Al Gore speaking in support. Previous speakers have included Madeleine Albright.See website www.cdproject.net Also useful is a report by Insight on such initiatives published in September 2006 " CLIMATE CHANGE DISCLOSURE STANDARDS AND INITIATIVES: HAVE THEY ADDED VALUE FOR INVESTORS? (Andrew Dlugolecki, University of East Anglia)	1 Put into Box 13-11

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-305	A	26	16	26	17	Information instruments … requirements. How can an instrument be equivalent to a requirement? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	3 Text edited.
13-119	B	26	49	27	10	It is not clear what this section is contributing here to the discussion of national policy instruments. If the point is that openness to trade and FDI promote the availability of new technology , then this paragraph belongs to the previous section; otherwise it may be deleted (Bert Metz, IPCC)	3 Section to be combined with 13.2.1.8
13-313	A	27	0	0	0	Section 13.2.1.8 Skip or link more clearly to CC mitigation (Heleen Groenenberg, Energy Research Centre of the Netherlands)	
13-120	B	27	3	27	4	This last sentence is very unclear; information required from whom? Benefits and costs of what? What is the point? (Bert Metz, IPCC)	3 Sentence to be edited
13-121	B	27	6	27	38	this section overlaps considerably with chapter 12.2; suggest to shorten (ensuring full consistency with ch 12) and to make reference to ch 12.2 (Bert Metz, IPCC)	3 Check chapter 12
13-122	B	27	6	0	0	This section misses a discussion on possible synergies between energy secury, climate, innovation and air quality policies (Government of Netherlands/Ministry for the Environment)	2 Addressed in Chapter 1
13-306	A	27	24	27	30	Land use - in many ways - as already pointed out in the section affects emissions and emission abatement potentials and costs. However land use is also important in conjunction with climate change and adaptation and consequently land use (in all its dimensions and varieties) ties in with all kind of trade-offs and synergies between mitigation and adaptation. This is important enough to merit even more stress. (Government of Finland)	4
13-307	A	27	31	27	31	Add consumption patterns after global population as follows: "The global population and its consumption patterns affect the consumption of natural resources…" Rationale: In this case, what matters is not only absolute number of global population, but also their consumption patterns. It is precisely through these consumption patterns that great part of the interaction population-environment takes place. (José Somoza , National Institute of Economic Research)	3 Text revised
13-308	A	27	31	27	31	Add consumption patterns after global population as follows: "The global population and its consumption patterns affect the consumption of natural resources…" Rationale: In this case, what matters is not only absolute number of	3 Text revised

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						global population, but also their consumption patterns. It is precisely through these consumption patterns that great part of the interaction population-environment takes place. (Gladys Cecilia HERNANDEZ, Centre for World Economy Research)	
13-309	A	27	40	0	0	Section 13.2.2. Not very new. Skip or reduce. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Could be condensed.
13-310	A	27	40	34	16	section 13.2.2: editorial comment: is the discussion on the criteria not coming too late in this chapter ?; the preceding sections contain many references to these criteria when discussing the instruments. (Aviel VERBRUGGEN, University of Antwerp)	Good point
13-311	A	27	44	28	4	Under the introduction here, section 13.2.2.1, and/or under 13.2.2.6, Criteria Assessment; the additional criteria that are not being evaluated, but are important (identified already on page 6) should be noted, including the additional point raised above on 'the effectiveness of the policy framework/measure for attracting capital and influencing longer term investment flows'. (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	Don't we do this?
13-312	A	27	46	27	49	I agree to restrict this analysis to selected criteria. (Reimund Schwarze, DIW Berlin)	Noted
13-314	A	28	14	28	15	I think about the opposite case,i.e., carbon emission levels are expected to decline as a ancillary benefit of efforts to reduce urban air pollution, especially in developing countries. Urban air pollution is a more immediate problem and damage is visible in the short term so people tend to tackle them first rater than climate change problem. (Koji Kadono, Global Industrial and Social Progress Research Institute(GISPRI))	Add parenthetically at the end of sentence "(and vice-versa)"
13-123	B	28	17	28	31	these paragraphs are misleading, because no distinction is made between relative efficacy (compared to expectations) and absolute efficacy (does it deliver results?) so needs to reformulated; also, one but last sentence is contradicting earlier sections that explain that market based approaches have serious limitations (Bert Metz, IPCC)	Delete sentence "Recent evidence…" Add parenthetically at end of previous sentence "(see discussion in 13.2.1)"
13-315	A	28	28	28	30	This needs to be qualified. There are many situations where regulation is BEST.The statement here is NOT a generally applicable one. (Andrew Dlugolecki, University of East Anglia)	See above
13-316	A	28	28	28	30	One-sided conclusion on superiority of market-based instruments. There are some examples that show the opposite, e.g. the low effectiveness of European TGC systems for renewable electricity (conclusion of the EC communication Dec. 2005) and the successful solar building obligation in several Spanish cities.	Done

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of European Community / European Commission)	
13-317	A	28	35	29	13	The section on criteria should also refer to transaction costs, possibly on the section on cost effectiveness. Transaction costs may be distinguished in (Richter and Furubotn 1996): (i) political transaciton costs for developing and sustaining the institutional environment for a policy; (ii) Market transaction costs, which relate to market and trading activities, and in (iii) transaction costs at the firm level , for implementing and sustaining the necessary organisational structures. In particular for emission trading systems, it has been argued that transaction costs, in particular for monitoring emissions, verification of inventories, trading, etc. may be high. Transaction costs are key for the success of emission trading systems (Woerdman 2001). Stavins (1995), for example, finds that nutrient trading systems in the Fox-River System in the US (Wisconsin) failed because or high transaction costs; while the success of the US lead-phase-down system was due to low transaction costs. literature used: (i) Richter, R. and Furubotn, E (2005): Institutions and Economic Theory: The Contribution of the New Institutional Economics. 2nd ed., Ann Arbor: University of Michigan Press 2005. (ii) Woerdman, E. (2001): Emission Trading and Transaction Costs: Analyzing the Flwas in the Discussion. Ecological Economics 38, p. 293-304. (iii) Stavins R.N. (1995)) Trnasactin Cots and Tradeable Permits. Journal of Envoronmental Economics and Management 29, p. 113-148. (Joachim Schleich, Fraunhofer Institute Systems and Innovation Research)	Add paragraph after line 12 on p29: Transaction costs are a more subtle kind of cost: the added costs of simply implementing and running a regulatory regime (for instance, the cost of consummating a sale of an emission permit) (Stavins, 1995). Add reg to Stavins.
13-318	A	28	38	0	0	What are dynamic costs? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Not sure. Eliminate parenthetical ref to dynamic
13-124	B	28	38	28	39	I find the description of cost confusing, when the effect of the instrument (influencing technological change) is also made part of the cost; (Bert Metz, IPCC)	Add “cost-reducing” before work technological on line 39, p28
13-319	A	28	40	28	40	I propose to say "In general, it is important to note that cost-effectiveness is distintc from general economy efficiency" (Félix Hernández, Economía y Geografía. Consejo Superior de Investigaciones Científicas (IEG-CSIC))	Noted
13-320	A	28	41	29	12	You introduce very clearly the distinction between cost-effectiveness and economic efficiency. But then you discuss the various instruments only with respect to their cost-effectiveness. In context of uncertainty, not all equally cost-effective instruments are equally economically effective. Following the criteria first established by Weitzman (1974) in case of climate change, many authors have found that taxes or permit systems with price caps would prove greatly	noted

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						advantageous over simple fixed quotas. For a full-fledged discussion and many references please see Philibert, Cédric (2006, forthcoming), Certainty vs. Ambition in Mitigating Climate Change, IEA Working Paper Series, IEA, Paris, October. (Cédric PHILIBERT, International Energy Agency)	
13-321	A	29	6	29	12	While not uniquely concerned with cost-effectiveness, a recent paper compares and contrasts ex ante evaluations of mitigation cost assessments with ex ante evaluations of scientific assessments in the USA. See: Tulkens, Philippe and Tulkens, Henry, "The White House and the Kyoto Protocol: Double Standards on Uncertainties and their Consequences" (June 2006). FEEM Working Paper No. 89.06 Available at SSRN: http://ssrn.com/abstract=910811 Abstract: This paper compares the level of uncertainty widely reported in climate change scientific publications with the level of uncertainty of the costs estimates of implementing the Kyoto Protocol in the United States. It argues that these two categories of uncertainties were used and ignored, respectively, in the policy making process in the US so as to challenge the scientific basis on the one hand and on the other hand to assert that reducing emissions would hurt the economy by an amount stated without any qualification. The paper reviews the range of costs estimates published since 1998 on implementing the Kyoto Protocol in the US. It comments on the significance of these cost estimates and identifies a decreasing trend in the successive estimates. This implies that initially some of the most influential economic model-based assessments seem to have overestimated the costs, an overestimation that may have played a significant role in the US decision to withdraw from the Protocol. The paper concludes with advocating that future economic estimates always include uncertainty ranges, so as to be in line with a basic transparency practice prevailing in climate science (Pat Finnegan, Grian)	Noted. This will be an important paper when it is published following peer review.
13-125	B	29	9	29	12	this sentence is internally inconsistent: either you do evaluate specific instruments and then you can say something about the differences or you do not and then no conclusions can be drawn (Bert Metz, IPCC)	Change word “instruments” to “regulations”
13-322	A	29	14	30	3	In 13.2.2.4, Distributional considerations start from tactical considerations but are extremely inflexible later on. As climate change economic impacts are efforts are strategic, the distributional considerations need most patient implementation (V Kumar - Texas University at Austin). (Government of India)	Noted. Not clear what comment is.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-323	A	29	14	0	0	'distributional considerations' used, whereas 'political feasibility' used in summaries. These are partly overlapping concepts so care must be taken to either use only one or use the two in a consistent manner. (Government of Norwegian Pollution Control Authority)	This should be fixed
13-324	A	29	15	30	3	Since the social dimension is the third pillar of sustainability the aspect of distribution effects and equity deserves more attention than the one page here. For a start a distinction could be made between international and national equity considerations. Admittedly there is a problem with respect to broadly acknowledged criteria, but that at least would be worth stressing. Furthermore, it is likely that this work needs to be closer tied to local assessments and plans to some extent discussed in Part 3 (page 74 and beyond) and to international co-operation discussed in Part 2. (Government of Finland)	Noted. Beyond scope of chapter.
13-325	A	29	37	0	0	Helfand et al (2003). Is this a reference to a) new or b) climate related insights? I don't think so. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Delete sentence with Helfand et al in it – I cannot find ref.
13-126	B	29	39	29	42	this is not about a policy instrument favouring the wealthy, but about political lobbying about goal setting (Bert Metz, IPCC)	Delete Bulkeley sentence
13-127	B	29	41	29	41	Add "an" between "from" and "ambitious reduction target" (Government of Netherlands/Ministry for the Environment)	
13-326	A	29	42	29	42	Another example can be added: how the industrial federations (in particular the chemical industry) opposed the EU carbon/energy tax in the first half of the 90s and were happy to substitute a rather toothless ETS system with free (over)assigments and windfall profit opportunities for the tax instrument. Maybe the kindness of the authors finds it too early to include this example; perhaps in AR5. (Aviel VERBRUGGEN, University of Antwerp)	Not relevant to section.
13-129	B	30	0	0	0	box 13.6: references missing (Bert Metz, IPCC)	Somebody got them?
13-327	A	30	1	32	0	Box 13.6: Could be shortened substantially (Michael Kohlhaas, German Institute for Economic Research)	Accept
13-128	B	30	2	30	3	Replace "the intergenerational dimension" by "the intra- en intergenerational dimensions" (Government of Netherlands/Ministry for the Environment)	3
13-540	A	30	5	0	0	I miss a criterion like 'administrative simplicity', subsuming information/data requirements, easy to make operational, flexibility, allow for future refinements,	Sorry

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						etc., that is only in part covered by 'institutional feasibility'. (Government of Norwegian Pollution Control Authority)	
13-328	A	30	13	30	13	"taken largely from a report prepared for the the OECD (OECD 2005c)" (Reimund Schwarze, DIW Berlin)	Done
13-329	A	30	16	0	0	Examples of market-based instruments in DCs? Perhaps a box, here or in some other section? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Good idea – anybody got one?
13-330	A	30	19	30	19	for not only blaming the USA, perhaps add "and carbon taxes in the EU" (see also my comment on p.29, line 42. (Aviel VERBRUGGEN, University of Antwerp)	Done
13-331	A	30	41	0	0	Box 13.6 - move to section 13.2.1.2 (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Done
13-130	B	31	1	0	0	Box 13.6: the climate change levy is not introduced in the text. The question "Is it a good tax" is rather strange, how can a tax be good or bad? Suggest to change good to "effective" (Government of Netherlands/Ministry for the Environment)	"Does the tax work?"
13-131	B	32	13	32	19	This paragraph suggest general statements will now be made about each instrument and refers to table 13.1. However, what follows is not balanced. The example addressed first is market based instruments. Nothing is said about their limitations in case actors do not respond to price signals (such as demonstrated in chapter 6 on the building sector for example) and about their ineffectiveness to stimulate technological innovation (because of the short term signal). Those elements are also missing from the table. A much more thorough summary of the literature findings on each of the instruments is needed. (Bert Metz, IPCC)	Sounds like the referee is a market skeptic. Add a sentence at line 17, p32. In some contexts, direct regulations are preferred to market incentives.
13-332	A	32	14	32	15	I object to this repetition that generally market-based instrumentns are best. They are often best, but there are many examples where it is not so, as previously noted.The reason this error is so persistent is that the writers assume they are talking about industrial/commercail users, not final consumption or small-scale use.(eg see Table 13.1, where one of the comments actually refers to "firms"- but not all affected parties are firms!! (Andrew Dlugolecki, University of East Anglia)	True indeed.
13-333	A	32	15	32	18	In fact it is not just a matter of "national" markets- the current price volatitility of ghg emissions permits reflects international market difficulties!. (Andrew Dlugolecki, University of East Anglia)	Not outside EU.
13-334	A	32	15	32	17	Can one explain why and how market-based instruments (e.g. an energy / carbon	

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						tax) needs more "well-functioning institutions" than regulatory (command and control) approaches? Maybe all instruments require a rather similar quantity and quality of information, functioning institutions, control and enforcement powers, etc... athough clever tax systems often can free ride on available data collection and processing and administrative capacities, and so are easier and cheaper to implement. (Aviel VERBRUGGEN, University of Antwerp)	
13-335	A	33	0	33	0	Table 13.1. We would propose to remove columns 3, 5, 7, and 9 as the evaluation of the several approaches of column 1 by using various signs (+, -, 0, &, ?), are very subjective. (José Somoza , National Institute of Economic Research)	Accept
13-336	A	33	0	33	0	table commented in the SPM (Aviel VERBRUGGEN, University of Antwerp)	See spm responses
13-337	A	33	0	34	0	Table 13.1. High certainty of tradable permits only true for functioning markets. (Government of European Community / European Commission)	Accept
13-132	B	33	0	0	0	See SPM comments on this table (Government of Netherlands/Ministry for the Environment)	See spm responses
13-342	A	33	0	0	0	Table 13.1. We would propose to remove columns 3, 5, 7, and 9 as the evaluation of the several approaches of column 1 by using various signs (+, -, 0, &, ?), are very subjective. (Gladys Cecilia HERNANDEZ, Centre for World Economy Research)	Accept
13-338	A	33	1	0	0	Table 13.1 : next to +, - and ?, there are 0s. These are not listed in the legend. (Same holds for table SPM.3) (Michael Kohlhaas, German Institute for Economic Research)	See A 335
13-339	A	33	1	0	0	Table 13.1 --- See my comment on the “technology cooperation” component of this table, in my comments (SPM p17 line.1) on the “Summary for Policymakers”, where the table appears as SPM.3. (Christopher Green, McGill University)	See spm responses
13-340	A	33	1	0	0	Table 13.1. Raises questions. Perhaps footnotes would help to (further) support the information in the table, in particular on (kolom - A-D row - 1-8): A3,A5,B1,B4,C7,D1,D6 (,)	Not clear
13-341	A	33	1	34	0	Table 13.1: This table is too subjective and should be deleted. (Keigo Akimoto, Research Institute of Innovative Technology for the Earth (RITE))	Reject; such a table provides useful information
13-133	B	33	1	33	0	Table 13.1 - Under VAs: “benefits accrue only to participants” – this statement	TIA

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						appears to say that there are no social benefits associated with VAs, which contradicts the underlying chapter. U.S. Government (Government of U.S. Department of State)	
13-134	B	33	1	33	0	Table 13.1 - In the row "research and development," for columns "Environmental effectiveness" and "cost-effectiveness," replace the current descriptions with "uncertain but potentially quite significant." For example, CCS, which most models indicate would significantly reduce future mitigation costs and thus enhance environmental effectiveness, is dependent on effective government R&D investments. U.S. Government (Government of U.S. Department of State)	Accept
13-135	B	33	5	33	0	Table 13.1 Row 5: Same as Tables SPM. 3 and TS. 22 above - Finding that technology cooperation generally does not meet criterion seems to run counter to emphasis and importance placed on technology development and transfer throughout report. U.S. Government (Government of U.S. Department of State)	No longer relevant; technology transfer deleted
13-431	A	60	28	61	35	Skip (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Accepted
13-430	A	61	13	61	15	Sectral approaches mean that major industrial sectors address the dissemination of exsting best available technologies all over the world. As this sentence says the equity among all sectors should be assured ideally. But in the case of APP, the portion of CO2 emission from related sectors is equivalent to 60% of total emission of six countries. So the difficulty of comparison among all sector's efforts is not the reason why we do not adopt the sectoral approaches. (Shinichi Nakakuki, The Tokyo Electric Power Company)	Noted
13-185	B	61	17	62	48	Box 13.9 is not a well-reasoned or fully developed discussion regarding the policy and legality of trade and climate linkages. While we consider this portion of the chapter to be useful in providing a summary or outline of the myriad ideas that are put forth in the literature and elsewhere by various persons, it is important that WG III and the IPCC make clear that this section of Chapter 13 is not to be construed as giving an imprimatur of the WG, IPCC or governments to these literature-based ideas. U.S. Government (Government of U.S. Department of State)	To be taken in to account in the revision of the box.
13-186	B	61	19	61	0	There should be some discussion, perhaps in this section, of coordinated policy commitments (sometimes called pledge and review) as opposed to coordinated policies. These have been identified by a number of authors as an alternative to target-based negotiations (which generally focus on outcomes, not policies). These	Included in Table 13.2

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						merit discussion given the fact that many countries consider targets to be politically unattractive. Discussion here is limited to technology coordination. U.S. Government (Government of U.S. Department of State)	
13-432	A	61	28	61	31	In this sentence tax is considered one of most economic instrument because it offers a flexible incentive to promote changes in behavior. But tax also has various problem such as rigidity of annual government expenditure. According to the IEA's recently research("THE POLITICAL ECONOMY OF ENVIRONMENTALLY RELATED TAXES"), earmarking might violate the polluter pays principal because earmarking fixes the use of revenue which may create an obstacle for the re-evaluation and modifications of the tax and spending programs. We must pay attention to the fact that the self-motivating selection behavior of the consumers will form the true market. In order to realize this situation, education and enlightenment activity for consumer which enhance awareness of more efficient energy use and environment needs to be promoted. As a one example, the Marine Stewardship Council and Forest Stewardship Council effectively function to differentiate products, allowing consumers to recognize the difference between products/services will most likely bring about a significant change. (Shinichi Nakakuki, The Tokyo Electric Power Company)	See 431 A
13-435	A	62	0	0	0	The description of the Japanese "Top Runner approach" is a good case study of the mitigation approach. More detail description should be added in this Chapter. (Government of Japan)	Noted cannot be expanded due to space constraints
13-433	A	62	5	62	5	Add the qualifier 'Some' in front of Business groups, as per commentary above, 'business' does not speak with one voice on this matter, and trade organisations do not always reflect the degree to which their individual member companies are prepared and able to respond to government policies. (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	Accepted
13-187	B	62	12	62	15	Not at all clear what this would mean in terms of a coordinated policies and measures approach (Bert Metz, IPCC)	Taken into account
13-434	A	62	14	62	15	'a Global Env. Mechanism to help manage the environmental components…' - could this be specified further? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Taken into account
13-436	A	63	1	63	48	Please double check English language. Eg. In additional to WTO…. (line 1); An other approach coordination of policies…. (line 16); R&D and in diffusion…. (lines 37 and 38); One variant on a technology… (line 40).	Accepted

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(José Somoza , National Institute of Economic Research)	
13-437	A	63	1	63	48	Please double check English language. Eg. In additional to WTO…. (line 1); An other approach coordination of policies…. (line 16); R&D and in diffusion…. (lines 37 and 38); One variant on a technology… (line 40). (Gladys Cecilia HERNANDEZ, Centre for World Economy Research)	See comment 436 A
13-188	B	63	1	63	1	Replace "In additional" by "In addition" (Government of Netherlands/Ministry for the Environment)	See comment 436 A
13-438	A	63	7	63	13	It should mention the official conclusion of the WTO Committee on Trade and Environment on this case if there is any. (Koji Kadono, Global Industrial and Social Progress Research Institute(GISPRI))	Box to be revised.
13-439	A	63	32	63	34	should underline that incentives are needed ('technology pull'). "Institutional arrangements" is more general and vague, but may include incentives. (Government of Norwegian Pollution Control Authority)	Taken into account
13-440	A	64	5	64	10	Box 13.10 - Asia Pacific Partnership. Insert: "In May 2006 a Memorandum of Understanding between representatives of aluminium industries in AP6 countries was signed in Beijing (see attached 'AP6 Aluminium Industry Signed MOU.pdf'). The signatories have agreed to cooperation in the areas of: 1. Environmental control technologies and information exchange 2. Energy efficiency 3. Health & safety education and information 4. Recycling education and techniques 5. Product applications 6. Measurement and reporting (environmental and production statistics) 7. Information exchange" (Robert Chase, International Aluminium Institute)	Rejected as would single out one sector and is relatively vague. If detail of activities (what resources are spent on these activities; is there any check of effectiveness?) was provided, rejection would be reconsidered.
13-189	B	64	5	65	0	Box 13.10 - Include mention IEA Implementing Agreements as a generic statement, many are generally viewed as being successful (e.g., Hydrogen Implementing Agreement). See http://www.iea.org and http://www.ieahia.org U.S. Government (Government of U.S. Department of State)	Noted. Not included due to space constraints.
13-441	A	64	10	65	35	should point here althought the international society has made efforts on technology transfer, there are rare technology especilly efficienct & environmental sound technologies have been transferred from developed countries to developing countries. (Yanjia Wang, Tsinghua University)	Noted

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-190	B	64	21	66	36	Make this a separate section (does not belong under flexibility) (Bert Metz, IPCC)	Noted
13-442	A	64	37	64	45	Suggest adding the following: One of Barrett's central assumption is that , the setting of standards often creates a tipping effect. "If enough countries adopt a standard, it may become irresistible for others to follow, whether because of network effects, cost considerations (as determined by scale economies), or lock-in." Philibert (2004) has casted doubts on this point - the adoption of, say, an obligation to power plants and refineries to capture and store carbon dioxide adopted in industrialised countries "may or may not" drive developing countries to follow suite despite the associated costs. Philibert, Cédric, 2004, Lessons from the Kyoto Protocol: Implications for the Future, International Review for Environmental Strategies, vol.5 n 1, Tokyo, JP, December,311-322 (Cédric PHILIBERT, International Energy Agency)	Accepted
13-191	B	64	37	64	45	The approach described here is in fact a hybrid betwen R&D and (performance) standards and therefore not a pure R&D approach. The claim of environmental effectiveness (see line 42) may be driven more by the standards component, because a pure R&D approach is normally considered to have very uncertain environmental outcomes. This needs to be discussed better and assessment of the effectiveness of R&D approaches described more carefully. (Bert Metz, IPCC)	Noted, see answer to comment 13-442 A
13-443	A	65	4	0	0	Box 13.10 Are these programs or partnerships and forums? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Taken into account by substituting term
13-192	B	65	5	65	0	Methane to Markets (http://www.methanetomarkets.org/) and ITER (http://www.iter.org) should be added to this list. The web address for the Asia-Pacific Partnership should be changed to<http://www.asiapacificpartnership.org>. U.S. Government (Government of U.S. Department of State)	Noted. Web address of AP 6 corrected.
13-193	B	65	8	66	36	The literature basis of this section is very weak: the Gwage reference is inadmissable (a presentation), the NRC reference cannot be found (what is it?) and that is all. The IPCC Special report on Technology Transfer (200) does contain an assessment of all aspects and certainly has some relevant parts for this discussion. Look for additional literature. (Bert Metz, IPCC)	Additional literature beyond the SR taken into account
13-444	A	65	10	65	15	The statement that "Funding to implement the framework is to be provided" is outdated as GEF funding for technology needs assessments has been provided and	Taken into account. Sentence substituted by "GEF funding for technology needs

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						donor funds have been contributed to the Special Climate Change Fund, although primarily for adaptation. (Alan Miller, International Finance Corporation)	assessments has been provided and further funds may become available through the Special Climate Change Fund".
13-445	A	65	38	0	0	In 13.3.3.5 and 8, I find no collation of mitigation measures and asset recreation - it may be worthwhile. The new instruments like parametrics, transurances and ART are emerging fast and a few are now traded in Chicago exchange and even in India we have a few introductions as OTC instruments. (Government of India)	Comment unclear.
13-446	A	65	40	65	45	The suggested distinction between public financing for climate change mitigation and private financing for technology investment is overly simplified. There is frequently blended financing for clean energy projects with public financing used to leverage private investment. For example, IFC clean energy financing projects in eastern Europe, Russia, China, and the Philippines use technical assistance funds to train commercial banks in energy efficiency lending along side partial risk guarantees and, as needed, credit lines to encourage banks to offer loans. IFC/GEF programs directly supporting local commercial lenders for these activities are now operational in eight countries with commitments of more than $265 million in IFC funds. In this way public funds are heavily leveraged and a source of sustainable, locally based financing for clean energy investments is achieved. See, e.g., www.ifc.org/CEEF. (Alan Miller, International Finance Corporation)	Noted. While leveraging is possible in the IFC context, it is having a rather limited share in total energy investment.
13-194	B	65	40	65	40	Replace "affect" by "effect" (Government of Netherlands/Ministry for the Environment)	Accepted
13-447	A	66	4	0	0	Add "13.3.3.5.0 Bilateral bioenergy partnerships. // NEWNLINE// Bilateral bioenergy partnerships (possibly within the context of the G8's Global Bioenergy Partnership) have been proposed (Read 2006, under review) as a framework for stimulating South-North trade in bio-fuels. These would involve intergovernmental agreement on socio-economic and environmental sustainability conditions on the production of biofuels in the South paralleled by a purchasing commitment by the North partner which would steer direct investment by firms (seeking to meet a proportionate biofuels obligation) toward the South partner. " (Peter Read, Massey University)	Noted. However, this is only a policy concept and not on the same level as the sections.
13-448	A	66	4	66	40	Add "13.3.3.5.0 Bilateral bioenergy partnerships. // NEWNLINE// Bilateral bioenergy partnerships (possibly within the context of the G8's Global Bioenergy Partnership) have been proposed (Read 2006, under review) as a framework for	See 13-447A

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						stimulating South-North trade in bio-fuels. These would involve intergovernmental agreement on socio-economic and environmental sustainability conditions on the production of biofuels in the South paralleled by a purchasing commitment by the North partner which would steer direct investment by firms (seeking to meet a proportionate biofuels obligation) toward the South partner. " (Peter Read, Massey University)	
13-449	A	66	25	66	35	The contrast in amounts provided for fossil fuels versus energy efficiency and renewable energy creates a false dichotomy. The issue with respect to fossil fuels is whether ECA and IFI funding makes such investments more efficient than they otherwise would be, as they are happening anyway and will continue without these sources of funds - most such investment in China and India is not the result of ODA or ECA support. This issue has not been given much attention, but recently EBRD (2006 Annual Report) and IFC (2005 Sustainability Report) have reported on the extent to which their mainstream lending is contributing to significant improvements in energy efficiency or renewable energy. (Alan Miller, International Finance Corporation)	Reject
13-450	A	66	35	66	40	The reference to the 2004 World Bank extractive industries review is outdated. Subsequently, the World Bank made a commitment in 2004 to increase its clean energy lending by an average of 20 percent per year for five years and to report annually on its progress toward this goal. The WB has exceeded this target as described in publications and press releases listed separately below. In addition, in response to the G8 Gleneagles Summit in 2005 the World Bank Group has prepared two reports in 2006 outlining proposals for significant increases in financing for climate change mitigation and adaptation. These documents are public and web links are given below. (Alan Miller, International Finance Corporation)	Noted. Reference to World Bank: World Bank Group Progress on Renewable Energy and Energy Efficiency: Fiscal Year 2005 inserted
13-451	A	66	35	66	40	(continuation of line 4) Recent World Bank documents and reports describing World Bank activities and proposals for expanded support of clean energy financing (available from World Bank website) Clean Energy and Development: Towards an Investment Framework, World Bank Group Development Committee April 5, 2006 (DC2006-0002) An Investment Framework for Clean Energy and Development: A Progress Report, World Bank Group Development Committee, September 5, 2006 (DC2006-0012) "New Renewable Energy and Energy Efficiency: World Bank Group Exceeds Previous Year's Commitments by 48 Percent" (World Bank Press Release, Aug. 14,	See 13-450 A

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						2006): FY06 commitments $680 million World Bank, "Right on Target: Progress on Renewable Energy and Energy Efficiency in 2005/2006 (August 2006) World Bank Group Progress on Renewable Energy and Energy Efficiency: Fiscal Year 2005 (World Bank Group, The Energy and Mining Sector Board, December 2005) International Finance Corporation, "Choices Matter: 2005 Sustainablity Report (2006) (Alan Miller, International Finance Corporation)	
13-195	B	66	38	70	8	This section would be improved if it brings together the different financial flows in one table or graph; most material for such a summary is in this section; add CDM flows and add also the new clean energy investment framework data (recent Worldbank publication for annual meeting 2006 Singapore) (Bert Metz, IPCC)	Rejected due to incomparable and difficult to access data
13-196	B	66	38	70	8	remove the subsection numbers from this section (only 4 level structure) (Bert Metz, IPCC)	Rejected
13-452	A	66	40	66	41	Financial .. countries. - skip (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Accepted
13-453	A	67	8	67	20	ODA analysis in this paragraph should make reference to the international commitment of devoting 0.7% of the developed countries (donors) GNP to ODA. Even considering that the ODA flows for 2005 were inflated till 106.5 billion dollars, with the inclusion of "foreign debt relief efforts", that international commitment is far from being fulfilled. (José Somoza , National Institute of Economic Research)	Noted
13-454	A	67	8	67	20	ODA analysis in this paragraph should make reference to the international commitment of devoting 0.7% of the developed countries (donors) GNP to ODA. Even considering that the ODA flows for 2005 were inflated till 106.5 billion dollars, with the inclusion of "foreign debt relief efforts", that international commitment is far from being fulfilled. (Gladys Cecilia HERNANDEZ, Centre for World Economy Research)	Noted
13-197	B	67	27	0	0	text of footnote 58 is policy prescriptive (you took my earlier comment too literally) (Bert Metz, IPCC)	Delete footnote
13-455	A	67	37	67	43	This paragraph seems very descriptive, compared with other references - and it may be open to question how far the Bank has achieved its aims; therefore it would be	To be revised

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						better to delete the second sentence starting on line 40. In any case, the Bank is currently working on a "Clean Energy Investment Framework" (through the G8-related 'Gleneagles' process). (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	
13-198	B	67	37	67	43	move this paragraph to the MDB section (Bert Metz, IPCC)	Accepted
13-199	B	68	12	0	0	This whole section only deals with the GEF and does not discuss MDBs (Government of Netherlands/Ministry for the Environment)	Noted. MDB-related text from p. 67 moved here.
13-456	A	68	20	68	30	The reference to Hall is outdated, numerous updates are available at the GEF website www.thegef.org. (Alan Miller, International Finance Corporation)	Noted. Hall is a peer reviewed source, GEF own reports may be biased.
13-457	A	68	20	68	30	The point from Sohn et al has the same logical deficiency noted above, viz, that the relative proportion of lending for fossil fuels and renewables/efficiency is a false comparison. Lending for the former needs to improve technology and reduce carbon emissions; lending for the latter needs to be increasing rapidly, which is in fact taking place (whether fast enough is a different question) (Alan Miller, International Finance Corporation)	Rejected.
13-458	A	68	20	68	30	A key distinction in GEF climate change mitigation funding has been for "barrier removal" versus new technology commercialization. The former has been the primary focus of GEF support, although substantial resources have been dedicated for such new technologies as fuel cells, solar thermal power plants, and biomass gasification. Results from the latter have been very limited as discussed in the World Bank Clean Energy Investment Framework (2006) leading to a decision in the GEF climate change strategy for the fourth replenishment that greatly reduces proposed support for such projects. On the other hand, the GEF has had documented success with "market transformation" projects that accelerate the introduction of efficient lighting, appliances, and other efficient products through consumer awareness activities, quality assurance programs, certification and labeling measures, codes and standards, and other incentive measures. See, e.g., IFC, "The ELI Story: Transforming Markets for Efficient Lighting" (2005). (Alan Miller, International Finance Corporation)	Taken into account.
13-200	B	68	29	68	29	Reference to world Bank is strange here since the whole paragraph was discussing the GEF (Government of Netherlands/Ministry for the Environment)	Taken into account. WB text from p. 67 to be integrated here.
13-459	A	69	0	69	10	The International Finance Corporation has revised its performance standards in	Taken into account.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						2006; details are available at www.ifc.org (http://www.ifc.org/ifcext/enviro.nsf/Content/EnvSocStandards). The revised standards require reporting of GHG emissions for projects with direct or indirect increases of 100,000 tons CO2 equivalent annually. The standards also require consideration of alternatives for improving the energy efficiency of energy intensive investment projects. (Alan Miller, International Finance Corporation)	
1Add senten 3-463	A	69	0	0	0	Fig 13.6 .the bars are very similar. I would present Countries & Multilaterals only, and indicate the share of Countries in the caption. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Accepted.
13-460	A	69	24	69	27	Hall … technologies. Long sentence (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Noted. Separate sentence.
13-461	A	69	33	0	0	ADD "Development of large scale worldwide bioenergy with South-North trade, in line with a precautionary response to potential abrupt climate change requires, for socio-economically and environmentally sustainable development, a very large number, possibly over 100,000, of community scaled projects. To develop these requires a corps of specialist project development experts skilled in the arts of involving communities in such projects and in participating in the design and implementation of appropriate technologies communicated by the expert, and in utilising finance enabled by the expert, securing supplies and marketing products. Such 'grassroots merchant bankers' need to be trained in very large numbers if the precautionary strategy is to be implemented. A proposal to do this through a network of colleges backed by research and training expertise in selected universities has been proposed (Haque et al, 1999). It is estimated that the $50m p.a. cost of such a training programme, such as could be funded by the GEF would, in the long run, have an incremental cost of 1 cent per ton of CO2 removed from the atmosphere, besides yielding sustainable rural development from the realisation of country-driven sustainable energy projects as the basis for rural industry as well as exports of liquid biofuels." (Peter Read, Massey University)	Noted. Insert sentence “For example, Haque et al. 1999 propose training of a corps of specialist project development experts to roll out a large-scale bioenergy programme”.
13-462	A	69	33	66	33	ADD "Development of large scale worldwide bioenergy with South-North trade, in line with a precautionary response to potential abrupt climate change requires, for socio-economically and environmentally sustainable development, a very large number, possibly over 100,000, of community scaled projects. To develop these requires a corps of specialist project development experts skilled in the arts of	See. 13-461A

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						involving communities in such projects and in participating in the design and implementation of appropriate technologies communicated by the expert, and in utilising finance enabled by the expert, securing supplies and marketing products. Such 'grassroots merchant bankers' need to be trained in very large numbers if the precautionary strategy is to be implemented. A proposal to do this through a network of colleges backed by research and training expertise in selected universities has been proposed (Haque et al, 1999). It is estimated that the $50m p.a. cost of such a training programme, such as could be funded by the GEF would, in the long run, have an incremental cost of 1 cent per ton of CO2 removed from the atmosphere, besides yielding sustainable rural development from the realisation of country-driven sustainable energy projects as the basis for rural industry as well as exports of liquid biofuels." (Peter Read, Massey University)	
13-464	A	70	9	70	9	Add a sentence referencing the European Bank of Reconstruction and Development's initiative to mainstream 'Energy Efficiency Audits' in its industrial lending, it is my understanding that this remains the only such initiative within the MDBs, and is therefore a good example of institutional innovation. ['EBRD Information, Improving Industrial Energy Efficiency'. [online information], Available from URL http://www.ebrd.com/industrialenergyefficiency]. (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	Accepted. In MDB section, sentence is added: "The European Bank of Reconstruction and Development has introduced an initiative to mainstream 'Energy Efficiency Audits' in its industrial lending practice (EBRD 2006).
13-201	B	70	31	70	32	What does the sentence "Gupta …" mean? (Bert Metz, IPCC)	Sentence deleted
13-202	B	70	40	70	46	This paragraph seems to be more on the link between adaptation and mitigation and the relationship with sustainable development; fits better in 13.3.3.8 (Bert Metz, IPCC)	Accepted
13-465	A	70	48	72	20	Compliance related issues are critical in the view of some businesses, we interviewed for the April 2006 report, "Business Views on International Climate and Energy Policy". We asked what would constitute the 'collapse of Kyoto' (ie name change or something more profound); for some respondents it as simple as a lack of compliance and enforcement of existing commitments; another saw this leading, potentially to the collapse of the EU ETS, given the lack of AAU pressure on governments. (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	Noted
13-466	A	71	3	71	4	What is meant by punishment on the Pareto frontier? Refrase. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Noted . Sentence deleted.
13-203	B	71	4	0	0	explain "paretro frontier"	Noted. Sentence deleted.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Bert Metz, IPCC)	
13-467	A	71	11	71	13	I agree that punitive measures are not institutionally feasible (Reimund Schwarze, DIW Berlin)	Noted
13-468	A	71	13	0	0	adversarial elements - specify (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Noted. Sentence now reads "adversarial elements such as sanctions"
13-469	A	71	21	0	0	procedures used under the Montreal Protocol, such as…… (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Accepted
13-470	A	71	26	71	33	Very concise. Elaborate a bit (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Rejected.
13-471	A	71	44	72	7	can add references to discussion on adaptation mechanisms: Huq, 2006 (Climate Policy, 2, 243-246); Bouwer and Aerts, 2006 (Disasters, 30, 1, 49-63); Gupta and Dortland, 2003 (Working Paper--Institute for Environment Studies, Vrije Universiteit Amsterdam) (Cohen Stewart, Environment Canada)	Noted. Huq and Bouwer and Aerts references added.
13-472	A	72	1	72	2	Hovi …. countries. - How? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Sentence deleted
13-473	A	72	23	72	24	I completely agree: The issue of adaptation is far (too) less explored (Reimund Schwarze, DIW Berlin)	Noted.
13-204	B	72	24	0	0	footnote 64 should refer to IPCC Ar4, WG II with specific chapter numbers (Bert Metz, IPCC)	Accepted. Footnote should read "See Chapters 17 and 18 of WG II report as well as …"
13-474	A	72	36	72	47	There are also literatures that policies and measures and incorporating institutional building at domestic and regional (particularly in case of the EU) levels changes the dynamics of climate change international negotiation process by enhancing or impeding leadership-taking capacity. For example, see Kanie, Norichika "Leadership and Domestic Policy in Multilateral Diplomacy: The Case of The Netherlands' Kyoto Protocol Negotiation", International Negotiation Vol8.No.2. (2003), pp.339-365, and Kanie, Norichika "DOMESTIC CAPACITY, REGIONAL ORGANISATION AND GLOBAL CLIMATE CHANGE REGIME BUILDING PROCESS", in Michael Faure, Joyeeta Gupta and Andries Nentjes eds., Institutions and instruments to control climate change: Kyoto and after, Edward Elgar, pp.230-247, 2003 (Norichika Kanie, Tokyo Institute of Technology)	Accepted. Sentence inserted "Kanie (2003) finds that in the EU the introduction of policies and measures and institution building changes the dynamics of the climate change negotiation process by enhancing leadership capacity. Kanie, Norichika "Leadership and Domestic Policy in Multilateral Diplomacy: The Case of The Netherlands' Kyoto Protocol Negotiation", International Negotiation Vol8.No.2. (2003), pp.339-365
13-475	A	72	36	72	47	The types of leadership identified here as "directional, instrumental and unilateral" is incorrect. It should be "directional, instrumental and structural", as many literature on leadership argues (e.g. Gupta and Grubb 2000). (Norichika Kanie, Tokyo Institute of Technology)	Accepted. "Unilateral" replaced by "Structural"

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-476	A	72	36	72	47	In addition, a complehensive study of climate negotiation focusing on facilitation of international negotiation is coming out from IIASA (Gunnar Sjoestedt ed. Strategic Facilitation of the Climate Talks (forthcoming) Earthscan). (Norichika Kanie, Tokyo Institute of Technology)	Noted. Too late
13-487	A	73	0	0	0	Section 13.3.3.9 Could this section in one way or the other be linked to Table 13.2? Which poposals or elements thereof have reached the negotiating table and why? (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Noted. Negotiation process not evolved to that point.
13-477	A	73	1	0	0	Table 13.6 Criteria for assessing intl agreements on CC: +/-/?/0 signs do not add to the table, and are not accurate in all cases; in many cases effectiveness could be argued in either direction. (Joanna Lewis, Pew Center on Global Climate Change)	
13-478	A	73	1	73	1	In Table 13.6, suggest that the columns with +, -, and ? be removed. The source of these judgements is not clear and does not appear justified. For example under environmental effectiveness, each are said that they can be effective but some are given +, some ? and some -? (Haroon Kheshgi, ExxonMobil Research and Engineering Company)	
13-479	A	73	1	73	1	In Table 13.6, sectoral agreements are not necessarily global, yet the explanation make it appear so. Suggest reconsidering. (Haroon Kheshgi, ExxonMobil Research and Engineering Company)	
13-480	A	73	1	73	1	In Table 13.6, a key inefficiency (barrier to investment) with cap and trade is the lack of credible long-term allocation and the uncertainty related to non-compliance. Suggest adding to cost effectiveness box. (Haroon Kheshgi, ExxonMobil Research and Engineering Company)	
13-481	A	73	1	73	1	In Table 13.6 suggest adding under institutions in the targets row, “mechanisms to generate national allocations”. (Haroon Kheshgi, ExxonMobil Research and Engineering Company)	
13-482	A	73	3	73	7	Why this § here? It adds no value (perhaps higher in the text???) (Aviel VERBRUGGEN, University of Antwerp)	
13-483	A	73	10	73	10	here 'economic efficiency' and 'cost effectiveness' are mentioned both as equals. On p.28, line 41 economic efficiency got the content of allocative efficiency. Be consistent. (Aviel VERBRUGGEN, University of Antwerp)	
13-484	A	73	11	73	0	Table 13.6 ? (José Somoza , National Institute of Economic Research)	
13-485	A	73	11	0	0	Table 13.6 ? (Gladys Cecilia HERNANDEZ, Centre for World Economy Research)	

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-486	A	73	22	73	32	Some argued (e.g. Cooper, 1998) that the adoption and implementation of a tax (i.e. an instrument as such) would be more effective. Because such argument complies with the "Law of demand" of economics, it has high validity. (Aviel VERBRUGGEN, University of Antwerp)	Unclear
13-488	A	74	1	0	0	Table 13.6 □same as SPM P17 Table SPM.3, TS P109, Table TS.22□ Overall, what decides weather an approach meets a criteria is rather vague and not objective and the columns with "+" "-" "0" should be therefore deleted. For example, "national emission targets and emission trading " effectiveness depends on participation, stringency and compliance. It means this evaluation is too difficult. (Government of Japan)	
13-489	A	74	1	0	0	Table 13.6 □same as SPM P17 Table SPM.3, TS P109, Table TS.22□ "sectoral agreements" seems to be unreasonably underestimated. The Asia-Pacific Partnership and G8 process adopt these "sectoral agreements" approaches are trying to go forward. This should be highly regarded. (Government of Japan)	
13-205	B	74	1	76	46	This section chooses the same criteria for evaluation of possible models for international climate change agreements as used for the evaluation of national policy instruments. Although this has the advantage of simplicity, a particularly important aspect, i.e the link to (sustainable) development objectives, falls between the cracks. This is also caused by the fact that in describing the various possible approaches for international agreements a SD approach was not singled out. Given the political importance of this link to (S)D (by the way, not only for developing countries but also for industrialised countries; think of energy security, jobs, air quality). So I suggest that an additional criterion is introduced here, namely if a particular approach can lead to synergies with development policies. Some approaches are much more promising in this respect than others. (this would also have to be reflected in table 13.6) (Bert Metz, IPCC)	Noted. To be addressed.
13-490	A	74	8	0	0	Section 13.3.4 Major overlap with section 13.2.2. Skip or refer to (an adjusted) 13.2.2. (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Noted. To be addressed.
13-491	A	74	9	74	32	This paragraph on cost-effectiveness should be follwed by an analysis of the economic efficiency of possible agreements, ie their capability to make the unavoidable distance between marginal costs and marginal benefits (given the many uncertainties) as small as possible. Following the criteria first established by	To be discussed

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Weitzman (1974) in case of climate change, many authors have found that taxes or permit systems with price caps would prove greatly advantageous over simple fixed quotas. For a full-fledged discussion and many references please see Philibert, Cédric (2006, forthcoming), Certainty vs. Ambition in Mitigating Climate Change, IEA Working Paper Series, IEA, Paris, October. (Cédric PHILIBERT, International Energy Agency)	
13-492	A	74	17	74	17	Cost-effectiveness does not "include" economic efficiency by all means, as it is only one of its conditions. (Cédric PHILIBERT, International Energy Agency)	To be discussed
13-493	A	74	17	74	17	"cost-effectiveness, including, economic efficiency can ...": meaning? See other comments on this issue. (Aviel VERBRUGGEN, University of Antwerp)	To be discussed
13-206	B	74	22	74	32	Stringency is missing here (see line 43, where it is mentioned as important) (Bert Metz, IPCC)	Noted. “Ambitious” is term used.
13-494	A	74	25	74	25	"The relatively limited requirements for governmental institutions ...": is this so? In the EU ETS the requirements are rather significant, and not sufficient to clear e.g. the mess on the NAPs. Also the burden sharing among EU nations has been assessed to be biased and not cost effective. See Eyckmans J. et al "Efficiency and Equity in the EU Burden Sharing Agreement". The setting up of a trading system in practice is far from simple and must choose from rich menus as presented in table 13.2 in this chapter; it requires a huge kitchen and a perfect staff of cooks to get out something good. Ch.13,p.75, line 31-36 spells out such difficulties. (Aviel VERBRUGGEN, University of Antwerp)	Taken into account. Phrase deleted.
13-207	B	74	44	74	47	This paragraph does not seem to fit in well, since in the rest of section 13.3.4 only the criteria are discussed and not how the UNFCCC "scores" on these criteria. A general remark on this section: there is almost no discussion on how existing international agreements score on the various criteria. (Government of Netherlands/Ministry for the Environment)	Deleted reference to UNFCCC
13-495	A	75	2	75	32	Timing issues are important, and linked to that stability and market confidence. As per comments above on investing under uncertainty (ch?, above), depending on sector business is looking for visibility on commercially relevant policy decisions over a 10-15 year timeframe, if not longer, in particular if making decisions today over infrastructure or plant. Related, and reinforcing the point made in line 29-33, a briefing to policymakers, by the Tyndall Centre research collaboration states: "To have the requisite impact in 2050 [on emissions], it is necessary to start directing investment towards low carbon technologies in the immediate and short term from	Noted

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						now to 2010, and to persist with such low carbon investments thereafter." Reference: Executive Summary from Kohler, J. et. al., 2005. New Lessons for Technology Policy and Climate Change, Investment for Innovation: a briefing document for policymakers, Tyndall Briefing Note No. 13, Tyndall Centre for Climate Change Research, UK. Available from, URL: www.tyndall.ac.uk. (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	
13-208	B	75	7	75	32	how are "cost-effective" and "efficient" used in this section? (Bert Metz, IPCC)	To be addressed
13-496	A	75	8	75	14	An other approach of the initial allocation of emission rights is to divide the intrinsic capacity of the earth to absorb GhGs among all world inhabitants, starting in a reference year, say 1990 (sharing the atmosphere as global common). The entitle level for CO2 would be about 2 ton of CO2. Payment should take place above this level. (Gert de Gans, Kerkinactie / ICCO)	Noted in Table 13.2
13-497	A	75	14	75	14	Some have expressed the view that the allocation should follow a "no-harm rule" for developing countries (Edmonds et al. 1995); and that given uncertain mitigation costs this could only be achieved with non-binding targets (Philibert 2000). See also the discussion in Philibert and Pershing 2002. Edmonds, J., M. Wise and D.W. Barns, 1995, Carbon coalitions, Energy Policy vol.23 n 4/5, April/May (Cédric PHILIBERT, International Energy Agency)	Noted in Table 13.2
13-498	A	75	19	75	46	There is also an analysis that recent developments of international agreements and institutions on climate change both under the Kyoto Protocol on the one hand and under voluntary-based ones (including agreements not directly addressing climate change but addressing related issues such as facilitation of renewable energy use (such as REEEP, IPHE, M2M and AP6) on the other hand has positive impacts on achiving the ultimate goal of UNFCCC taking into account the long-term nature and the big challenge of climate change. It argues that by creating a web of institutions tackling with climate change (and related) issue and by nesting institutions, climate change institutions are becoming more effective. In this way, it argues, shortfall of one institution does not lead to a collapse of the whole system, but it is rather leading to institutional strength as a whole, as study of institutions and study of complexity have shown us. Still the Kyoto Protocol is important as the core of (network of) institutions, it argues, as climate change needs to change the structure of the society in a rather short period of time and it requires clear target. The article can be found at : Kanie, Norichika (2006) "International Institutions Beyond Kyoto: Towards De-centralized Climate Change Governance" International	Taken into account.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Affairs No.552 (pp.47-59) and Kanie, Norichika "Analyzing International Non-Hegemonic Cooperation on Climate Change" in Stiles, Kendal ed. The Dispensable Hegemon: Explaining contemporary international leadership and cooperation (forthcoming). (Norichika Kanie, Tokyo Institute of Technology)	
13-209	B	75	26	75	26	Replace "there" by "their" (Government of Netherlands/Ministry for the Environment)	Accepted
13-499	A	75	35	0	0	"This may require many …". (Government of Norwegian Pollution Control Authority)	Accepted
13-210	B	75	35	75	35	Delete "may" when it is used for the second time in the sentence (Government of Netherlands/Ministry for the Environment)	See 499-A
13-211	B	75	37	75	37	Add "of" between "effectivness" and "technology" (Government of Netherlands/Ministry for the Environment)	Accepted
13-502	A	76	0	0	0	Section 13.4 What is the added value of a separate section on subnational policies? Why should climate initiatives in California be discussed in another section than those in e.g. New Zealand? -> merge with 13.2 (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Rejected. This section addresses policies implemented at the sub-national level, which has different considerations from national policies.
13-212	B	76	1	76	6	The issue of fairness principles is given very superficial treatment here, while in TAR it was in one of the key messages ("don't focus on what equity/ fairness principle is the right one but look for approaches that combine different principles"). May deserve a better trreatment for instance by evaluating how the different proposals score on euity principles. (Bert Metz, IPCC)	Intended to be conveyed by Table 13.6
13-500	A	76	9	76	9	please insert, after "…rights." the following sentence: "That this is feasible in general is shown by van Steenberghe 2004, who presents in a growth model a way to compute permits allocations that combine participation stability and classical equity requirements. (Government of Belgium (Tulkens))	Rejected
13-213	B	76	22	76	29	It is stated here that the literature has no comprehensive critique of the various proposals in terms of their instititional feasibility. But that is exactly what an assessment is supposed to do. Try and give that critique here in order to serve the policy community. A more systematic effort is needed. (Bert Metz, IPCC)	See Table 13.6
13-501	A	76	25	0	0	In 13.4.1.1 and 4 sub-national or local efforts like Jal-panchayat (Water local self-government) and such like efforts may bring in grass root involvement and problem solving efforts to the fore.	Taken into account.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Government of India)	
13-214	B	77	1	77	1	Replace "that" by "why" (Government of Netherlands/Ministry for the Environment)	Accepted.
13-215	B	77	21	77	21	Delete "trading" when it is used for the first time in the sentence (Government of Netherlands/Ministry for the Environment)	Accepted.
13-503	A	77	29	0	0	"special issues' - vague (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Taken into account.
13-504	A	77	35	79	0	There is a curious absence of corporate climate change information in countries like China or India. It seems like at least a paragraph or two should be devoted to the role of the private sector in addressing climate change in large developing countries particularly China (Jacob Park, Green Mountain College)	Noted.
13-505	A	77	36	0	0	"particular issues' - vague (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Taken into account.
13-216	B	78	8	78	21	The first sentence appears to be gratuitous and misleading, as the national governments of Australia and the United States are also quite active on greenhouse policy. The sentence should be deleted. U.S. Government (Government of U.S. Department of State)	Rejected. This is just a statement of fact.
13-217	B	78	8	78	21	California and 10 other U.S. states have also adopted or committed to GHG emissions regulations for automobiles, though the auto industry is suing to block the regulations. U.S. Government (Government of U.S. Department of State)	Taken into account.
13-506	A	78	35	81	2	This is too narrow a review of the initiatives and literature. See for example a worthwhile initiative that is not covered here is the Carbon Disclosure Project(CDP), that is supported by institutional investors wich control about 25% of the global stock markets by value (over 20 trillion USD!) The fourth CDP report is launched on 18 September 2006 in New York with Al Gore speaking in support. Previous speakers have included Madeleine Albright.See website www.cdproject.net Also useful is a report by Insight on such initiatives published in September 2006 " CLIMATE CHANGE DISCLOSURE STANDARDS AND INITIATIVES: HAVE THEY ADDED VALUE FOR INVESTORS? Also see The Climate Group, a coalition of corporates, cities, and non-sovereign states.The book "The Finance of Climate Change" ed K Tang, publ Risk Books, 2005 is a useful source. (Andrew Dlugolecki, University of East Anglia)	Accepted.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-507	A	78	35	0	0	Section 13.4.1.2. Merge with 13.2.1. VA (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Rejected. This section address voluntary actions unilaterally taken by companies rather than agreements with governments.
13-508	A	78	35	0	0	"Corporate actions" Section addresses NGOs as well (box 13.11) (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Accepted.
13-509	A	78	35	81	4	Section 13.4.1.2: Several industrial sectors have voluntarily reduced their GHG emissions significantly. It concerns emissions of non-CO2 GHGs by the adipic acid industry (N2O), and the semi-conductor and aluminium industries (F-gases). These voluntary industry-wide research-, demonstration- and implementation programmes have shown to be quite successful. The statement in TS-104, line 43-45 is hence incorrect. (Government of European Community / European Commission)	Noted.
13-218	B	79	0	0	0	Box 13.11: the example of the Carbon Trust does not seem very appropriate as a private partnership, since it is set up by the UK government (Government of Netherlands/Ministry for the Environment)	Rejected. While the Carbon Trust was funded by the UK government, it operates as an independent organization.
13-510	A	79	4	79	15	This is an accurate paragraph, and my own documentation on the corporate sector backs up the initial sentences, including the role that corporate CSR can play in smoothing policy outcomes; and the strategy that the international corporate lobby has adopted at key points in the international policy process (see reference below). However a key element of corporate activity is internal assessment of climate-related risk, and opportunity. Visible examples of this are the Carbon Disclosure Project (see comment ch13, line 3 above), and reports such as that of major investor Allianz, in conjunction with WWF, and other sectors publishing on climate and climate-policy related risks for business.[References for the latter include: Abn Amro Research, 2003. "Climate Change and Analysis", analysts report by M Brown; AllianzGroup and WWF ,2005. "Climate Change and the Financial Sector: An Agenda for Action" Commissioned piece written by Dr Andrew Dlugolecki and Dr Sascha Lafeld; Association of British Insurers, 2005. "Financial Risks of Climate Change", [online] report commissioned from Climate Risk Management and Metroeconomica. Available from http://www.abi.org.uk/climatechange. Earlier reference is: Hamilton, K. et.al., 2003. Module 2: Corporate engagement in US, Canada, the EU and Japan and the influence on domestic and international policy. In Grubb, M et. al. The Kyoto-Marrakech System: A Strategic Assessment'. (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	Noted.
13-219	B	80	0	0	0	box 13.11: under Chicago Climate Exchange: "these members ….voluntary, legally binding …." does not make sense	Accepted.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						(Bert Metz, IPCC)	
13-511	A	81	3	0	0	Section 13.4.1.3 In section on VA (13.2.1) (Heleen Groenenberg, Energy Research Centre of the Netherlands)	Rejected. See 13-507A.
13-220	B	81	3	0	0	why a separate section on voluntatry standard setting? Merge with 13.4.1.2 (Bert Metz, IPCC)	Accepted.
13-512	A	81	11	81	11	Insert: "Industry groups, such as the International Aluminum Institute (http://www.world-aluminium.org/environment/climate/ghg_protocol.pdf), the International Council of Forest and Paper Associations, and the WBCSD Cement Sustainability Initiative, have partnered with the GHG Protocol Initiative to develop complementary industry-specific calculation tools (http://www.ghgprotocol.org/templates/GHG5/layout.asp?type=p&MenuId=OTAx) ." (Kenneth Martchek, Alcoa)	Rejected. The WBCSD/WRI ghg protocol is mentioned more generally in the section.
13-221	B	82	0	0	0	footnote 91: looks like a regular reference (not clear if it is admissable) (Bert Metz, IPCC)	Accepted.
13-513	A	82	16	82	19	This is a very subjective statement that must not come from IPCC - the last sentence must be deleted as it is complete speculation. (Nick Campbell, ARKEMA SA)	Taken into account. The statement has been edited.
13-514	A	82	22	82	23	See Dlugolecki,pp 396-399 Commentary on two articles by Allen on why legal axctiohn is not a good idea, nor practical, in K Tang ed 2005 The Finance of Climate Change, publ Risk Books (Andrew Dlugolecki, University of East Anglia)	Taken into account. Allen article added to references.
13-515	A	82	25	82	35	It is not clear why countries are categorised into KP developed countries, KP developing countries and non-KP Parties. I don't see this grouping relevant to the text at all. (Koji Kadono, Global Industrial and Social Progress Research Institute(GISPRI))	Rejected. In general, there may be different factors involved in these different groupings.
13-224	B	83	0	0	0	footnote 100 and 101: look like a regular reference (Bert Metz, IPCC)	Find Reference
13-516	A	83	5	83	29	Information with regard to the Partnerships projects ("Type II agreements") should be updated in a way to incorporate more specific information on climate change. Particularly eyes should be opened to CSD14 (2006) and CSD15 (2007) as these sessions are reviewing energy and climate change (in addition, the recently appointed executive secretariat of the UNFCCC is also a vice chair of the current CSD!). For example, CSD14 identified that 25% among 319 Partnership Projects is climate change related (as of 24 February 2006, E/CN.17/2006/6), which should be	Taken into account. Will review reference.

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						a valuable information for AR4. (Norichika Kanie, Tokyo Institute of Technology)	
13-222	B	83	18	83	19	Remove sentence. Comment is subjective. U.S. Government (Government of U.S. Department of State)	Taken into account. See 13-513.
13-223	B	83	31	0	0	This section suddenly has a different tone. It is written from a "we"perspective. Would prefer a more neutral way in which questions for further research are presented (Government of Netherlands/Ministry for the Environment)	
13-517	A	83	33	84	40	This section appears to have been written completely independent from the rest of Chapter 13. It is written in a different style, in particular asking a number of questions (2nd paragraph, page 83, line 39) which are not in keeping with an IPCC report. Line 2 on Page 84 is a strong recommendation which is far from the remit of IPCC work and must be deleted. The subsequent two paragraphs provide speculative ideas in attempting to answer the questions posed at the start and are not supported by literature. They should be deleted. The only supportable statements are in the final two paragraphs. I would suggest deletion of the whole section 13.5 unless strong supporting literature can be provided. (Nick Campbell, ARKEMA SA)	Rejected
13-518	A	83	39	83	47	These questions and the whole section were extremely valuable and should be given greater prominence. The general messages coming out of the AR4 are that: tackling climate change through emissions reduction has become more urgent not less; technology, vigorously developed and deployed can make a huge step in reducing emissions to levels consistent with ~3 deg C rise; however the mising link is the absence of sufficiently vigorous coherent, long term policies and measures. Finding out why these policies (even the so-called hedging strategies) have not come to the fore is one of the central questions that needs to be asked. Is it, as suggested, that climate change is all too hard; we will never de-couple growth from fossil fuel and energy dependency in time; and therefore the prospects for mitigation policies look gloomy? Or is it that not enough decision makers realise the scale of the impacts if we don't get to grips with mitigation - or that the worst impacts will be in parts of the world a long way away from where decision makers live? This section is well worth signalling as a candidate for further research. (Government of UK)	noted
13-519	A	83	40	83	40	the "(7 percent)" can be misunderstood as the % of the 'gone up'; better is to place 25 ppm in the context of pre-industrial ppm and ppm in 2005. (Aviel VERBRUGGEN, University of Antwerp)	Tia

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
13-225	B	84	17	0	0	explain RGGI (Bert Metz, IPCC)	Accepted
13-520	A	84	36	40	0	Insert: Future research should explore the positioning of countries around long-term climate policies, such as developed in prototype form found in Ott et al. (2004). Ott, Konrad, Gernot Klepper, Stephan Lingner, Achim Schäfer, Jürgen Scheffran, and Detlef Sprinz. 2004. Reasoning Goals of Climate Protection. Specification of Article 2 UNFCCC. Bad Neuenahr-Ahrweiler: Europäische Akademie GmbH, Bad Neuenahr-Ahrweiler on behalf of the German Federal Environmental Agency; http://www.sprinz.org (Detlef Sprinz, The University of Michigan)	Already covered in a broad sense
13-521	A	84	37	0	0	Futre research should also explore to which degree various country-level contributions to mitigating and adapting to climate change are politically feasible. (Detlef Sprinz, The University of Michigan)	Already covered in a broad sense
13-522	A	84	38	84	38	"we have": who is "we"? Not the authors, I assume. Maybe specify something like:"policy makers can handle effective policy instruments and investors can command low carbon technological options to take..." (Aviel VERBRUGGEN, University of Antwerp)	Accepted
13-226	B	84	43	0	0	AR4 reference should be IPCC, 2006a (Bert Metz, IPCC)	Accept
13-523	A	85	2	85	5	This is incredibly naïve. See "The Carbon Wars" by Jeremy Leggett, and later "Half Gone", same author. There are very powerful vested interests , tightly focussed, (oil companies, coal companies and OPEC) and history shows that if benefits are diffused, but costs are concentrated, then there is high probability that status quo (or worse) will prevail.This section must look at the realities of powerplay and negotiations if it is to be credible. (Andrew Dlugolecki, University of East Anglia)	Noted, point covered
13-227	B	85	2	85	17	The primary reason for lack of effective policy regimes dealing with climate change and reduced emissions at meaningful scale is cost. There should be a strong and forthright acknowledgement that the cost of strategies that would be sufficiently effective to stabilize concentrations of greenhouse gases, given present circumstances, will far exceed the political capacities of national governments to effect and sustain them. The “implications for policy” should be a call for better, more affordable means and remedies, thereby enabling broadened consensus for incentivizing policies and measures. U.S. Government (Government of U.S. Department of State)	Taken into account
13-524	A	85	20	85	28	This is too tentative. This IS the reason for no or slow progress- the special	Noted, included

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						interests,(Opec and energy comopanies, which are massively risc), compounded with the general uncertainty on climate change, which the special interests exploit so well. (Andrew Dlugolecki, University of East Anglia)	
13-525	A	85	23	85	24	Its not so much a question of making losers into winners (particularly if they are mainly vocal 'status quo' sectors) but also the importance of firm decision-making by government that creates new winners. A well-managed large company should have its risk management or 'hedging' strategy planned for different likely policy responses and therefore should not be losers by surprise (reference the types of questions now being asked by the institutional investors that are some of the the major shareholders in these companies). (Kirsty Hamilton, Chatham House; UK Business Council for Sustainable Energy)	Accepted
13-228	B	85	26	85	28	Change last sentence to read: “Better estimates of the risks, costs, and benefits of climate change policies”. U.S. Government (Government of U.S. Department of State)	Accepted
13-526	A	85	38	85	40	Last sentence should more clearly state the key point made in the first half of the sentence, that "we have the technology and the policy tools [NOW] to take a significant first step in addressing climate change. The second part of the sentence "understanding how to accelerate their adoption may be the most important research topic for the immediate future" should be combined with the first sentence, talking about future research needs. Or perhaps this should be the last sentence, and the statement about having the technologies and policies available now should be the first sentence of the last paragraph. (Joanna Lewis, Pew Center on Global Climate Change)	Accepted
13-527	A	85	43	0	0	* Add to the reference list: Rive, Nathan, Asbjørn Torvanger and Jan S. Fuglestvedt (2006), Climate agreements based on responsibility for global warming: Periodic updating, policy choices, and regional costs, Global Environmental Change, Vol. 16, pp. 182-194. (Government of Norwegian Pollution Control Authority)	Accepted
13-528	A	85	43	0	0	* Add to reference list: Kolshus, Hans H. and Asbjørn Torvanger (2005), Analysis of EU member states’ national allocation plans, Working Paper, No. 2, CICERO, Oslo. (Government of Norwegian Pollution Control Authority)	TIA
13-529	A	86	20	86	20	Please write "Emissions Trading for Climate Policy" (Cédric PHILIBERT, International Energy Agency)	TIA
13-530	A	89	5	89	7	Publisher is not Pew Climate Center, but rather The Pew Center for Global Climate	TIA

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Change. Not in Washington DC but Arlington VA if you want to list location. Published December 2003. Correct link directly to article is http://www.pewclimate.org/global-warming-in-depth/all_reports/beyond_kyoto/index.cfm (Joanna Lewis, Pew Center on Global Climate Change)	
13-531	A	89	38	89	38	Date should be 2002 and not 2004 (Government of Belgium (Tulkens))	TIA
13-532	A	89	39	89	39	(i) after Good, please insert: " . Princeton Univerity and Resources for the Future, mimeo, (ii) Bradnee Chambers et al is another reference, that should be on the next line. (Government of Belgium (Tulkens))	TIA
13-533	A	90	49	90	49	Enter new reference (introduced in 1; above): Chander, P., H. Tulkens, J.P. van Ypersele and S. Willems, 2002: The Kyoto Protocol: An Economic and Game Theoretic interpretation. Pp. 98-117 in Economic Theory for the Environment, Edward Elgar, Cheltenham. (Government of Belgium (Tulkens))	TIA
13-534	A	99	40	99	42	A revised version of this paper has been accepted for publication. New citation: Jotzo, F. and J. C. V. Pezzey (2006). "Optimal intensity targets for greenhouse emissions trading under uncertainty". Economics and Environment Network working paper EEN0605, Australian National University, Canberra; forthcoming in Environmental and Resource Economics. (Frank Jotzo, Australian National University)	TIA
13-535	A	105	11	105	13	Substitute “the most noteable achievements” with less laudatory and more neutral terminology, such as “noteworthy effects” are…”. Add “array of policies in developed countries.” U.S. Government (Government of U.S. Department of State)	TIA
13-536	A	106	4	106	4	Please write OECD and IEA Information Paper, Paris (Cédric PHILIBERT, International Energy Agency)	TIA
13-537	A	106	5	106	5	Correct reference is: Philibert, Cédric (2005b): New Commitments Options: Compatibility with Emissions Trading, OECD and IEA Information Paper, Paris (Cédric PHILIBERT, International Energy Agency)	TIA
13-538	A	108	46	108	47	completed reference is: Schleich, Joachim; Ehrhart, Karl-Martin; Hoppe, Christian; Seifert, Stefan 2006, Banning banking in EU emissions trading?, in: Energy Policy 34, 112-120. (Joachim Schleich, Fraunhofer Institute Systems and Innovation Research)	TIA
13-539	A	113	13	113	13	Enter new reference (introduced in 3. Above): Van Steenberghe, V. 2004: Core	TIA

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Considerations by the writing team
						Stable and Equitable Allocations of Greenhouse Gas Emission Permits. CORE Discussion Paper 2004/75, Université catholique de Louvain. (Government of Belgium (Tulkens))	
13-229	B	114	18	114	0	"Chi" should be "C." U.S. Government (Government of U.S. Department of State)	TIA