



INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



Special Report on Renewable Energy Sources and Climate Change Mitigation

Government and Expert Review of the Second Order Draft
Jun 21, 2010 – Aug 16, 2010

Chapter 1

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¹ see <<<http://ipcc.ch/pdf/ipcc-principles/ipcc-principles-appendix-a.pdf>>>, Section 4.1 and clarification in decision 8 on procedures taken at the 33rd Session of the Panel <<http://www.ipcc.ch/meetings/session33/ipcc_p33_decisions_taken_procedures.pdf>>

**Government and Expert Review of Second-Order Draft
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Special Report on Renewable Energy Sources and Climate Change Mitigation, Second Order Draft

Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Norway (Climate and Pollution Agency)	1	0	-	-	-	-	-	-	Chapter 1 could discuss more about the need for a long-term and predictable framework.	Useful suggestion will be addressed
Dr. Md. Sirajul Islam (North South University)	1	0	-	-	-	-	-	-	Domestic animal (A potentially Renewable energy source) once played important role in transport, agriculture; still now or even in coming centuries, they will play important role for a large % of global population. No discussion.	This was deleted from FOD due to comments
United States (U.S. Department of State)	1	0	-	-	-	-	-	-	Double parentheses around many of the sources quoted in this chapter should be removed.	Accepted
United States (U.S. Department of State)	1	0	-	-	-	-	-	-	Figures 1.5 and 1.6 (and TS 1.2 in the summary) do not provide significant insight into the main issues and could be eliminated.	Figures will be better integrated and redrawn
Dr. Md. Sirajul Islam (North South University)	1	0	-	-	-	-	-	-	Geothermal energy whether a perpetually renewable resource is a matter of doubt. Sometimes a heat source is trapped underground and may not be connected to the hot mantle, but as a discrete heat source.	Agreed. We will make this distinction clearer
Norway (Climate and Pollution Agency)	1	0	-	-	-	-	-	-	In general a very clear and useful chapter.	Thank you
Norway (Climate and Pollution Agency)	1	0	-	-	-	-	-	-	Lack of text on the importance of long term and predictable framework conditions.	Useful suggestion will be addressed
United States (U.S. Department of State)	1	0	-	-	-	-	-	-	Overall, this section feels like it needs to be either expanded to do a good job addressing issues such as efficiency, social issues, and barriers--or restricted to only cover RE contributions to mitigation of climate change. As it stands it addresses many issues with brief qualitative treatment, which is unsatisfying. It would be a more effective section if treatment of this issue was left to the chapters that explore them more completely.	Will address in revisions
Norway (Climate and Pollution Agency)	1	0	-	-	-	-	-	-	The chapter can be shortened and simplified. The amount of information about quantities could be reduced and in bigger degree moved from the text to tables and figures. More of the information should be given form and structure so they are easier to compare.	Consolidation will occur in revision
United States (U.S. Department of State)	1	0	-	-	-	-	-	-	The key component of this chapter--i.e. a big picture estimate of RE's possible contribution to mitigation--is missing. Estimates in table 1.3 could be coupled to CO2 reductions and then compared to baseline estimates. Better, CO2 reductions in scenarios shown in figure SPM-5 could be attributed and the amount for which RE is responsible estimated.	New figures and revised tables will be in final draft
Norway (Climate and Pollution Agency)	1	0	-	-	-	-	-	-	There is a lot of mixing of "Energy" and "RE" which should be clarified.	will address
Norway (Climate and Pollution Agency)	1	0	-	-	-	-	-	-	There is a lot of repeating of information in the different underchapters, much of it unnecessary, especially in chapter 1.3.; 1.3.3. 1.3.4. and 1.3.5. + parts of 1.3.6. could be put together so the existing 12 pages in 1.3. could be reduced to 6-8. Similar restructuring of the other underchapters with less repetition could make chapter 1 shorter.	Will reduce redundancy

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Norway (Climate and Pollution Agency)	1	0	-	-	-	1.3.4	-	-	The section 1.3.4. "Current status of RE as function of development" could be a part of 1.3.3 "Current status of RE", eg as 1.3.3.4 and adapted	being revised
Norway (Climate and Pollution Agency)	1	0	-	-	-	1.3.4.1	-	-	The section 1.3.4.1 "Energy consumption and access to electricity" is not dealing specially with RE and could be used as an introduction, showing the importance of access to energy, including electricity for development. The existing text is not consistent with the title "Current status...." and should be adapted.	being revised
Brazil (Ministry of Science and Technology)	1	2	11	2	11	-	-	-	as been the first time it appears, MDGs, it should be written Millenium Development Goals - MDGs	will quote directly
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	4	1	4	6	-	-	-	"...climate change ...is acclerating and that global warming ζ. may be significantly greater and the consequences more severe than previously realized." -- I have three comments regarding this opening statement: (1) "more than previously realized": Realized by whom? Is this really a conclusion that can be drawn from AR4? Is it important? I would suggest to rather focus this opening statement on the fact that many projected and expected changes are larger than what we have seen so far vs. what has been realized by someone. In any case, the authors need to be more specific with their reference to AR4, as I doubt this statement as it stands now (or at least the physical science part of it) has a foundation in, e.g., the AR4 WGI report; (2) If indeed this refers to one or more particular statements in AR4, I suggest to use the exact AR4 formulations, rather than to provide a reinterpretation of those; (3) replace significantly with, e.g., substantially if significantly here does not carry a statistical meaning	REVISING
Patrick Matschoss (TSU)	1	4	28	-	-	-	-	-	"...wich is both inefficient and ecologically unsustainable..." not in underlying chapter	WILL CLAIRIFY
Patrick Matschoss (TSU)	1	4	10	-	-	-	-	-	"ζchanging consumption patternsζ" not in underlying chapter	The report is about RE. This is just part of a list of possible actions
Patrick Matschoss (TSU)	1	4	32	-	-	-	-	-	"ζfrom a low base" not in underlying chapter	Will clarify with information from chapter 10
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	4	6	-	-	-	-	-	"to hold temperature rises to..." -- replace by "to limit the increase in global mean temperature" or even more specific to "to limit the increase in global mean surface air temperature to"	Accepted
Atul Raturi (The University of the South Pacific)	1	4	33	-	-	-	-	-	...indicateζ. (delete 's')	Accepted
Patrick Matschoss (TSU)	1	4	22	-	-	-	-	-	ζenergy are requiredζ	Accepted
Patrick Matschoss (TSU)	1	4	27	-	-	-	-	-	18% refers to global electricity, not all energies; both numbers should be given	Accepted

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Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	4	38	-	-	-	-	-	analysis --> assessment	Accepted
United States (U.S. Department of State)	1	4	7	-	-	-	-	-	AR4 GHG emissions goal now appears obsolete. Report should mention work since AR4, which suggests that more drastic reductions are needed.	Will update
Patrick Matschoss (TSU)	1	4	33	4	41	-	-	-	delete, belongs to ch10	WILL RESTATE
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	4	10	-	-	-	-	-	enable --> enables	Accepted
United States (U.S. Department of State)	1	4	27	4	27	-	-	-	Executive summary should contain a figure summarising all present RE contributions to world energy (e.g., using the data from table 1.6).	Figures not permitted in Executive Summary
Steve Sawyer (Global Wind Energy Council)	1	4	35	4	38	-	-	-	I don't think this is an accurate snapshot of the scenario discussion in Chapter 10. The majority of category I and II scenarios (fig. 10.2.2) call for much more than 130 EJ of RE by 2030; I know that's the number for the IEA 450 scenario...but we also know that 450 ppm has a very low chance of keeping warming to <2°C (See AR4 SYR SPM table SPM 6) . Also, it says here 64 EJ in 2007, whereas Figure 10.2.2 says 60.8; the difference is not significant but it should be consistent.	THIS IS BEING REVISED
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	4	33	-	-	-	-	-	indicates --> indicate	Accepted
United States (U.S. Department of State)	1	4	34	-	-	-	-	-	Insert "and other low carbon technologies" after "RE".	Accepted
Norway (Climate and Pollution Agency)	1	4	35	4	35	-	-	-	It could be mentioned that the 450 ppm target probably is incompatible with the 2 degree target	Noted.
Japan (the Japanese Ministry of Foreign Affairs)	1	4	33	4	38	-	-	-	It is misleading to refer only to the 450ppm scenario. The deployment rate may differ according to the different stabilization scenario, so this part should refer to these differences. Also, there should be more description of whether these scenarios are economically feasible. The reference to the cost in the SPM is too simple.	Noted.
Japan (the Japanese Ministry of Foreign Affairs)	1	4	7	4	8	-	-	-	It is not appropriate to cite only one scenario category. 2 degrees Celsius has not been a "goal" but the one of the indicative figure provided in one of the IPCC scenarios.	Will have new discussion of scenarios
Japan (the Japanese Ministry of Foreign Affairs)	1	4	5	4	7	-	-	-	It is not appropriate to refer to political views, especially when it is only of some governments.	Will consider how to convey range of proposals
Canada (Environment Canada)	1	4	45	-	46	-	-	-	List of examples of energy services at end of sentence is not necessary and could be all or partially deleted to shorten text.	Need to clarify what energy services are according to other comments

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Patrick Matschoss (TSU)	1	4	18	4	46	-	-	-	not in underlying chapter	Will add
Patrick Matschoss (TSU)	1	4	43	4	20	-	-	-	not in underlying chapter	WILL CLAIRIFY
United Kingdom (Department of Energy and Climate Change)	1	4	1	1	4	-	-	-	Not sure this is a accurate summary of AR4 and the phrase "global warming" is odd in this context	REVISING
Patrick Matschoss (TSU)	1	4	29	4	30	-	-	-	on %-numbers: either 9.5 and 2.3% or 10 and 2%	Accepted
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	4	30	4	31	-	-	-	Please skip the technical note from the ES.	Executive Summary is being completely rewritten
Emmanuel Branche (Electricité de France)	1	4	27	4	27	-	-	-	Precise if the energy value is in final or primary energy	WILL CLAIRIFY
United States (U.S. Department of State)	1	4	35	-	-	-	-	-	Report analysis should not be constrained by AR4, as in this sentence. According to IPCC chair Pachauri and others, stabilizing at 450 is too high to prevent major ice loss and sea level rise. It is important that the report convey the latest scientific thinking concerning the severity of the problem.	Will add comment
Steve Sawyer (Global Wind Energy Council)	1	4	33	4	33	-	-	-	should be 'indicate' not 'indicates'	Accepted
Steve Sawyer (Global Wind Energy Council)	1	4	7	4	7	-	-	-	Should be, 'The Fourth Assessment Report;'	Accepted
United Kingdom (Department of Energy and Climate Change)	1	4	7	4	7	-	-	-	Suggest replace "to achieve this goal" with "to be confident of achieving this goal"	Accepted
Steve Sawyer (Global Wind Energy Council)	1	4	5	4	7	-	-	-	Suggest rewording this sentence as follows: " Many governments now advocate that to avoid the most dangerous climate change it will be necessary to hold global mean temperature rise to <2°C above pre-industrial values, with more than 100 governments advocating keeping this temperature rise to <1.5°C".The countries calling for temperature rise to be limited to less than 1.5°C above the pre-industrial average are more than 100 - see http://sites.google.com/a/climateanalytics.org/test/welcome/briefing-papers	Will consider
Rory Gilsonan (Natural Resources Canada)	1	4	12	4	15	-	-	-	Suggest you define and differentiate between economic, technical and environmentally sustainable potential up front.	Good suggeswtion. Will do
Canada (Environment Canada)	1	4	20	4	24	-	-	-	Text does not make sense - please revise.	Accepted

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Nico Bauer (Potsdam Institute for Climate Impact Research)	1	4	38	-	-	-	-	-	The 472EJ taken from Chapter 10, Figure 10.2.3 is only the minimum from the whole set of scenarios. The paragraph - however - is written as if the number would be the most probable or even median scenario. This is a biased perspective. The range for 2050 in the figure goes up to about 1200EJ. The paragraph has to be revised! The relationship to energy efficiency cannot be supported derived from Figure 10.2.3. Especially the statement ""need to rise only slightly"" cannot be supported.	Will reflect revised range in Ch 10
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	4	36	4	37	-	-	-	The doubling of RE primary energy supply is shading the point that there is a significant shift from mainly traditional biomass supply today, towards modern energy carriers to be produced (epsec. Electricity).	Accepted
Germany (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)	1	4	2	-	-	-	-	-	The human activities do not only include the emissions of GHG, please start in the brackets with "the main factor:"	Accepted
Germany (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)	1	4	33	4	35	-	-	-	The information of this sentence is based on results of scenarios, so it would be better to concretize this sentence with an additional information. "Eventually" seem to be very vague, please could you add the likelihood in this statement.	Accepted
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	4	9	4	10	-	-	-	The positive synergy between RE and efficiency is a hypothesis that is highly disputable. The Chapter does not provide scientific evidence. Add peer-reviewed literature or skip the statement.	Will provide references
Muhammad Mohsin Iqbal (Global Change Impact Studies Centre (GCISC))	1	4	33	-	-	-	-	-	The word ""indicates"" may be changed to ""indicate""	Accepted
Patrick Matschoss (TSU)	1	4	15	-	-	-	-	-	theoretical potential not yet defined in main text (but suggested)	WILL CLAIRIFY
United States (U.S. Department of State)	1	4	25	-	-	-	-	-	This sentence is awkward and requires a reference. Consider rewriting.	WILL CLAIRIFY
Emmanuel Branche (Electricité de France)	1	4	40	4	40	-	-	-	What is expected with the term "preferences" ?	Will clarify
Brazil (Ministry of Science and Technology)	1	4	2	4	3	-	-	-	when saying GHGs such as carbon dioxide.... Should substitute for: GHG such as carbon dioxide, that in energy and transportation sector is mainly due to burning fossil fuels...etc... Renewable Energy and Biofuels have important contribution to reduce GHG.	Will consider
Emmanuel Branche (Electricité de France)	1	5	10	5	10	-	-	-	"especially for women and children": why this gender distinction ?	Accepted

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Atul Raturi (The University of the South Pacific)	1	5	1	-	-	-	-	-	.. To achieve the very large potential energy supply. (modify sentence)	Accepted
Rory Gilsean (Natural Resources Canada)	1	5	3	5	3	-	-	-	I would add "environmental" to the list of barriers	Accepted
Kristie Ebi (Department of Global Ecology)	1	5	10	5	10	-	-	-	Improving micro-industries is a MDG? Improving infant mortality would be an important possible benefit of RE.	Accepted
Emmanuel Branche (Electricité de France)	1	5	9	5	9	-	-	-	Replace "counties" by "countries"	Accepted
Patrick Matschoss (TSU)	1	5	1	5	5	-	-	-	rewrite, may only be inferred indirectly from underlying chapter but that part needs to be rewritten as well	Will rewrite
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	6	28	-	-	-	-	-	"emission rates" --> "emissions" (otherwise the sentence makes no sense with the "absorb them" at the end)	Accepted
Japan (the Japanese Ministry of Foreign Affairs)	1	6	3	-	-	-	-	-	"high confidence (>90%)" should be written as defined: "very likely >90%"	Will use AR4 quotation
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	6	13	-	-	-	-	-	"significant GHG" --> "important anthropogenic GHG"	Accepted
United Kingdom (Department of Energy and Climate Change)	1	6	10	6	10	-	-	-	"stabilised" at what? Current levels?	Accepted
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	6	22	-	-	-	-	-	"were assessed by IPCC" --> "were assessed by IPCC in its AR4"	Accepted
United Kingdom (Department of Energy and Climate Change)	1	6	8	6	8	-	-	-	Be more precise with language. "concentrations" of what? Where? (CO2 in the atmosphere?)	Accepted
John Twidell (AMSET Centre)	1	6	33	6	34	-	-	-	CHANGE TO : Methane concentration is now more than twice preindustrial levels, however the rate of increase has reduced substantially since about 1990.	Accepted

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Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	6	31	6	32	-	-	-	CO2 removal by natural sinks: this is a matter of timescales, and on short timescales (annual to centennial timescales) most of the excess CO2 will be removed by land biosphere and ocean. On longer timescales (millennial to multi-millennial), however, other process will become increasingly important, such as ocean-sediment interactions up to chemical weathering processes. I thus suggest to slightly adapt the sentence to make this timescale-dependence clear: "can be removed from the atmosphere by the natural sinks of the ocean and the terrestrial biosphere" --> "can be removed by the natural CO2 sinks, on annual to centennial timescales predominantly the ocean and the terrestrial biosphere" (or a similiar addition)	THIS IS MORE CORRECT BUT THIS IS SUMMARIZING THE SCIENCE
Patrick Matschoss (TSU)	1	6	7	-	-	-	-	-	fossil fuel/energy not in glossary	Accepted
United Kingdom (Department of Energy and Climate Change)	1	6	5	6	5	-	-	-	global average temperature is not "measured". It is "observed" or "calculated"	Accepted
Australia (0)	1	6	32	6	34	-	-	-	include, discuss global warming potential (GWP) of methane	Included later
United Kingdom (Department of Energy and Climate Change)	1	6	27	6	27	-	-	-	Is this correct? Ignores albedo effects, for example. And aerosol. Also, different GHGs have different impacts. Suggest rewording.	Accepted
Norway (Climate and Pollution Agency)	1	6	34	6	34	-	-	-	Lately growth in methane concentration has resumed, probably due to sources in the Arctic. (Ref: http://www.nilu.no/data/inc/leverfil.cfm?id=32425&type=6)	Accepted
United States (U.S. Department of State)	1	6	16	-	-	-	-	-	Note that land use issues and renewable energy are inter-related, especially in the case of biomass. It is important that these issues be considered when determining the best ways to deploy renewables.	Accepted
John Twidell (AMSET Centre)	1	6	32	-	-	-	-	-	now has 'Other GHGs such as nitrous oxide and industrial fluorinated gases are also rising' SHOULD BE 'The atmospheric concentration of other GHGs, e.g. nitrous oxide, methane industrial fluorinated gases, are also INCREASING. [many other similar instances of such inappropriate colloquial language. I give this as one example.]	Accepted
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	6	20	-	-	-	-	-	projected temperature range as given in IPCC AR4 Chapter 10: this range of 1.1 to 6.4 is not only the consequence of the difference in "socioeconomic scenarios", but also includes the uncertainty in climate system behavior, incl. climate sensitivity etc.	Accepted
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	6	12	-	-	-	-	-	replace reference to IPCC TAR by a reference to Meehl et al., Chapter 10, IPCC AR4 WGI	WILL CONSIDER

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Brazil (Ministry of Science and Technology)	1	6	28	6	29	-	-	-	Should change to : GHG emissions rates currently exceed the ability of natural sinks to absorb them...(they do not come only from fossil fuels....see the correct explanation from lines 12 to 17 in this same page)	Accepted
Brazil (Ministry of Science and Technology)	1	6	14	6	17	-	-	-	Should include also landfill gases	Accepted
United States (U.S. Department of State)	1	6	31	-	-	-	-	-	Some mention should be made here that it is not only atmospheric CO2 concentration that is important. For example, even if the ocean sink absorbed CO2 rapidly enough to mitigate atmospheric carbon, ocean acidity increases would have major consequences on sea life.	Accepted
Steve Sawyer (Global Wind Energy Council)	1	6	24	6	25	-	-	-	suggest, "¿advocate limiting temperature rises to no more than 2°C or even 1.5°C, as is noted by the Copenhagen Accord¿" For ref see Copenhagen Accord, article 12	Accepted
Fernando Rubiera (Instituto Nacional del Carbon (CSIC))	1	6	19	6	20	-	-	-	The phrase is inconsistent: the reference to Nakicenovic & Swart is dated in 2000, while the paragraph is referring to the AR4 (2007).	Accepted
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	6	21	-	-	-	-	-	The reference ("current levels") is in contradiction with the statment on page 4, line 8 where the reference year is 2000; all other numbers are the same. This opint must be clarified.	Current not mentioned
Japan (the Japanese Ministry of Foreign Affairs)	1	6	22	6	25	-	-	-	The word "advocates" is misleading. In facts, many governments agreed on the Copenhagen accords, but it only "recognizes" the scientific view that the increase in global temperature should be below 2 degrees Celsius and "agrees that deep cuts in global emissions are required according the science and as documented by the IPCC Fourth Assessment Report with a view to reduce global emissions so as to hold the increase in global temerature below 2 degrees Celsius." Also, there is no reference to "below preindustrial values" in the Copenhagen Accord.	Accepted
United States (U.S. Department of State)	1	6	27	-	-	-	-	-	There are some recent indications that methane levels may now be increasing.	Methane is a GHG

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Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	6	3	6	5	-	-	-	this first sentence combines statements regarding GHG emissions, their attribution to human activities, and observed temperature increase that all have their origin in the WGI report, unfortunately not entirely correct. For example, the WGI AR4 SPM did not talk about "very high confidence (>90%), but stated that "most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations". The likelihood assessment "Very likely" is not to be confused with a "very high confidence" in the correctness of the underlying science. I suggest that the authors use the exact AR4 formulations, rather than to provide a reinterpretation of those. The IPCC WGI AR4 SPM stated (1) "Global atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years (see Figure SPM.1)"; (2) "Warming of the climate system is unequivocal..."; (3) Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.	Will be more precise
Canada (Environment Canada)	1	6	29	6	32	-	-	-	This section could point out that stabilisation of GHG concentration is not the same as stabilisation of climate. If GHG concentration are stabilised, the climate will continue to warm for many centuries due to the thermal inertia of the oceans. Stabilisation of global mean temperature requires near-zero emissions of carbon dioxide. See e.g. Matthews, H. D. & Caldeira, K. Stabilizing climate requires near-zero emissions. Geophys Res Lett 35, - (2008).	WILL REVISE
Steve Sawyer (Global Wind Energy Council)	1	6	19	6	20	-	-	-	this sentence should be amended to read 'Δ between 1.1 and 6.4°C over the 1980-1999 average, depending on ζ'	Accepted
United Kingdom (Department of Energy and Climate Change)	1	6	4	6	5	-	-	-	use of "global warming" here is not consistent with language used in AR4. Suggest "it is very likely that most of the observed increase in global average temperatures since the mid-20th century is due to manmade emissions of GHGs"	Will use AR4 quotation
United Kingdom (Department of Energy and Climate Change)	1	6	16	6	16	-	-	-	Waste is also a source of emissions	Accepted
United Kingdom (Department of Energy and Climate Change)	1	6	32	6	33	-	-	-	what is increasing? Emissions, or concentrations? Or both?	Accepted

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Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	6	27	-	-	-	-	-	what is meant here with "directly affects the global temperature" -- suggest to delete "directly" (GHG-T link is through the radiation balance)	Accepted
Germany (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)	1	6	22	6	25	1.1.1	-	-	Already before the Copenhagen Accord in 2009 it was realised, that temperature rise should be limited to no more than 2°C. The reason was not only the severity of the consequences of reaching irreversible tipping points in the climate system, it was already realised that there are serious consequences of global warming (without reaching tipping points) for many natural biological and social systems.	Accepted
Germany (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)	1	6	21	6	22	1.1.1	-	-	In the brackets should also be mentioned the "ocean acidification"	Accepted
Germany (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)	1	6	19	6	20	1.1.1	-	-	Ist would be helpfull to have the accurate basis of measurement in the statement, therefore please add: "compared with 1980-1999". It would also be better to clarify that that the temperature 1.1. and 6.4°C includes the bands.	Accepted
Richard Taylor (International Hydropower Association)	1	6	5	6	6	1.1.1	-	-	Reword. Comment: Global average temperature increase between 1850-1899 and 2001-2005 unclear.	Noted.
China (China Meteorological Administration)	1	6	2	10	10	Executive Summary	-	-	These sections can be greatly shortened, may-be to less than two pages, for better focus on how RE may contribute to mitigation of global climate change instead of going into lengthy discussions on issues of climate change.	Need to summarize state of climate knowledge
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	7	-	-	-	-	1.1	-	Caption of the figure does not only tell what is visible in the figure but also much additional info that should not be in a figure caption.	WILL MENTION
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	7	-	-	-	-	1.1	-	The placement and shape of the "sinks" area in the figure does not have an apparent logic? Should this area represent the avoided emissions that may be subtracted from the presented total, or should is it already subtracted? What does its shape mean?	REVISING FIGURE
United Kingdom (Department of Energy and Climate Change)	1	7	-	7	-	-	1.1	-	This figure is very unclear. It appears to suggest that "sinks" existed only between 1980 and 2000. It is of very little relevance to the wider report, therefore it should be removed, or replaced with one of the diagrams from AR4 WG3 report	REVISING FIGURE
Emmanuel Branche (Electricité de France)	1	7	-	-	-	-	1.1	-	This figure should be redrawn, not clear	REVISING FIGURE

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	7	-	-	-	-	1.1	-	this is a confusing figure and its description does not really help to make things clearer; If the sinks are calculated as "[the] difference between gross emissions [why gross?] and increase in tonnage of CO ₂ in [the] atmosphere", why aren't the sink terms continuous over time, at least since the 1950s when the atmospheric CO ₂ Mauna Loa record started? What exactly is reflected by the green blob between 1980 and 2000?; were there no sinks active before 1980? Why are there large gaps between the observed and projected emission curves, resp. the observed sinks and the projected sinks curves/areas? Why is there a gap (i.e., white space) between the upper end of the red/blue "sink areas" and the projected emission trajectories? Please explain and, perhaps, redraw the figure.	REVISING FIGURE
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	7	-	-	-	-	1.1	-	unit of CO ₂ flux missing. I assume it must be Gt CO ₂ / year and thus suggest to change the y-axis annotation from "GtCO ₂ " --> "CO ₂ flux (Gt CO ₂ / year)" [the same needs to be done in the Figure caption]	REVISING FIGURE
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	7	13	-	-	-	-	-	"approaching equilibrium can take several centuries" --> "approaching equilibrium will take centuries to millennia"	Accepted
United Kingdom (Department of Energy and Climate Change)	1	7	17	7	18	-	-	-	"If global emissions continue at their current or higher levels until 2100 (upper band of Figure 1.1), then global average temperature is projected to increase by 4 to 4.9°C". Better to include an explanation of why this range has been chosen, under which scenarios etc.	Accepted
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	7	4	-	-	-	-	-	"in atmosphere" --> "in the atmosphere"	Accepted
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	7	3	-	-	-	-	-	"is measured difference" --> "is the measured difference"	Accepted
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	7	20	-	-	-	-	-	"lower band" --> "lower/blue band"?	Accepted
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	7	17	-	-	-	-	-	"upper band" --> "upper/red band"?	Accepted
Patrick Matschoss (TSU)	1	7	22	-	-	-	-	-	cite correctly as is requested in the report	Accepted
Patrick Matschoss (TSU)	1	7	28	8	1	-	-	-	Discount rate not in Glossary	WILL INCLUDE
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	7	12	-	-	-	-	-	give a reference for the statement "corresponding temperature ranges would be wider"	Accepted

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Japan (the Japanese Ministry of Foreign Affairs)	1	7	18	7	23	-	-	-	It is not appropriate to cite only one scenario category.	REVISED TO INCLUDE RANGE
Patrick Matschoss (TSU)	1	7	28	28	2	-	-	-	Notion that top-down is more expensive than bottom-up is incorrect in this generality, delete. Change sentence to (or delete altogether): These include e. g. debates over appropriate discount rates (section 10.4.2.2) and the usage of bottom-up and top-down approaches (section 10.2.1.1, Box 10.2)	Accepted
Cédric Philibert (International Energy Agency)	1	7	18	7	18	-	-	-	Please either insert ""assuming AR4 best estimate of the 'climate sensitivity'"" at the end of the sentence, or replace the range ""4-4.9"" with ""2.7-7.2"".	Accepted
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	7	21	-	-	-	-	-	text states that emissions should decrease below current levels, whereas technical summary states they should decrease below the level of the year 2000.	Accepted
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	7	25	8	2	-	-	-	What does this section contribute? It tells us that there are issues but does not tell us conclusions.	sets context of climate change
Patrick Matschoss (TSU)	1	7	25	7	26	-	-	-	What's the main message of this sentence? Be specific or delete. How has it influenced thinking? The usage of the framework of cost-benefit-analysis? The higher the damages and/or the lower mitigation costs are the more will be mitigated & vice versa? Or is it ethical considerations? Or has it changed the discussion on the 'right' number?	New economic analysis has altered the debate
Jorge Martínez Chamorro (Agencia Canaria de Desarrollo Sostenible y Cambio Climático)	1	8	10	8	36	-	1.2	-	It could be interesting to add the 2008 and 2009 energy use by fuel real figures in the projected marketed energy use by fuel area.	2008 IS ABVAIALBLE, BUT NOT 2009
John Twidell (AMSET Centre)	1	8	-	-	-	-	1.2	-	Why start in 1980, when the text refers to change over at least 150 years? Replot from 1850.	WILL DO IF REFERENCED DATA ARE AVAILABLE
John Twidell (AMSET Centre)	1	8	-	-	-	-	1.3	-	The name label on (a) is 'absolute growth', but the Fig caption has (a) 'absolute change'. These must be the same, and should be 'annual change of absolute values'. (b) should be 'annual rate of change of values'. Nevertheless, the graphs are almost impossible to understand, partly because the ordinate label only refers to the diamond plots of CO ₂ ; there is no scaling for the other parameters of population, per capits GDP etc. Why not just plot the absolute values themselves, normalised against their specific 1970 values. As now, the graphs are wrong and, even if labelled correctly, are difficult to understand without the exact algorithm used to obtain the values. What is the message for the reader? Stick to this.	Accepted

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Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	8	5	-	-	-	-	-	"fortms" --> "forms"	WILL LIST
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	8	6	-	-	-	-	-	"the rapid rise in fossil fuels" --> "the rapid rise in fossil fuel burning"	Accepted
Canada (Environment Canada)	1	8	4	8	5	-	-	-	¿other forms of early fortms¿ should be changed to ¿other early forms¿	Accepted
United States (U.S. Department of State)	1	8	41	8	43	-	-	-	Add "emissions" after "CO2".	Accepted
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	8	5	-	-	-	-	-	An example of an "early form of RE" would give the reader a clue on what is intended here.	Accepted
Patrick Matschoss (TSU)	1	8	36	-	-	-	-	-	cite WEO 2010, already available	Accepted
Fernando Rubiera (Instituto Nacional del Carbon (CSIC))	1	8	5	-	-	-	-	-	Delete: of early fortms	Accepted
Patrick Matschoss (TSU)	1	8	3	-	-	-	-	-	Factors driving emissions (instead of 'increasing')	Accepted
John Twidell (AMSET Centre)	1	8	38	-	-	-	-	-	now 'decomposes energy related CO2 emissions into four factors' SHOULD BE 'analyses energy related CO2 emissions as functions of four factors:' [the CO2 emissions themselves are not divided, it is the causes that are divided.	Accepted
John Twidell (AMSET Centre)	1	8	4	-	-	-	-	-	Now has 'Bioenergy (except for basic cooking, lighting and heating in developing countries) and other forms of early fortms of RE (except hydropower) were largely replaced by abundant coal, petroleum and natural gas during the 20th century' CHANGE TO 'Since about 1850, global use of fossil fuels (coal, oil and gas) has increased year-on-year to dominate energy supply, both replacing many traditional uses of bioenergy and providing new services. [It is the increase in per capita energy use and the new functions that are significant, not replacement of bioenergy as such],	Noted.
Steve Sawyer (Global Wind Energy Council)	1	8	4	8	5	-	-	-	Other forms of RE? - provide examples	Accepted
Emmanuel Branche (Electricité de France)	1	8	5	8	5	-	-	-	Replace "fortms" by "forms"	Accepted

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Brazil (Ministry of Science and Technology)	1	8	3	8	3	-	-	-	Should say that Factors increasing CO2 emissions in energy sector or include in this section a paragraph with considerations about the changes due to deforestation, land use change for agriculture and also landfill gases.	Accepted
John Twidell (AMSET Centre)	1	8	43	-	-	-	-	-	This is not an equation with = signs, since the units of terms are different. Write as 'CO2 is a function of (Population x Affluence x Energy intensity x Carbon intensity)'. [The Report must be serious and exact in its use of mathematics and science]	THE UNITS ARE CONSISTENT ON BOTH SIDES OF THE EQUATION
John Twidell (AMSET Centre)	1	9	-	-	-	-	1.3	-	The labels on the ordinate should be 'Gt/y' and '%/y'. The 'per year' is essential to understand the graphs.	WILL CLARIFY
John Twidell (AMSET Centre)	1	9	-	-	-	-	1.4	-	If included, this Figure should be plotted from about 1850, not from just 1970 when the industrialised world's emissions had maximised. It is important to appreciate the political interpretations that will be made. The Report should not hide the industrialised world's legacy of fossil fuel use.	These are only data from IEA
John Twidell (AMSET Centre)	1	9	19	-	-	-	-	-	now is '..and China surpassed the U.S. on annual emissions.' WHEN?	will give date
ICHIRO MAEDA (The Federation of Electric Power Companies of Japan)	1	9	3	9	27	-	-	-	Refer the comment on SPM [page3, Line1-page4, Line3]	Noted.
United States (U.S. Department of State)	1	9	20	-	-	-	-	-	The point should also be made that a significant portion of carbon emissions in developing nations results from the manufacture of products that are consumed in developed nations. In this regard, developing nations have essentially outsourced some of their carbon emissions to developing nations.	Accepted
John Twidell (AMSET Centre)	1	9	50	-	-	-	-	-	you say 'Developed countries still have the highest total historical emissions and largest emissions per capita'. These are statements of great ethical and political significance and should be supported by Figures. Having only Fig 1.4 points the 'finger of blame' at developing countries which is grossly unfair.	WILL PROVIDE REFERNCED DATA. NO INTENTION OF PIONTING FINGER OF BLAME

Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
ICHIRO MAEDA (The Federation of Electric Power Companies of Japan)	1	10	11	11	2	-	-	-	<p><comment></p> <p>As a footnote, "aerothermal(ambient air),geothermal(ground source) and hydrothermal(water) enegy captured by heat pumps are also renewable energy though they are not analyzed in detail except geothermal heat pumps in this SREEN " should be mentioned.</p> <p><reason></p> <p>Many countries (UK, Germany and Japan etc.)and regions(EU) have recently defined ambient air etc captured by heat pumps as renewable energy. Besides, the Energy Perspective 2010(ETP2010) published by IEA last month mentioned ambient air etc as renewable energy. In addition, on page 132 of TS, you mentioned the UK and Germany RES-H scheme as a bonus mechanism, but the renewable heat incentive(the UK) and Renewable heat Law(Germany) have categorized ambient air captured by heat pumps as eligible renewable energy.</p> <p><reference></p> <p>-Energy Technology Perspective 2010(IEA, 2010.7); please see the attached file(extracted)</p> <p>-EU : Directive on the promotion of the use of energy from renewable sources</p> <p>http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:01:EN:HTML</p> <p>-Germany : Renewable heat Law</p> <p>http://www.bmu.de/files/pdfs/allgemein/application/pdf/ee_waermeg_en.pdf</p> <p>Germany: Renewable Energy 2009 (BMU)</p> <p>http://www.erneuerbare-energien.de/files/pdfs/allgemein/application/pdf/ee_innovationen_energiezukunft_en_bf.pdf</p> <p>*heat pump as categorized as one of the form of solar radiation</p> <p>-UK:Renewalbe Heat Incentive</p> <p>http://www.rhincentive.co.uk/eligible/energies/</p> <p>-Japan: Sophisticated Methods of Energy Supply Structures Bill on the Promotion of the Use of Nonfossil Energy Sources and Effective Use of Fossil Energy Source Materials by Energy Suppliers</p> <p>http://www.meti.go.jp/english/press/data/20090310_01.html?but only abstract?</p>	Much if this is covered in the appropriate technological chapters. Will check that it is addressed. Thank you for the references.

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Huiyong Zhuang (National Bio Energy Co., Ltd.)	1	10	11	-	-	-	-	-	Both 1.1.3 and 1.1.6 address the role of renewable energy in climate mitigation, so these two parts can be combined into one part.	revision will do that
Fernando Rubiera (Instituto Nacional del Carbon (CSIC))	1	10	12	10	19	-	-	-	Definition of renewable energy is wrong. According to that definition of renewable energy, biomass should not be considered renewable, as in many occasions it is utilized at a faster rate than it can grow. The definition given corresponds to renewable and 'sustainable' energy. See also definition of renewable energy in Annex I. The phrase would be correct if the following words in line 13 are removed: 'at a rate that equals or exceeds its rate of use'"	Will revise
Jorge Bonnet Fernández-Trujillo (Agencia Canaria de Desarrollo Sostenible y Cambio Climático)	1	10	11	10	19	-	-	-	If Renewable energy is any form of energy from geophysical or biological sources we are not taking into account in the definition the direct solar energy due to it is not biological nor from the Earth (geophysical). Suggestion: Renewable energy (RE) is any form of energy that is replenished (remove "from geophysical or biological sources")	will revise to include solar explicitly
United States (U.S. Department of State)	1	10	12	10	13	-	-	-	It should be explained that biomass can be used in both renewable and non-renewable ways. The same can be said of geothermal.	EXPLAINED ELSEWHERE
Patrick Matschoss (TSU)	1	10	5	10	10	-	-	-	needs to be developed better or delete; either introduce/explain concept of energy services here or (better) make the point in line with Kaya using the terms energy intensity and carbon intensity	WILL CLARIFY
John Twidell (AMSET Centre)	1	10	15	10	16	-	-	-	now ' Not all energy classified as ¿renewable¿ is necessarily inexhaustible' [this sentence immediately negates the previous definition!] Better 'However, in specific circumstances, not all energy DESCRIBED as ¿renewable¿ is necessarily inexhaustible;e.g.....' 'In addition, societies wastes are, in practice, a renewable resource, e.g. for biogas, combustion for heat'.	Willr refine definition
John Twidell (AMSET Centre)	1	10	21	-	-	-	-	-	now 'Most forms of RE produce little or no CO2 emissions' BETTER¿. 'THE USE OF RE introduces no EXTRA CO2 emissions into the Atmosphere. [This sentence covers the point that the embodied fossil carbon in manufacture is not included and biomass in growth extracts the CO2from the Atmosphere that is later released at combustion]	Willr refine definition
Canada (Environment Canada)	1	10	21	-	30	-	-	-	Paragraph can be cut back by removing example and focusing directly on point about about balancing SD dimensions.	Can adjust test
Christoph von Stechow (IPCC WGIII TSU)	1	10	27	-	-	-	-	-	Please consider adding a cross-reference to section 2.5.	Will consider

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Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	10	22	10	30	-	-	-	Remove the sentence ""It is important to assess the whole life-cycle.....etc"" If this is the case then all renewable energy developments cannot address climate change as its production is quite energy intensive	Data do not suport this statement
Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	10	8	10	10	-	-	-	Remove the sentence starting with ""This report....."". This is already covered in the summary	see revision
Steve Sawyer (Global Wind Energy Council)	1	10	5	8	6	-	-	-	Replace "can help to lower CO2" with "is necessary for lowering"; replace "avoid severe climate change" with "limit severe climate change"	Accepted
Patrick Matschoss (TSU)	1	10	14	-	-	-	-	-	resource not in glossary	Will add to glossary
Patrick Matschoss (TSU)	1	10	14	-	-	-	-	-	resources not in glossary	Will add to golssary
Brazil (Ministry of Science and Technology)	1	10	5	10	6	-	-	-	Should change for: In energy sector, shifting from carbon intensive fossil fuels to alternative low carbon sources and using fossil fuels associated with carbon sequestration, can help to lower CO2	DISCUSSED ELSEWHERE
Brazil (Ministry of Science and Technology)	1	10	6	10	8	-	-	-	Should change to: It will be essential for all countries, ... energy service... using low carbon-intensive energy sources and/or fossil fuels with carbon sequestration.	CCS is discussed elsewhere
Brazil (Ministry of Science and Technology)	1	10	12	10	13	-	-	-	Should include in the RE definion, during human time....because fossil fuels are also renewable in geological time...	WILL CLARIFY DEFINITION
Patrick Matschoss (TSU)	1	10	12	25	34	-	-	-	statements need to be suported by - preferably peer-reviewed - Sources	Will rewrite and supply source
Patrick Matschoss (TSU)	1	10	21	35	14	-	-	-	statements need to be suported by - preferably peer-reviewed - Sources	Will add ref
Rory Gilsean (Natural Resources Canada)	1	10	16	10	17	-	-	-	Suggest you use add the word ζ replenished ζ to ζ grow ζ in order to include peat in the statement about biomass. Also need to have a discussion about the temporal aspect of biomass vs. peat vs. fossil sources such as coal, etc. - these replenish (or grow) over time as well.	Willr refine definition

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Jorge Bonnet Fernández-Trujillo (Agencia Canaria de Desarrollo Sostenible y Cambio Climático)	1	10	11	10	19	-	-	-	Suggestion for the definition of Renewable energy. Wind, solar, ocean, biomass, etc have in common a replenished period generally lower than 1 year (solar is one day, wind could be hours as well as ocean and the biological sources are the limiting factor with a replenish period of at least one year) and other energy sources not "renewable", as coal, need to renew some thousand years by natural processes. So the definition could be: "Renewable energy (RE) is any form of energy that is replenished by natural processes at a period of time lower than a decade."	A decade is arbitrary, and the point is addressed in the definition of rate of renewable relative to rate of utilization
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	10	12	10	19	-	-	-	The definition of RE here remains fuzzy: first (line 13) it is stated that RE is energy that is replenished at a rate equal to or higher than its rate of use, later (line 16-17) it is stated that RE use rate may be higher than replenishment-rate. These statements are mutually conflicting. A different definition is thus required. the sentence on solar is badly connected to the rest of the section.	Will clarify
United States (U.S. Department of State)	1	10	12	10	13	-	-	-	The definition of renewable energy: "Renewable energy (RE) is any form of energy from geophysical or biological sources that is replenished by natural processes at a rate that equals or exceeds its rate of use." Based on the discussion further in the paragraph, this should probably read "... geophysical or biological sources that CAN BE replenished....". This matches the distinction between renewable but depletable resources made.	WILL CLARIFY DEFINITION
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	10	32	11	1	-	-	-	The first sentence here has two messages that both could be elaborated a bit further to give the reader a hint of what is intended here.	Will rewrite
Frank Krysiak (University of Basel)	1	10	23	10	27	-	-	-	The notion of sustainability used here is much more specific than that used in Ch. 9. Furthermore, it is not operational (there is no way to assure that energy is economically affordable and compatible with social norms in the future, as future social norms and future energy demand cannot be known today). Perhaps it would be better to remain closer to the Brundtland definition, which would only imply that we do not use resources in a way that endangers future generation's abilities to have sufficient (socially acceptable) energy supply.	Will consider
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	10	21	10	30	-	-	-	The section should be restructured. First discuss the three aspects of sustainability (People-planet-profit). Then add life-cycle concept. Now it kind of comes out of thin air.	Will fix

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Rory Gilsean (Natural Resources Canada)	1	10	23	10	25	-	-	-	This definition of RE could exclude bioenergy, as its use temporarily damages the environment; it emits carbon, harvesting of forests disrupt ecosystem function, etc.. What's important is the net impact over time, and properly defining the time frame you're talking about.	Bioenergy is included by the IPCC plenary. We cannot change that
John Twidell (AMSET Centre)	1	10	12	-	-	-	-	-	Use same definition as in the Glossary, i.e. 'Renewable energy is energy obtained from natural and persistent flows of energy occurring in the immediate environment [Twidell and Weir, Renewable Energy Resources, (1986, 2nd ed 2006), Taylor & Francis, London]. Such energy is replenished by natural processes at a rate that equals or exceeds its rate of use'. [Delete 'from geophysical or biological sources'. The definition does not need this; the phrase just detracts the reader].	Will revise
Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	10	12	10	15	-	-	-	Where was the definition of RE quoted from?	It is an updated from previous IPCC reports
Patrick Matschoss (TSU)	1	11	7	-	-	-	-	-	deployed	Accepted
Patrick Matschoss (TSU)	1	11	30	-	-	-	-	-	does 85% refer to the whole world or to OECD countries? It looks like the latter as the number is more typical for industrialized countries. Pls clarify	Will add ref
Rory Gilsean (Natural Resources Canada)	1	11	32	11	33	-	-	-	I would suggest that Norway is not the best example here, given the contribution of north sea oil to their economy. Perhaps one of the other Nordic countries would be a better example?	Norway has lots of RE but will consider alternative
Patrick Matschoss (TSU)	1	11	29	-	-	-	-	-	If statement is suggested by many studies, there should be at least 3 peer-reviewed source	Will add ref
Patrick Matschoss (TSU)	1	11	12	-	-	-	-	-	Insert (here, or where deemed appropriate): At the 28th IPCC Plenary in Budapest, 9-10th April 2008, the Scoping Paper for the Special Report was accepted with modifications and the Plenary approved the development of the Special Report.	Accepted
John Twidell (AMSET Centre)	1	11	42	-	-	-	-	-	now 'is indispensable to reducing CO2 emissions', should be 'is indispensable FOR reducing CO2 emissions', or better 'is essential for reducing CO2 emissions'.	Accepted
John Twidell (AMSET Centre)	1	11	33	11	34	-	-	-	now 'Near term energy supply appears adequate to supply most energy services in most of the developed countries'. WHAT DOES THIS MEAN? WHAT ARE THE AUTHORS TRYING TO SAY? I suggest: 'Moreover, many developed countries have economic growth without corresponding growth in the energy consumption, i.e. their energy intensity is decreasing; hence they have the opportunity to introduce renewables in a structured manner'.	Useful suggestion

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Nico Bauer (Potsdam Institute for Climate Impact Research)	1	11	31	11	32	-	-	-	Please give at least one reference, if you write ""many"". There is a broad literature on carbon Kuznets curves that could be referred to.	Will consider, but Norway has lots of RE
Canada (Environment Canada)	1	11	41	11	41	-	-	-	Should read "energy supply with low carbon intensities _c "	Accepted
Jorge Martínez Chamorro (Agencia Canaria de Desarrollo Sostenible y Cambio Climático)	1	11	25	12	42	-	-	-	Since we are focused on Renewable Energy and in order to shorten the text we can remove the alternative means of reducing GHGs which are not linked with renewable energy (example: Geoengineer solutions references)	MENTION ONLY
Canada (Environment Canada)	1	11	29	11	42	-	-	-	This is a roundabout introduction for a section on options for mitigation. Suggest that these paragraphs could be deleted and section could begin with paragraph on page 12, line 1.	Revising
Patrick Matschoss (TSU)	1	11	15	11	27	-	-	-	This needs to be checked whether the SRREN covers all of these aspects, esp. all the regional analyses as well as energy security	These are original IPCC requirements
ICHIRO MAEDA (The Federation of Electric Power Companies of Japan)	1	12	10	12	11	-	-	-	<comment> Delete "both fossil fuels". <reason> Theme of this report SREEN is Renewable Energy, so that CHP should be set limit only to renewable energy sources.	Need to put RE into context
Mark Fulton (Deutsche Asset Management, Deutsche Bank)	1	12	20	12	22	-	-	-	Check that this energy savings figure does not represent double counting, as there has been evidence and criticism that certain emissions pathways double count the abatement potential of energy efficiency. For reference of this argument, see SRREN_Draft2_Review_Fulton_Mark_Material_01.pdf.	Will check
Patrick Matschoss (TSU)	1	12	4	-	-	-	-	-	cite IPCC correctly as suggested in the AR4 itself, cite section & page to show where this specific statement comes from, this is particularly important here as the statement appears in the TS as well as SPM; also coordinate with 1.3.2	Will use direct quotation
United States (U.S. Department of State)	1	12	10	-	-	-	-	-	Combined heat and power with fossil fuels has a minimum theoretical carbon intensity that is still above the level that is acceptable in long term. If it is mentioned here it should be discussed as only a temporary option.	Need a broader concept of how to get to low C emissions
Patrick Matschoss (TSU)	1	12	33	12	40	-	-	-	delete para bec it singles out Geo-Engineering without mentioning the other two measures (forests, soils, grasslands as well as nonCO2) that are not treated either	These will all be included

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Patrick Matschoss (TSU)	1	12	41	12	42	-	-	-	Delete; sounds more like a general conclusion that should go to the end of the chapter, if at all; needs to be checked whether SRREN has delivered that, see comment on p. 11, l. 15-27	It is trying to explain the structure of the chapter
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	12	1	12	4	-	-	-	Fuzzy language in this section. Why use 'heat trapping' instead of 'GHG'? Please explain better how RE and Demand side energy efficiency work in synergy?	Will clarify
Oluf Ulseth (Statkraft AS)	1	12	26	-	-	-	-	-	In chapter 1.1.5 increased forestry is mentioned as a way to create sinks for CO2. In most other parts of the report increased use of biomass is used as a measure to reduce CO2-emissions. This seems to be a contradiction. The mentioning of forestry in line 28 should be deleted.	Planting of trees is a means of reducing CO2 in the atmosphere See LULUCF report of IPCC
Steve Sawyer (Global Wind Energy Council)	1	12	14	12	16	-	-	-	It should be noted here and elsewhere that CCS is (and has been for some time) in the demonstration phase	Accepted
Patrick Matschoss (TSU)	1	12	2	-	-	-	-	-	liaise with chapter 8 whether this relationship is true	Will check with ch 8
United States (U.S. Department of State)	1	12	12	12	13	-	-	-	Life-cycle emissions from natural gas have not been considered in citing natural gas as a fossil fuel with lower carbon emissions. For example, in bullet four under mitigation options (p. 12, lines 12-13 and p. 6, lines 8-9 in the summary), natural gas is given as an example of a fossil fuel with lower specific CO2 emissions. Some studies, e.g., ES&T 41, 6290 (2007), have brought into question the advantages of natural gas on a life-cycle basis. Suggest removing the second 'fossil' in line 12 and the parenthetical phrase '(especially natural gas)'. ç	thank you for the point and reference
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	12	41	-	-	-	-	-	missing words?: substitution of fossil energy sources by low carbon RE supply	Will revise
John Twidell (AMSET Centre)	1	12	41	-	-	-	-	-	now 'This report focuses on substitution of low carbon, RE supply to reduce..' SHOULD BE 'This report focuses on substitution of FOSSIL FUELS BY low-carbon RE supply to reduceç'	Will revise
David Clubb (European Environment Agency)	1	12	14	12	16	-	-	-	Omission: also include the ILUC effects in this sentence	Accepted
David Clubb (European Environment Agency)	1	12	8	12	9	-	-	-	Omission: no mention here of Indirect Land Use Change effects (which can be greater than direct effects) - I would rephrase to 'that is grown, harvested and produced in a low-carbon emitting manner, including ILUC' (see this paper for more - http://www.birdlife.org/eu/pdfs/Bioenergy_Joanneum_Research.pdf). ILUC effects are mentioned on p43; the link between the two sections should be made	Will be included

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	12	25	12	40	-	-	-	Remove sentences & paragraphs. Irrelevant to the chapter	Will consider
Brazil (Ministry of Science and Technology)	1	12	15	12	16	-	-	-	Replace ""CCS has the potential to remove carbon dioxide from the atmosphere when biofuels are burned"" by ""The combining CCS technology with the use of biomass can remove co2 from the atmosphere (carbon negative)."	Noted.
Steve Sawyer (Global Wind Energy Council)	1	12	41	12	42	-	-	-	Replace "substitution of low carbon" with "substitution of high carbon energy sources with low carbon"	Will revise
United States (U.S. Department of State)	1	12	10	12	11	-	-	-	Replace with: "Use combined heat and power technologies to improve the overall efficiency of thermal electric power from fossil, nuclear, and renewable energy sources."	Useful suggestion
Ichiro Maeda (Federation of Electric Power Companies, Japan)	1	12	6	-	-	-	-	-	Same as Comment No.4	Unclear what this means
Rory Gilsonan (Natural Resources Canada)	1	12	8	12	9	-	-	-	Suggest add: ¿...and that is produced using sustainably-managed feedstocks.¿	Will consider
Rory Gilsonan (Natural Resources Canada)	1	12	14	12	16	-	-	-	Suggest that you use the term ¿converted¿ instead of ¿burned¿ - newer conversion processes such as gasification and pyrolysis do not ¿burn¿ solid biofuels (i.e, biomass) when producing energy (e.g., for heat and power).	Noted.
United States (U.S. Department of State)	1	12	0	-	-	-	-	-	The barriers and challenges associated with the large-scale deployment of renewable energy should be discussed on the bottom of page 12.	Will include
Edeltraud Guenther (TU Dresden, chair for environmental management and accounting)	1	12	26	12	29	-	-	-	the definition of barriers could be differentiated: any obstacle that hinders, decelerates or even blocks reaching a goal, adaptation or mitigation potential that can be overcome or attenuated by a policy programme or measure	Will consider this definition
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	12	33	12	40	-	-	-	The example given at the end of the section does not address the point that was made earlier in the section	Will make consistent
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	12	23	12	24	-	-	-	The statement is normative by using the imperative form of ""change"". This statement has to be rewritten.	Will rewrite

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Youba SOKONA (Sahara and Sahel Observatory)	1	12	41	12	42	-	-	-	This does seem to fit here	Does or does not?
United States (U.S. Department of State)	1	12	23	-	-	-	-	-	This report mentions the importance of energy efficiency but avoids the use of the term conservation. Although politically sensitive, it is important to consider ways in which less energy is needed, not just those ways in which energy can be used more efficiently. Conservation can be subdivided into measures that have little or no impact on lifestyle (e.g., turning off lights when leaving a room or using occupancy sensors) and those that do (e.g., carpooling and telecommuting programs and encouraging use of public transportation instead of automobiles). Some discussion of this topic is needed.	Will place conservation into the delivery of neergy services
Frank Krysiak (University of Basel)	1	12	33	12	35	-	-	-	This statement seems to imply that current energy use is unsustainable. This is a normative statement and its validity depends strongly on the notion of sustainability that is used. For example, if a notion of weak sustainability would be used (such as genuine savings), it is far from obvious that this statement holds. Indeed, the question whether fossil fuel usage can be sustainable is still an open debate.	Will explain better
China (China Meteorological Administration)	1	12	6	12	6	1.1.5	-	-	It is suggested that "Shift to zero carbon primary RE sources" should be changed into "Shift to near-zero or very low carbon primary RE sources.	See new figure that illustrates this point
Brazil (Ministry of Science and Technology)	1	13	2	13	2	-	-	-	as been the first time it appears in the text, MDGs, it should be written Millenium Development Goals - MDGs	Will fix
United States (U.S. Department of State)	1	13	3	-	-	-	-	-	Change "three" to "four, change "concerns" to "issues" and change "development" to "economic development." The text following the sentence on line 3 should cover each of these four issues.	Will fix
Australia (0)	1	13	1	-	-	-	-	-	change title to 'Co-benefits of expanding RE sources'	Will consider
Patrick Matschoss (TSU)	1	13	13	-	-	-	-	-	does the source fit to the statement? Is it peer reviewed?	Will check ref
Patrick Matschoss (TSU)	1	13	7	-	-	-	-	-	economic problems to imprecise, be more specific	Accepted
Patrick Matschoss (TSU)	1	13	9	-	-	-	-	-	electricity offer the/a promise..	Unclear what is being asked
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	13	3	-	-	-	-	-	Four major concerns	Will fix

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Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	13	5	13	7	-	-	-	Here the newly discovered potential of shale gas should be considered, which might influence the price.	Cannot find peer reviewed reference
Matt Davison (University of Western Ontario)	1	13	11	13	13	-	-	-	I think we have to be careful saying things about price volatility. On longer time scales, order months and years, this is not unreasonable, but on very short time scales I believe a) increased renewable penetration will actually increase the volatility of electricity and natural gas prices and that b) this increased volatility is in some sense necessary to stimulate the creation of a healthy and viable energy storage industry.	Will reexamine
Rory Gilsonan (Natural Resources Canada)	1	13	11	13	12	-	-	-	Might want to add ¿...and increases in energy efficiencies...¿ to ¿an expanded supply of energy¿ this sentence.	Noted.
Rory Gilsonan (Natural Resources Canada)	1	13	20	13	21	-	-	-	Need to be careful here about blanket statements ¿ there have been examples in arid regions where the water demands related to PV solar are quite high, due to the need to continuously clean sand/soot off the panels.	True, but this amount is still relatively small compared to other supply sources
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	13	27	-	-	-	-	-	Other renewable sources (apart from hydro and biofuels) such as wind have negative impacts too. These are reported elsewhere in the report, so mentioning that here and referring to the appropriate chapter would strengthen the section.	Will clarify
Patrick Matschoss (TSU)	1	13	27	13	29	-	-	-	RE may also have negative Co-effects, i.e. may also deter from SD; check with ch9	Will check with Ch 9
Emmanuel Branche (Electricité de France)	1	13	26	13	26	-	-	-	Replace "but hydropower" by "but some hydropower". Indeed most hydropower plants (HPPs) do not require any land use (run-of-river for instance), and regarding the whole water cycle, HPPs do not consume water !	Run of river is a small prtion of hydro, and reservoirs do withdraw water through evaporation.
Emmanuel Branche (Electricité de France)	1	13	3	13	4	-	-	-	Replace "Three" by "Four" as there are 4 majors concerns describe in the sentence (price, environmental impacts, development and energy security)	Will fix
Gerrit Hansen (TSU)	1	13	26	-	27	-	-	-	RoR hydro generally has little impact on land, for reservoir hydro the impact depends strongly on conditions - statement could be challenged, should be specified.	true, but ROR is a small fraction of all hydro
Canada (Environment Canada)	1	13	20	13	22	-	-	-	Suggest revising sentence to "Producing electricity with wind and PV solar require very little water and produce very little waste heat compared to thermal conversion technologies." and delete following sentence.	Will revise accordingly
Rory Gilsonan (Natural Resources Canada)	1	13	25	13	17	-	-	-	Suggest that you qualify this statement, as it comes across as implying that this is an issue in all cases, which it is not. In countries/regions with abundant supplies of both land and water (such as many parts of Canada) this is not necessarily an issue.	Will clarify

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Nico Bauer (Potsdam Institute for Climate Impact Research)	1	13	13	-	-	-	-	-	The reference here makes not really sense because it is about coal to liquids, but the argument - as I expect - should be supportive of renewable energy technologies.	Will check reference
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	13	26	13	27	-	-	-	The statement is considered to be too general and not applying to large amounts of e.g. small to medium size plants of the RoR type. We therefore suggest the following " ...fuels, but hydropower and biofuels - largely depending on the size - might require large amounts of land and water."	Useful suggestion
United States (U.S. Department of State)	1	13	23	-	-	-	-	-	Thermal plants can be air-cooled at a modest cost penalty. This statement is unnecessarily negative.	There is an energy loss penalty that needs to be reported. Will try to indicate a range.
Patrick Matschoss (TSU)	1	13	3	13	4	-	-	-	these are 4 major concerns, not 3	Will fix
Cédric Philibert (International Energy Agency)	1	13	22	13	24	-	-	-	This statement is incorrect, as dry-cooling is always available for thermal power plants of any type. Please replace with "limited water availability for cooling thermal power plants leads to decreases in the efficiency of thermal power plants including coal, biomass, gas, nuclear, concentrating solar power and geothermal".	Will revise
United States (U.S. Department of State)	1	13	26	-	-	-	-	-	Water use by biomass and hydropower should not be equated as here; biomass use is mostly consumptive while hydro water use is mostly non-consumptive.	Will clarify
Rory Gilsenan (Natural Resources Canada)	1	13	3	14	4	-	-	-	You list four concerns, not three.	Will fix
Richard Taylor (International Hydropower Association)	1	13	3	13	3	1.1.6	-	-	Delete "three" and replace with "four". Comment: There are four major concerns about energy use that motivate consideration of RE.	Will fix
Richard Taylor (International Hydropower Association)	1	13	26	13	27	1.1.6	-	-	Insert "in some instances" between "but" and "hydropower and biofuels require large amounts of land and water".	Will clarify
Emmanuel Branche (Electricité de France)	1	14	-	-	-	-	1.5	-	Inputs "Nuclear Fuel Production" and "Biofuel Crop Cultivation" are used for "Thermal Electricity Production", and the output is "Fossil Fuel Electricity Delivery" which is contradictory according to me ? This figure is not easy to understand, not clear	Revised figure
David Clubb (European Environment Agency)	1	14	0	-	-	-	1.5	-	Omission: nothing here on mortality. There may be some useful information in this article http://jama.ama-assn.org/cgi/content/full/302/7/787	Thanks for ref

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Rory Gilsean (Natural Resources Canada)	1	14	-	-	-	-	1.5	-	Suggest that you have a two-way arrow between ¿biofuel crop cultivation¿ and CO2. Also, you may want to carefully consider the treatment of PV, wind and hydro in this, since on a life-cycle basis they all result in CO2 emissions (e.g., flooding of forested areas for hydro, production of steel for wind turbines, etc.)	Revised figure
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	14	-	-	-	-	1.5	-	The message of this figure is incomprehensible, the caption doesn't help to explain it. It is unclear what the different shapes of textboxes and arrows mean. Moreover, it states that the figure is a comparison, but how the different means are compared and how they score is not shown..	Revised figure
Youba SOKONA (Sahara and Sahel Observatory)	1	14	7	14	8	-	-	-	In developing countries, increasing availability of ""clean"" energy services is central¿¿	Accepted
Patrick Matschoss (TSU)	1	14	10	14	11	-	-	-	MDG not in glossary	Will be added
Patrick Matschoss (TSU)	1	14	7	14	24	-	-	-	Only weakly founded in literature, source do not seem to fit well or/and are not peer-reviewed	Will supply ref
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	14	16	-	-	-	-	-	The reference make definitely no sense here. The paragraph is about transmission infrastructure in developing countries, but the reference is a governmental progress report about the feed-in tariff in Germany.	Appropriate ref will be sought
United States (U.S. Department of State)	1	14	7	15	12	-	-	-	There are many generalized statements on the benefits of RE for sustainable development in this section. There is a great deal of text describing potential advantages of RE unrelated to climate change mitigation that could be abbreviated. It would help if more concrete examples could be provided. Also, Chapter 1 could be shortened if Chapter 9 covers these issues.	Will synthesise and add refs
Kristie Ebi (Department of Global Ecology)	1	14	37	14	40	-	-	-	This and other discussions of dams is not balanced by an equal treatment of the ecosystem and other risks associated with dams. There is a rich literature on the adverse consequences of dams that needs to be assessed and cited.	Appropriate ref will be sought
Norway (Climate and Pollution Agency)	1	14	19	14	22	-	-	-	We propose that these two sentences are deleted.	Will consider during re write
Australia (0)	1	14	-	-	-	-	1,5	-	Replace Figure 1.5 with clearer diagrammatic representation	DONE
Norway (Climate and Pollution Agency)	1	15	27	15	27	-	-	-	Add at beginning of the sentence "1992"	Accepted
Brazil (Ministry of Science and Technology)	1	15	20	16	6	-	-	-	all topic 1.1.7 could be eliminated	Noted.
Kristie Ebi (Department of Global Ecology)	1	15	4	15	4	-	-	-	Another bullet could be added on co-benefits, such as consequences of transport policies, cook stoves, etc. See special issue of Lancet on health co-benefits that was published in November 2009.	Accepted

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Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	15	20	16	6	-	-	-	It would be good to capture some of the outcomes of regional RE policies especially in developing and least developed countries	Noted.
Brazil (Ministry of Science and Technology)	1	15	35	15	35	-	-	-	MDGs, it should be written Millenium Development Goals - MDGs	Accepted
Patrick Matschoss (TSU)	1	15	5	-	-	-	-	-	only this one non-peer-reviewed source available? Better foundations in Lit necessary	Will add more ref
Patrick Matschoss (TSU)	1	15	21	15	36	-	-	-	Only weakly founded in literature, source not peer-reviewed, no other?	Will seek for more ref
United States (U.S. Department of State)	1	15	25	15	37	-	-	-	References should be given for all the conferences, and events without references should be dropped.	Will supply ref
Norway (Climate and Pollution Agency)	1	15	26	15	26	-	-	-	Remove from end of the line "the 1992"	Noted.
Steve Sawyer (Global Wind Energy Council)	1	15	2	15	5	-	-	-	Sentence should start, "Hence renewables provideç'	Accepted
Ichiro Maeda (Federation of Electric Power Companies, Japan)	1	15	5	15	7	-	-	-	Some studies contradict the statement made in this sentence. See file (Ch.2.III.3; Ch.4.I-II): SRREN_Draft2_Review_Maeda_Ichiro_VanErp091006GabrielCalzadaReport_02.pdf	will provide ref and compare with chapt 2
Patrick Matschoss (TSU)	1	15	26	-	-	-	-	-	the 1992' into next line	Accepted
Youba SOKONA (Sahara and Sahel Observatory)	1	15	26	15	27	-	-	-	The 1992 should begin line 27	Accepted
Norway (Climate and Pollution Agency)	1	15	14	15	19	-	-	-	The current drive for a Low Carbon Economy in China is similarly motivated. (Ref: http://www.cciced.net/enciced/policyr/Taskforces/phase4/tfIce/200911/P020091124512243707328.pdf)	Will consider suggsted reference
United States (U.S. Department of State)	1	15	18	-	-	-	-	-	This section should discuss potential downsides of renewables in poor nations. For example, theft and, in some cases vandalism, have been issues with PV modules installed on rooftops.	Will consider during re write
Patrick Matschoss (TSU)	1	15	6	-	-	-	-	-	What is "distributive Computing"?	Will define
Huiyong Zhuang (National Bio Energy Co., Ltd.)	1	15	26	-	-	-	-	-	What is the meaning of ""the 1992""?	Accepted

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Jorge Bonnet Fernández-Trujillo (Agencia Canaria de Desarrollo Sostenible y Cambio Climático)	1	15	20	16	6	1.1.7	-	-	In order to reduce the length of the chapter this 1.1.7 subchapter could be deleted.	Sets the issue in perspective but will be shortened
United States (U.S. Department of State)	1	16	17	16	18	-	-	-	"Hence the price..." is not correct. The COST of delivered energy may be known, based on assumed availability of the resource (average wind speed, solar flux, etc.) but the price the project developer may receive is not known with certainty in many cases. In mature electricity markets, RE generators are "price-takers," meaning they receive payment based on electricity prices that are set by the marginal cost of generation, which is typically gas-fired generation. Their profitability is therefore still tied to fuel prices, even though they don't depend on those fuels directly.	Accepted
Huiyong Zhuang (National Bio Energy Co., Ltd.)	1	16	45	-	-	-	-	-	1.2.2 Resource disadvantages of RE, this title is too general, the content of this part just gives the biomass characteristics for electric power.	Will discuss the disadvantages of other RE sources as well
Steve Sawyer (Global Wind Energy Council)	1	16	21	16	21	-	-	-	Add "still" to "relatively close to" - placement of offshore farms could change with supergrid	Doesn't clarify
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	16	21	16	22	-	-	-	At least for the North Sea and Baltic Sea region this is not true. Connecting offshore wind projects to demand centres requires new and compared to onshore lines more expensive transmission systems (subsea HVDC, etc.) This is because most offshore projects are far away from the coast due to nature conservation issues, tourism, shipping lines, etc. and onshore wind already "absorbed" grid capacity near the coast. See for example website of German TSO Transpower: www.transpower.de	Close needs to be better defined, and regional differences identified
United States (U.S. Department of State)	1	16	33	-	-	-	-	-	At times this chapter seems to be arguing that distributed renewables are superior to central renewables. To maintain a balanced perspective, both role of both options should be addressed in achieving the large carbon emissions reductions that are needed.	Not the intention to rank one over the other. Will clarify
Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	16	7	16	7	-	-	-	Change the title - Summary of Global Energy Resources	Noted.
Australia (0)	1	16	28	16	32	-	-	-	cost will be an important determinant of the scalability	Noted.
Patrick Matschoss (TSU)	1	16	3	16	6	-	-	-	delete, add to list on previous page instead	Accepted

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Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	16	21	16	22	-	-	-	Due to more difficult access and conditions, the costs of constructing and maintenance for offshore wind projects and -transmission systems are higher than for onshore though	Accepted
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	16	26	-	-	-	-	-	However, for more advanced biofuels statement is not true!	Agreed
Youba SOKONA (Sahara and Sahel Observatory)	1	16	14	-	-	-	-	-	I wonder if it is not misleading to use here the notion of free primary energy	Accepted
Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	16	28	16	33	-	-	-	Irrelevance of nuclear power, large coal plants, carbon capture. Recommending to the remove the paragraph, except for that relates to large hydropower developments	Need to put all RE in context of existing energy system. See other comments
Patrick Matschoss (TSU)	1	16	10	16	12	-	-	-	no sources!	Accepted
John Twidell (AMSET Centre)	1	16	23	-	-	-	-	-	now '...eliminating the need for transmission' SHOULD BE 'so REDUCING the need for transmission'16	Will clarify
John Twidell (AMSET Centre)	1	16	32	-	-	-	-	-	now 'demonstrates that modular scaling to produce sufficient modestly sized energy units can meet a large scale energy demand' BETTER 'demonstrates that smaller scale units more widely distributed can meet large scale energy demands'.	Well stated will change
John Twidell (AMSET Centre)	1	16	24	16	26	-	-	-	now 'For the world's poor who utilize wood, dung and crop residues for cooking and heating biofuels are available locally and can be gathered with their own labour with no market cost'. PATRONISING AND UNACCEPTABLE SENTENCE FOR A UN PUBLICATION. BETTER AS 'For those poor who now utilize local biofuels of wood, dung and crop residues for cooking and heating, these same resources can be utilised with improved and more efficient technology to give enhanced quality of life.'	Not intended as patronizing. May revise text
John Twidell (AMSET Centre)	1	16	14	-	-	-	-	-	now 'Primary energy for wind, solar, hydro, geothermal and ocean is free and...' SHOULD BE 'Primary energy FROM wind, solar, hydro, geothermal and ocean is free AT SOURCE and'	Accepted
Patrick Matschoss (TSU)	1	16	28	16	44	-	-	-	only these few - partly non-peer-reviewed - source available? Better foundations in Lit necessary	Will include more references
Christoph von Stechow (IPCC WGIII TSU)	1	16	25	-	-	-	-	-	Please consider rewording "biofuels" into "bioenergy feedstocks" in order to avoid confusion.	Accepted

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Christoph von Stechow (IPCC WGIII TSU)	1	16	41	-	-	-	-	-	Please consider rewording, since wind, solar and biomass cannot be manufactured.	Will reword. Point taken
Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	16	10	16	12	-	-	-	Remove paragraph	Accepted
United States (U.S. Department of State)	1	16	11	16	12	-	-	-	Replace sentence with: "Thus, RE resources may offer an opportunity to decrease dependence on imported fuels and thereby increase energy security."	Accepted
Patrick Matschoss (TSU)	1	16	10	-	-	-	-	-	resource not in glossary	Accepted
Brazil (Ministry of Science and Technology)	1	16	43	16	44	-	-	-	Should add in the end: the U.S bioethanol program has achieved significant growth in three years to pass Brazil as the largest producer. Energy balace and sustainability should compare both solutions	This statement does not add anything value to the section.
Canada (Environment Canada)	1	16	14	-	14	-	-	-	Should read "Primary energy from solar and ocean is delivered at no cost to the consumer." Remove "is free"	Accepted
Patrick Matschoss (TSU)	1	16	14	16	26	-	-	-	statements need to be supported by - preferably peer-reviewed - Sources, needs to be rewritten bec it appears as advocacy, needs to be decribed as specific characteristics in a more neutral manner, first half of para is on RE as risk hedging against fluctuating energy prices, state this more clearly, statement on densely populated coast line not true for northern Germany (one of the largest future offshore wind energy suppliers)	Will supply ref

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
United States (U.S. Department of State)	1	16	28	16	33	-	-	-	<p>The juxtaposition in this paragraph--between the finding that nuclear and coal with CCS are scalable and therefore expected to play a role in meeting GHG reduction goals--and the modular scaling point imply, as currently written, that nuclear and coal with CCS will not play a role, or that there is a problem with them playing a role in meeting GHG reduction goals. This seems like a policy choice well beyond the scope of this document and counter to the findings of many studies.</p> <p>It would be useful to slightly reframe this paragraph so that it instead notes that scalability gives these types of technologies (nuclear, CCS) a seeming advantage over renewable energy and that they will likely play some role in meeting future goals--though it is difficult to know how much since studies routinely do not reflect risk, uncertainty, barriers to deployment, etc. However, modularity has been shown to be an advantage in deployment that could favor renewable energy in a way not captured by these studies, the experience with natural gas being a prime example.</p>	Will reframe discussion to discuss scalability of each type of technology
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	16	24	16	26	-	-	-	The statement cannot be kept in the report. It is in very strong contradiction with the MDGs that are cited in the ES of the chapter. The low financial costs of gathering fire-wood are not in any sense a supportive argument for RE.	Local gathering of biomass fuels may or may not be sustainable, but they are the reality for perhaps 2 billion people. The point is that people need access to better energy services.
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	16	17	-	-	-	-	-	The term price is wrong here. The correct term is cost.	Accepted
United States (U.S. Department of State)	1	16	28	16	30	-	-	-	This is a misreading of the MIT analyses. Those reports rely on energy-economic models just like those discussed in Ch. 10. What the models say is that IF carbon reduction goals are implemented and nuclear or CCS are available, then nuclear or CCS scale rapidly and are responsible for a large share of emissions reductions. If neither nuclear nor CCS are available, RE scales at greater rates than it otherwise would, but those scenarios are more expensive. Given the large expense associated with those scenarios, many analysts conclude that the world is unlikely to achieve mitigation objectives without nuclear or CCS. It may be technically feasible, but may not be economically supportable. That is different than saying that RE cannot be scaled up sufficiently.	Will restate conclusions of MIT report

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Emmanuel Branche (Electricité de France)	1	16	21	16	22	-	-	-	This is not always true that off-shore wind projects are close to the demand. Most of them are far away from the shore (ex. in UK), and the cost of the transmission is so high that it discriminates their effective implementation/deployment (whatever the support mechanism)	Accepted
United States (U.S. Department of State)	1	16	24	16	26	-	-	-	This may be a short-sighted observation. Right now, these traditional forms of bioenergy are free. If there was a scale up of bioenergy use, there may be a shortage--unless it is priced. If valuable in the market, it could become an income opportunity for some households but an added expense for others without sufficient supply.	That is a useful point to make
China (China Meteorological Administration)	1	16	8	17	12	1.2.1.1	-	-	This section is unnecessary and may be omitted for saving space.	Accepted
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	16	-	17	-	1.2.1.1 and 1.2.2	-	-	The section 1.2.1.1. conveys the notion that many RE forms are cheap, without giving points that counterbalance the presented advantages. In the section 1.2.2. on disadvantages, such counterbalance is given.	Yes, the two sections are to be read together
John Twidell (AMSET Centre)	1	17	2	17	6	-	-	-	DO NOT UNDERSTAND; MUDDLED now 'available for dispatch when needed. On the other hand, some RE resources are matched to Some renewable resources such as wind and solar are variable and may not always be demand such as solar electricity and air conditioning, and some energy services such as water pumping, purification or desalination can be provided whenever the energy source is available' TRY ' Dispatchable electrical power. Grid operators have to balance variable demand (load) with supply, and so they must be able to control the reduction and increase of generation (dispatch). Hydropower and some biofuel plants are excellent RE sources for such controlable dispatch. Other RE sources are intrinsically variable (e.g. wind and solar), as indeed is the demand. So with significant RE on the system, the methods of the operators have to change, together with the type and capacity of the plant mix. In addition, certain loads can be switched or delayed to maintain the balance, e.g. water pumping, purification and desalination, metal smelting, building and water heating.'	Will clarify with these suggestions in mind
Patrick Matschoss (TSU)	1	17	1	17	12	-	-	-	don't list, will be aspect when section is restructured, show more precisely (section) where aspects are founded in chapter 8	Will be revised
United States (U.S. Department of State)	1	17	8	-	-	-	-	-	Hybrid should also include combining renewables with some fossil, especially natural gas.	Will be added to glossary
Norway (Climate and Pollution Agency)	1	17	2	17	2	-	-	-	Incomplete sentence	Accepted

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Patrick Matschoss (TSU)	1	17	14	-	-	-	-	-	Is technical potential = energy flux? How do they relate?	Technical poential will be defined
Patrick Matschoss (TSU)	1	17	19	-	-	-	-	-	Is there newer data available than from WEO 2000 and 2004? It was agreed to have 2005 data as baseline and newer data where possible (see meth app)	The global fluxes have not changed
Fernando Rubiera (Instituto Nacional del Carbon (CSIC))	1	17	2	17	3	-	-	-	Lines 2 and 3 are interchanged.	Will fix
Rory Gilsean (Natural Resources Canada)	1	17	6	17	8	-	-	-	Might want to note here that there can be environmental, technical and cost issues related with this storage ζ this sentence almost seems to imply that addressing the variable supply issue is simple ζ which of course it isn't.	Wgreed. It is not simple. Will make thaqt claar
Australia (0)	1	17	2	17	8	-	-	-	needs rewriting	Agreed that the style needs to be consistent
Youba SOKONA (Sahara and Sahel Observatory)	1	17	2	17	6	-	-	-	Not clear please review	Will Fix
Patrick Matschoss (TSU)	1	17	2	17	3	-	-	-	sentence unclear	Will fix
Huiyong Zhuang (National Bio Energy Co., Ltd.)	1	17	2	-	-	-	-	-	some RE resources are matched to, this sentence is incomplete.	Will fix
Emmanuel Branche (Electricité de France)	1	17	2	17	2	-	-	-	the sentence "available for dispatch ζ are matched to" is not completed ?	Will fix
Patrick Matschoss (TSU)	1	17	14	-	-	-	-	-	theoretical potential is missing in glossary and not explained in meth appendix	WILL EXPLAIN
United States (U.S. Department of State)	1	17	1	17	17	-	-	-	There is some mixed up text here. Suggest using complete sentences and not bullets to communicate these points since this is a high-level intro. Also, there seems to be too much emphasis on how variability can be addressed rather describing why it is a problem.	Agreed that the style needs to be consistent
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	17	17	-	-	-	-	-	Typo: consumption instead of comsution	Accepted
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	17	1	-	-	-	-	-	Typo: discussses -> discusses	Accepted
Brazil (Ministry of Science and Technology)	1	17	2	17	8	-	-	-	words are missing making it difficult to understand the text	Will fix

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Richard Taylor (International Hydropower Association)	1	17	8	17	8	1.2.1.2	-	-	Insert at end of paragraph ""Hydropower is unique among RE resources in that is can provide energy storage (pumped storage) and ancillary services (voltage control, frequency regulation, black-start capability)	Accepted
Australia (0)	1	17	-	-	-	-	-	1,1	Flux' requires a definition	Will define
Rory Gilsean (Natural Resources Canada)	1	18	-	-	-	-	-	1.2	Suggest that you include ¿Synthesis gas from gasification¿ and ¿bio-oil from pyrolysis¿ under bioenergy.	Discussed in Chapter 2
Brazil (Ministry of Science and Technology)	1	18	10	18	12	-	-	1.2	the table could be eliminated to reach the desired length...it is too many detailed to this chapter	Will revise
Ella Stengler (CEWEP)	1	18	10	18	11	-	-	1.2	WtE (Waste-to-Energy) plants (=incineration with energy recovery) treat municipal waste and produce energy (electricity and/or heat, and sometimes cooling). In Europe most of the plants use grate furnace technology in which heterogenous waste can be incinerated. This technology does not request pre-treatment of the waste before it is fed into the furnace. Municipal waste includes a biodegradable part (=biomass), and in Europe it is considered that 50% of the energy produced by WtE plants comes from this biodegradable part. Therefore, "Incineration of biodegradable waste" should be mentioned with regard to "Bioenergy" in the table. "Combined Heat and Power (CHP)" is mentioned in the table and covers many WtE plants, but not all as some are producing just heat or electricity from waste.	Thank you for the clarification. Will include
Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	18	10	18	10	-	-	-	Can hardly read the information in the table - please enlarge	Will revise
Brazil (Ministry of Science and Technology)	1	18	5	18	8	-	-	-	from: Table 1.2 provides...the all sentence could be eliminated to reach the desired length	May shorten sentence
Patrick Matschoss (TSU)	1	18	4	-	-	-	-	-	unclear what reviewers are meant (technology reviews? SRREN reviewers?)	SRREN reviewers
Huiyong Zhuang (National Bio Energy Co., Ltd.)	1	19	-	-	-	-	-	1.3	Different renewable energy for electric power should also include biomass.	Table is being revised
Steve Sawyer (Global Wind Energy Council)	1	19	-	-	-	-	-	1.3	Estimates for wind energy potentials omit more recent studies which show the potential as much higher, particularly for China and elsewhere, which causes problems in Chapter 10. Consider using a more representative range of the resource estimates in Chapter 7 here, or at least putting in a footnote.	Will explore with tech chapter on wind

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	19	-	-	-	-	-	1.3	It is confusing that for some values, the range of estimates does not include the values given as technical resource potential.	Table is being revised
Japan (the Japanese Ministry of Foreign Affairs)	1	19	-	-	-	-	-	1.3	It should be clarified whether technical potential includes only new installations or also existing installations, with consideration for quality deterioration, such as that for PV cells, which have been recently reported.	Explanation will be provided
Japan (the Japanese Ministry of Foreign Affairs)	1	19	-	-	-	-	-	1.3	Table should include current figures for comparison.	Table is being revised
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	19	1	-	-	-	-	-	The reference is from UBA not BMU!!! Moreover, it is not peer-reviewed.	Will check ref
Patrick Matschoss (TSU)	1	19	4	-	-	-	-	-	what is meant by this document? The SRREN?	Yes, the SRREN
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	20	-	-	-	-	-	1.4	It would be insightful to include cost ranges for "conventional energy" at given discount rates for reference.	Will see if this can be done

Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Steffen Schlömer (IPCC WGIII)	1	20	20	21	12	-	-	1.4	<p>There is some overlap with chapter 10, hence, a cross-references should be inserted in both chapters. Chapter 10 only shows data for a 10% interest rate, but includes a comparison with typical household and wholesale electricity prices. Since table 1.4 already emphasizes the impact of different discount rates, this topic should be dealt with in more detail here. Below a draft text that should be added below the table:</p> <p>"Obviously, applying a higher discount rate drives LCOEs of all RE technologies up. The extent of the increase differs across technologies and generally depends on the specific timing of cash flows occurring during the lifetime of the respective investment. The effect of applying higher interest rates is particularly strong for technologies with high upfront cost of installation. Using the same discount rate for all technologies is a transparent, but simplified approach to standardize costs for cross-comparison. Interest rates charged for borrowing capital on private capital markets to finance high upfront expenditures will be different across technologies and projects i.a. to account for the specific risks involved in the respective investment. These technology-specific risks and, hence, risk-premiums will certainly be different. A project developer who wants to construct an onshore wind park, for instance, faces risks that are different from those faced by someone who wants to build a similarly sized project offshore. A valid comparison of the unit cost of energy or LCOE has to take into account the differences in the average cost of financing across technologies. It is, however, difficult to decide what the appropriate average interest rate is for each technology."</p> <p>ETHICAL CONSIDERATIONS ..., pure time discount rates, ...</p> <p>(1 - footnote) Differing risk premiums can also result from investor-specific or debtor-specific risks that depend on the overall financial situation of the borrower.</p>	Will revise
Mark Fulton (Deutsche Asset Management, Deutsche Bank)	1	20	38	21	1	-	-	1.4	Update LCOE table with more recent data - it currently uses out-of-date data.	See new table

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Patrick Matschoss (TSU)	1	20	13	-	-	-	-	-	¿on climate change mitigation are addressed¿	The final draft of the SRREN will be processed by a professional copy-editor. All editorial comments such as this will be resolved at that time.
Youba SOKONA (Sahara and Sahel Observatory)	1	20	14	20	19	-	-	-	Consider delete this paragraph	Info needed
Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	20	29	20	29	-	-	-	O & M costs are never constant over time, so it would be a better assumption to have a an increased certain % annually	Noted.
Jorge Martínez Chamorro (Agencia Canaria de Desarrollo Sostenible y Cambio Climático)	1	20	29	20	29	-	-	-	O&M is the first time it is used in the chapter. Please, expand the acronym (operation and maintenance) and then use it (O&M).	Will clarify and put into glossary
Patrick Matschoss (TSU)	1	20	5	-	-	-	-	-	Source unclear	Will provide source
United States (U.S. Department of State)	1	20	28	-	-	-	-	-	Suggest considering how time of construction varies by type of renewable energy and scale, particularly for hydropower.	Will consider
United States (U.S. Department of State)	1	20	8	-	-	-	-	-	There are concerns with the data here. Solar PV potential should be higher compared to CSP. Although CSP with thermal storage will have a higher capacity factor, PV can utilize a wider solar resource (including diffuse solar radiation). Additionally, the difference between high and low estimates for ocean energy, for example, is near zero and should be checked.	Checking chapter sources
Steffen Schlömer (IPCC WGIII)	1	20	20	21	12	1.2.3 Resource Potential	-	-	Insert additional subheading, "1.2.4 Current cost of RE supply" or the like. Section does not fit under the heading "resource potential"	Good suggestion will consider
Patrick Matschoss (TSU)	1	21	16	22	3	-	-	-	almost no sources! statements need to be supported by - preferably peer-reviewed - Sources	Will add ref
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	21	3	21	6	-	-	-	Does this mean that the costs presented reflect the costs based on current technology and do not include the learning rates?	Will clarify
Brazil (Ministry of Science and Technology)	1	21	3	-	-	-	-	-	lack of reference	Will add ref

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Emmanuel Branche (Electricité de France)	1	21	26	21	27	-	-	-	Replace "Hydropower, nuclear energy and a portfolio of renewable energy sources provide" by "Nuclear energy, hydropower and a other renewable energy sources provide". Hydropower is also a RE (chapter 5 of this Special Report), and this sentence may lead to misunderstanding	Went with suggestion below
United States (U.S. Department of State)	1	21	26	-	-	-	-	-	The statement that 60% of GHG emissions are from fossil fuels (line 26) is not correct. The correct percentage is closer to 80%.	Other sources cite 60% of CO2 eq. Will clarify
Norway (Climate and Pollution Agency)	1	21	21	22	8	-	-	-	We propose that these subsections are deleted.	Maqy revise but not eliminate
Richard Taylor (International Hydropower Association)	1	21	26	21	27	1.3.1.1	-	-	Delete ""Hydropower, nuclear energy and a portfolio of renewable sources"" and replace with "" Nuclear energy and a portfolio of renewable sources, lead by hydropower"".	Accepted
China (China Meteorological Administration)	1	21	15	25	5	1.3.1.1~1.3.1.2	-	-	There may be rooms for substantially reducing the text length in these two sections.	Will consider
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	22	-	-	-	-	1.6	-	Figure is rather messy, repositioning some boxes may help. An arrow from "hydrogen energy" to "thermal conversion" is missing.	Revised and simplified figure
Steve Sawyer (Global Wind Energy Council)	1	22	-	-	-	-	1.6	-	I'm confused about a number of the lines on this chart. But first and foremost, what does nuclear fission have to do with geothermal energy? I don't find the word 'fission' in the geothermal chapter, and the only references to 'nuclear' are for nuclear power. Is someone gathering energy from underground nuclear test sites, and if so, are we sure that they're garnering heat from fission bombs rather than uranium bombs? Also, I would argue that gravitational forces have a significant effect on the distribution of wind resources via the coriolis effect, among other things. Also, hydrogen can be produced via electrolysis, i.e., from any electricity source...and further, it can be burned directly...as is posited in at least some configurations of IGCC plants...and is not limited in its use to electrochemical conversion.	Heat from earth is due to radioactive decay. Will revise to clarify
David Clubb (European Environment Agency)	1	22	0	-	-	-	1.6	-	Omission: Solar and wind energy should also be considered as direct energy inputs into the hydrogen energy 'carrier'. Note that solar to hydrogen is explicitly covered in this same publication section (chapter 3, page33, figure 3.12; and pages 36 and 37 of the same chapter)	This can be indicated
John Twidell (AMSET Centre)	1	22	-	-	-	-	1.6	-	Outputs needed fromnuclear, See comment above for Fig SPM 1(same diagram)	Figure is revised
HONGGUANG JIN (Thermophysics engineering ,Chinese Academy of Scinces)	1	22	4	-	-	-	1.6	-	The hydrogen energy can also be converted to electricity by thermal conversion, so an arrow is needed from hydrogen energy to thermal conversion. Three boxes in the middle cannot be seen cleary.	Revised figure

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Emmanuel Branche (Electricité de France)	1	22	-	-	-	-	1.6	-	This figure is not easy to read, and source is missing	Figure is revised
Patrick Matschoss (TSU)	1	22	23	22	31	-	-	-	Do all of the statements in this para come from the source mentioned?	will also add references
Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	22	3	22	3	-	-	-	Increase figure - hardly readable	Revised figure
Brazil (Ministry of Science and Technology)	1	22	9	22	10	-	-	-	It is important to mention that these conversion losses can be avoided with energy co-generation, where they are recovered as heat and used in processes.	Revised figure
Patrick Matschoss (TSU)	1	22	23	-	-	-	-	-	LCA not in glossary	Yes, but others will be added
Patrick Matschoss (TSU)	1	22	38	33	42	-	-	-	market failure is missing here but needs to be amended anyway once market failures and economic barriers are merged	See revision to address this
Patrick Matschoss (TSU)	1	22	9	22	22	-	-	-	para makes very fundamental statements on the principle differences between RE and fossil & nuclear energies and is hardly supported by references; therefore, statements need to be supported by - preferably peer-reviewed - Sources	Will supply ref
United States (U.S. Department of State)	1	22	14	-	-	-	-	-	Pg. 22, line 14. Replace with "do not suffer thermodynamic power cycle losses, but suffer from other energy conversion inefficiencies."	Good suggestion
Steve Sawyer (Global Wind Energy Council)	1	22	1	22	1	-	-	-	Replace "supplied" with "produced"	The final draft of the SRREN will be processed by a professional copy-editor. All editorial comments such as this will be resolved at that time.
United States (U.S. Department of State)	1	22	19	-	-	-	-	-	Replace with: "...highly efficient processes. CCS processes require substantial energy inputs (perhaps 20% or more of the power output of a coal-fired power plant), which would ..."	Will add this important point
Oluf Ulseth (Statkraft AS)	1	22	9	22	22	-	-	-	The report puts a lot of emphasis on conversion losses, primary energy factors etc ; see for example page 22 below figure 1.6. The target is to reduce emissions and then we have to use energy resources in a way that creates the lowest emissions. If that implies large conversion losses given we are able to capture and store CO2, then the conversion losses are less relevant. This passage can be cut down or deleted.	Will adjust accordingly
Australia (0)	1	22	19	22	22	-	-	-	The statement 'CCS requires substantial energy inputs, which would increase the demand for primary energy' may be seen as being detrimental to CCS.	This is a statement of fact. Every option has both advantages and disadvantages

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Patrick Matschoss (TSU)	1	22	23	22	31	-	-	-	There is a lot of peer-reviewed literature on whether the approach of LCA make sense or not - this is not reflected here	Will add references
Brazil (Ministry of Science and Technology)	1	22	10	22	22	-	-	-	Thermal conversion processes losses of around 80% to supply mechanical energy for transport" are overestimated. This value should be reviewed.	Have checked and will reference
Steve Sawyer (Global Wind Energy Council)	1	22	11	22	12	-	-	-	waste heat from fossil fuel combustion is NOT the primary source of CO2 from fossil fuels. It is the combustion of the fuel itself; and I doubt very much whether the distinguished gentlemen and ladies from LLNL would have ever said any such thing. Suggest "...and the creation of this waste heat, i.e., the inefficiencies of the conversion process, are the reason for both the high primary energy requirements from fossil fuels to get usable energy out the other end, and the disproportionately large share of primary energy taken up by fossil (and nuclear) energy, particularly when being compared with direct renewable sources such as wind and solar for electricity production.	Will utilize some of thi8s text, but the majority of emissions comes form the unutilized portion of energy
Norway (Climate and Pollution Agency)	1	22	23	22	31	-	-	-	We propose that these subsections are deleted.	They are being mo9ved to appendix
Rory Gilsean (Natural Resources Canada)	1	22	26	22	27	-	-	-	While I agree that the life cycle impacts of economic efficiencies should be taken into account, I am not convinced that LCA should form the "basis" for such analysis. This is a very strong statement, and to my mind would need analysis to prove.	Will explain better
ICHIRO MAEDA (The Federation of Electric Power Comapanies of Japan)	1	22	9	22	12	1.3.1.1	-	-	<comment> Heat efficiency of most-advanced gas-fired combined cycle thermal power plant is 60%. So losses should be described as "40-90%", NOT "50-90%".	None of these high efficiency turbines are inuse
ICHIRO MAEDA (The Federation of Electric Power Comapanies of Japan)	1	22	17	22	19	1.3.1.1	-	-	<comment> Solar direct heating and day lighting are NOT energy TRANSFER, but mere DIRECT USE of solar heat or solar light. Direct heating from geothermal, biomass and solar thermal should NOT be highly efficient process compared to fossil-fuel-fired heat system or electric heat system.	Will make consistent with chapter text
Brazil (Ministry of Science and Technology)	1	22	19	22	19	1.3.1.1	-	-	should say: CO2 Capture and Storage - CCS	Previously defined
Patrick Matschoss (TSU)	1	23	2	-	-	-	-	-	Joules not in Glossary	To be added and In Annex II
Canada (Environment Canada)	1	23	5	23	12	-	-	-	Purpose of paragraph is unclear.	Accepted

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
David Clubb (European Environment Agency)	1	23	1	25	5	-	-	-	Query/suggestion: An interesting discussion on energy statistics. Personally I think that the arguments can be made more strongly in favour of the substitution method, as this captures the value of resource efficiency which is lost in the other methods. Otherwise no regard is paid to the efficiency of fossil fuel generation capacity, even though this has significant implications for the timescale over which fossil fuel resources are depleted. As this section needs to be smaller than currently, I suggest a more succinct discussion in the 'chapter 1' text as it is duplicated in the Appendix.	Noted.
Patrick Matschoss (TSU)	1	23	41	-	-	-	-	-	solar thermal power	Accepted
Finland (Finnish Meteorological Institute)	1	23	-	25	-	-	-	-	The primary energy accounting schemes are explained three times in SRREN: In Chapter 1 (pages 23-25), in Chapter 10 (page 9) and in Annex II (pages 6-9). It is necessary to consider them only once, e.g. in the Annex II.	Short statement in chapter 1, and example in ch 10, and full explanation in Annex II
United States (U.S. Department of State)	1	23	13	23	41	-	-	-	This region of the text is confusing and should be simplified and/or more clearly explained.	See revised text
Patrick Matschoss (TSU)	1	23	3	-	-	-	-	-	Watthours not in Glossary	To be added and in n Annex II
Norway (Climate and Pollution Agency)	1	23	26	23	37	-	-	-	We suggest that a brief description of the substitution method is added	It is in Annex II and a brief statement will be in chapter
Jorge Bonnet Fernández-Trujillo (Agencia Canaria de Desarrollo Sostenible y Cambio Climático)	1	23	1	24	17	1.3.1.2	-	-	This subchapter could be placed before 1.2 Summary of RE resources since the text starts using energy units in 1.2.3 Resource Potencial.	See revised order of test
Steve Sawyer (Global Wind Energy Council)	1	24	-	-	-	-	-	1.5	I do not now and have never understood why fossil fuels (and bioenergy) are not given the same treatment as nuclear under the direct equivalent method. It would make for a much more useful comparison between the roles that the different technologies actually play in delivering energy services. Perhaps this could be explained?	Will clarify
Emmanuel Branche (Electricité de France)	1	24	-	-	-	-	-	1.5	Values provided in this table (for direct equivalent method) are different from the ones provided in SPM (e.g. total value is 482.1 EJ in this table, but the value is 481.78 EJ in table SPM2)	Will be corrected
Canada (Environment Canada)	1	24	-	-	-	1.3.1.2	-	1.5	Table is also listed in Appendix 2 and could be removed here. Suggest comparing whole section with Appendix 2 to consider where information would be most appropriate.	Moved to Annex only
Steve Sawyer (Global Wind Energy Council)	1	24	-	-	24	-	1.7	-	Suggest this table would be more informative if it went back to, say, 1980, if the data is available or easily extractable	See chapter 10. Moved to Annex II

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Steve Sawyer (Global Wind Energy Council)	1	24	9	-	24	11	-	-	Suggest rewording this sentence as follows: " Under the direct equivalent method, when fossil fuels or biofuels are replaced by other renewable sources (or nuclear), the total of reported primary energy decreases substantially;"	Good suggestion
United States (U.S. Department of State)	1	25	21	25	31	-	-	-	Efficiency is very important but is somewhat off-topic. Condense the discussion of efficiency unless it is not covered elsewhere in the report.	Efficiency needs to be discussed in general in chapter 1 and specifically in other chapters
United States (U.S. Department of State)	1	25	7	25	9	-	-	-	It would be worth adding a sentence or two acknowledging that (1) demand reduction looks to be low cost but is difficult to actually accomplish; (2) experts disagree on why this is the case (why the energy paradox exists); (3) some believe that it has to do with market failures and barriers to wider spread use; (4) others believe that experts have not adequately modeled costs to the consumer of adopting these new technologies (uncertainty in future energy returns, loss in some other attribute that consumers value, etc.); and (5) the evidence is mixed and not definitive regarding what drives this energy paradox. Additionally, this section should include a discussion of the fact that utility profits are coupled to electricity sales and so various means of decoupling have been explored.	Importsnt points to be addressed
United States (U.S. Department of State)	1	25	17	25	18	-	-	-	Line 17 - 18: while this is true, the type of demand being met also matters and will inform what type of renewable energy can be used (industrial vs. residential; base vs. peak hours, etc.)	Will add this clarification
Fernando Rubiera (Instituto Nacional del Carbon (CSIC))	1	25	30	25	31	-	-	-	Phrase starting in line 30: 'A residential scale ζ' adds nothing and is isolated. It could be removed.	Scale is an important variable, but will rephrase to put in context
Christoph von Stechow (IPCC WGIII TSU)	1	25	21	-	-	-	-	-	Please consider replacing the word "appropriately" by the word "sustainably".	Accepted
Patrick Matschoss (TSU)	1	25	32	41	32	-	-	-	statements need to be supported by - preferably peer-reviewed - Sources	Will search for peer reviewed support and add references.
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	25	17	25	20	-	-	-	The information might be important if the reader would be interested in the design of building his own house but this statement is misplaced in the introductory chapter to an IPCC Special Report.	Other reviewers want more not fewer examples of the synergy between RE and end use efficiency
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	25	23	-	-	-	-	-	Why should the feasibility of biofuels for aircraft depend on the efficiency? Is there any technical requirement. Feasibility only means that it is doable; ie. Requires the proof of concept.	Perhaps it is better to say practicable and affordable
Patrick Matschoss (TSU)	1	25	30	25	31	-	-	-	Why this sentence on availability? & no Source	Will add references

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
China (China Meteorological Administration)	1	25	7	25	16	1.3.2	-	-	Designing of buildings with efficient natural solar lighting during daytime may also be viewed as a feasible option for efficient energy use.	Noted.
Canada (Environment Canada)	1	26	27	-	-	-	-	1.6	Suggest that share of RE Supply be in %.	Noted.
Steve Sawyer (Global Wind Energy Council)	1	26	-	27	-	-	-	1.6	Suggest this table would be more useful if the share's of RE supply were expressed as percentages, rather than as fraction of 1. Also, these WEO data (presumably from the table on p. 623 of WEO 2009) define a category called 'biomass and waste' i.e., waste to energy plants, municipal waste incinerators that generate electricity, and the burning of industrial waste. That should be made clear in this table, or at least the category given it's proper name, i.e., 'biomass and waste'. N88	Will be adjusted based on IEA equiv data
Steve Sawyer (Global Wind Energy Council)	1	26	-	-	26	-	-	1.8	This chart gives the wrong information for nuclear, if this report is in fact using the direct equivalent method, should be 2%. Furthermore, using the direct equivalent method, geothermal is only .08%, and wind, solar and geothermal combined is 0.3%, with wind making up the largest share (.13%). I think if you're going to do this direct equivalent method thing, you have to do it across the board.	Will be adusted based on equiv data
Taishi Sugiyama (Central Research Institute of Electric Power Industry (CRIEPI))	1	26	-	-	-	-	1.8	-	It is important diagram and should be in SPM.	Will depend on the need
Taishi Sugiyama (Central Research Institute of Electric Power Industry (CRIEPI))	1	26	-	-	-	-	1.8	-	You must mention that large portion of RE is large hydro and conventional bio explicitly in this figure. The readers will easily confuse that this large portion of RE is modern RE.	Will be mentioned as suggested
Steve Sawyer (Global Wind Energy Council)	1	26	17	26	18	-	-	-	Without defining the period in question, it is difficult to verify the growth rates here, although it is clear that 70 is larger than 29, meaning the sentence needs to be reworded and clarified. What period are you talking about? Sa	Will clarify during write up
Patrick Matschoss (TSU)	1	26	8	-	-	-	-	-	504 EJ taken from Table 1.5? It is from physical content method then but should be 482 EJ from direct equivalent method	Figures will be changed
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	26	17	26	21	-	-	-	First statement suggests wind had highest growth rate with 29%, however afterwards, solar PV is put at 70% and biodiesel at 34%. It is not clear for every percentage whether it means per annum growth or overall growth.	Will clarify during write up

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
United States (U.S. Department of State)	1	26	4	26	5	-	-	-	Lines 4-5 on p. 26: This seems potentially false. Even with behavioral changes on the part of rich countries, demand for energy will outpace supply due to exponential growth in developing countries and this will cause emissions to grow. A basic takeaway is that even if rich countries stop emitting altogether, growth in emissions from developing countries will ensure the world continues to see global warming because, absent action, emissions will continue to increase.	Will clarify in revision to reflect this oint
Patrick Matschoss (TSU)	1	26	16	-	-	-	-	-	replace "only just managing to keep pace with growth in" by "nearly matching the growth rate"	Accepted
United States (U.S. Department of State)	1	26	13	26	21	-	-	-	Some of the data here is available for 2009. In general, newer data are available in many portions of this chapter from New Energy Finance publications.	Will adjust once 2008 data made available by EA
Canada (Environment Canada)	1	26	8	26	9	-	-	-	Suggest replace "almost doubled, rising to around" with "increased to approximately". Specific data for 1990 would be useful here.	Figures will be changed
Steve Sawyer (Global Wind Energy Council)	1	26	19	26	21	-	-	-	Suggest using the latest figures from the latest REN21 Global Status report, which is now out - see http://ren21.net/publications/default.asp	Will use 2009 data
Gerrit Hansen (TSU)	1	26	13	-	21	-	-	-	terms large and small hydro should be used based on a common definition	Will reclassify
United States (U.S. Department of State)	1	26	17	-	-	-	-	-	The high percentage increases for solar and wind may appear to the reader to be inconsistent with an overall RE growth rate of only 1.8%. This should be explained (presumably because solar and wind are beginning as a small percentage of total renewables). It appears that the growth of renewables appears small because conventional biomass is included in the total. Authors should consider including line graphs or bar charts of RE growth.	Will clarify during write up
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	26	8	-	-	-	-	-	The number 504EJ is wrong. It must be 482EJ according to table 1.5 and the notion on page 23 line 38. This piece is representative of the overall chapter: there is lengthy discussion about an issue that is absolutely not policy relevant and in the next occasion the authors deviate from their own standard. This raises doubts about the overall chapter and it is very easy to find the weaknesses.	Figures will be changed
Steve Sawyer (Global Wind Energy Council)	1	26	18	26	19	-	-	-	This sentence is missing some punctuation or something, makes no sense.	Noted.
Norway (Climate and Pollution Agency)	1	26	9	26	9	-	-	-	Two percentages of the global RE share is given. We suggest that one of them is selected.	Noted.
Patrick Matschoss (TSU)	1	26	1	26	5	-	-	-	very deterministic and colloquial statement, change language; in addition not supported by lit, add Source!	Will rewrite and supply source

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Brazil (Ministry of Science and Technology)	1	26	19	26	19	1.3.3.1	-	-	an and is missing....should be ethanol and biodiesel	Noted.
Dr. Qamar-uz-Zaman Chaudhry (0)	1	26	8	26	8	1.3.3.1	-	-	General comment on Section 7.2.2.2, the words ""around 504 EJ"" may be verified. It may be ""around 500 EJ"".	Accepted
Richard Taylor (International Hydropower Association)	1	26	13	26	25	1.3.3.1	-	-	Rephrase to delete distinction between large and small hydropower. Comment: The classification of hydropower by scale is out of step with the SRREN SOD Hydropower Chapter (5). REN21 is not a credible source for this information as its classification of hydropower by scale is under dispute with the hydropower sector.	Will reclassify
Brazil (Ministry of Science and Technology)	1	27	-	27	-	-	1.9	-	the figure should not compare regions and countries that can cause misunderstandings. If needed figure 1.9a for regions and figure 1.9b for countries...side by side...	Noted.
Taishi Sugiyama (Central Research Institute of Electric Power Industry (CRIEPI))	1	27	-	-	-	-	1.9	-	You must mention that large portion of RE is large hydro and conventional bio explicitly in this figure. The readers will easily confuse that this large portion of RE is modern RE.	Will discuss
Patrick Matschoss (TSU)	1	27	28	28	6	-	-	-	all the numbers must be supported by sources!	References were inadvertently dropped. They will be included
United States (U.S. Department of State)	1	27	17	-	-	-	-	-	China became first in wind power additions in 2009. This newer information should be included.	Will include
Patrick Matschoss (TSU)	1	27	19	27	20	-	-	-	delete "last 5 yrs" and replace by "from 2006 to 2009". Statement neither supported by figure 7.9 (wind chapter) nor by source there and REN 21 is from 2009 and SRREN will be published next year.	Accepted
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	27	4	-	-	-	-	-	Is Asia excluding China also excluding India or is this including India?	Noted.
Brazil (Ministry of Science and Technology)	1	27	3	27	5	-	-	-	Miss a reference to Latin America as regards of biomass as a share of regional primary energy consumption. Also the share of biomass in India as mentioned in the sentence (20%) does not match with the one shown in Figure 1.9 (almost 30%).	Will include if data made available
Australia (0)	1	27	28	28	6	-	-	-	needs a figure or table to clarify these numbers	Perhaps text can be clarified
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	27	4	-	-	-	-	-	Sentence puts India at 20%, figure 1.9 puts India at ~27%	Will adjust accordingly

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Patrick Matschoss (TSU)	1	27	21	27	22	-	-	-	sentence seems redundant at beginning and at end	Accepted
Patrick Matschoss (TSU)	1	27	15	27	16	-	-	-	sentence unclear	Noted.
Patrick Matschoss (TSU)	1	27	28	27	29	-	-	-	sentence unclear, need to explain that DESPITE more even distribution, there are some specifics	Will clarify
Patrick Matschoss (TSU)	1	27	8	28	6	-	-	-	Text mixes energy use with statements on investment trends and industry outlook for specific countries; conclusions are in the middle para; poorly referenced!	Will remodel and provide ref
Patrick Matschoss (TSU)	1	27	9	27	11	-	-	-	Text: instead of absolute numbers investment should be shown as % in comparison to fossil investments; if real numbers are used, convert to 2005 US\$	Will convert to 2005US\$
Cédric Philibert (International Energy Agency)	1	27	25	27	25	-	-	-	The 20% RE target was formally adopted in December 2008 by the EU Heads of States and the Parliament.	Will include
Patrick Matschoss (TSU)	1	27	25	-	-	-	-	-	The decision of March 2007 describes the Presidency conclusion of the EU-council. Despite ist meaning, the legislative binding EU-directive was approved in December 2008 and published as law in June 2009	Will clarify as suggested
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	27	23	-	-	-	-	-	The paragraph starts with ""These developments suggest ζ"". However, the sub-section's header is ""Current status of RE"". Hence, the paragraph should be skipped or better placed in the chapter.	Accepted
Mark Fulton (Deutsche Asset Management, Deutsche Bank)	1	27	8	27	11	-	-	-	This statement is misleading, as investment in RE in 2008 did NOT exceed that for coal & natural gas by \$140 billion. A more accurate statement would be, "Investment in renewable energy increased by 10% YoY in 2008 to \$173 billion, but decreased slightly by 7% in 2009 to \$162 billion." For reference of these figures from the latest UNEP report, see SRREN_Draft2_Review_Fulton_Mark_Material_02.pdf; page 11.	Will verify
Emmanuel Branche (Electricité de France)	1	28	-	-	-	-	1.1	-	Figures/values presented with a discount rate of 10% are not consistent with the table 1.5 (wind, hydro, CSP), and losses appear also very high in comparison with primary value	WILL BE CONSIDERED
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	28	-	-	-	-	1.1	-	Given the large share of biomass used for cooking and heating purposes, it would be insightful to differentiate "other sectors" to show biomass use in the residential sector	ADDED SUCH INFORMATION IN THE FIGURE
Emmanuel Branche (Electricité de France)	1	28	19	28	28	-	-	-	A sentence should be added reflecting the role of hydropower (86% of all RE electricity, or 16% of all electricity). Proposition: "Hydropower is the main RE electricity (86%) accounting for 16% of global electricity"	WRITTEN IN ANOTHER SUBSECTION
Patrick Matschoss (TSU)	1	28	9	-	-	-	-	-	cite IPCC correctly as suggested in the AR4 itself	WILL DO

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United States (U.S. Department of State)	1	28	2	28	6	-	-	-	Consider mentioning that Brazil gets over 80% of its electricity from hydro. (Source: BP Statistical Review 2010)	Good point
Brazil (Ministry of Science and Technology)	1	28	5	28	6	-	-	-	Consider quoting the percentage of the sugarcane energy (bioethanol and bioelectricity) in the entire Brazilian energy mix (18%). It is already the second most important source of energy in the country, only behind petroleum and ahead of hydropower. Source: Brazilian Energy Research Company (EPE), BEN 2010.	Will consider
Canada (Environment Canada)	1	28	4	28	5	-	-	-	Data on % of hydro capacity should be linked to a reference year.	Will do
Steve Sawyer (Global Wind Energy Council)	1	28	19	28	28	-	-	-	Installed capacity figures of 2009 now broadly available; as are more recent growth rates: Suggest using the latest figures from the latest REN21 Global Status report, which is now out - see http://ren21.net/publications/default.asp	WILL DO
Steve Sawyer (Global Wind Energy Council)	1	28	19	28	28	-	-	-	Installed capacity figures of 2009 now broadly available; as are more recent growth rates: Suggest using the latest figures from the latest REN21 Global Status report, which is now out - see http://ren21.net/publications/default.asp	WILL DO
Patrick Matschoss (TSU)	1	28	2	-	-	-	-	-	mention pure hydro share for Iceland if mentioned for the other countries	Noted.
Ingvar Fridleifsson (United Nations University Geothermal Training Programme)	1	28	1	28	2	-	-	-	Please change the numbers to the following: Iceland (26%), El Salvador (25%), Kenya (17%), Philippines (17%). The new numbers are from Lund et al. 2010 (World Geothermal Congress 2010).	Thank you for the reference
Gerrit Hansen (TSU)	1	28	19	-	28	-	-	-	please update with REN21 (2010) figures	WILL DO
United States (U.S. Department of State)	1	28	27	-	-	-	-	-	Replace "at" with "by" Delete the sentence starting with "Germany in 2008..."	WILL DELETE IT
Cédric Philibert (International Energy Agency)	1	28	19	28	20	-	-	-	Sentence is unclear	WILL MAKE IT CLEAR
United States (U.S. Department of State)	1	28	19	29	28	-	-	-	Some of these data are redundant with other information in the chapter.	WILL RESTRUCTURE THE SUBSECTIONS
Norway (Climate and Pollution Agency)	1	28	26	28	27	-	-	-	Specify whether the growth rates are given in terms of investment costs or installed capacity?	WILL BE CONSIDERED
Norway (Climate and Pollution Agency)	1	28	23	28	24	-	-	-	Specify whether the technology investment shares are given in terms of costs or capacities.	Accepted
Canada (Environment Canada)	1	28	19	28	21	-	-	-	Suggest revising to link these numbers with Table 1.6.	WILL RESTRUCTURE THE SUBSECTIONS
Gerrit Hansen (TSU)	1	28	23	-	25	-	-	-	terms large and small hydro should be used based on a common definition	TO BE CONSIDERED. MIGHT BE INCLUDED IN GLOSSARY

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Canada (Environment Canada)	1	28	23	28	26	-	-	-	Text describes investment in % for some types of RE and then switches to \$ value for large hydropower - please make consistent.	Accepted
Norway (Climate and Pollution Agency)	1	28	5	28	6	-	-	-	The last sentence seems out of place, and we propose that it is deleted, or adjusted to fit rest of the subsection.	Will revise
United States (U.S. Department of State)	1	28	1	-	-	-	-	-	The share of geothermal electricity in Iceland seems low--closer to 30% of generation is more likely: http://www.iea.org/stats/electricitydata.asp?COUNTRY_CODE=IS	Will reexamine
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	28	23	28	25	-	-	-	the shares add up to more than 100% even without the hydropower. The \$ 40-45bn dollar imply another ~30% given the stated total investment total of \$ 140bn (on pg 27, line 9). Moreover, it would make sense to convert this amount into a percentage as well, to make it comparable to the other percentages.	Accepted
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	28	25	-	-	-	-	-	The su-sub-section is about energy flows. What is the purpose to refer here to investments?	WILL RESTRUCTURE THE SUBSECTIONS
Norway (Climate and Pollution Agency)	1	28	19	28	28	-	-	-	This paragraph partially repeats table 1.6 and figure 1.9. Any new information here could be presented as an additional table on investments.	WILL RESTRUCTURE THE SUBSECTIONS
Mark Fulton (Deutsche Asset Management, Deutsche Bank)	1	28	19	28	21	-	-	-	This statement is misleading, as REN21's latest Global Status Report (as of 2010), states that renewable energy supplied 19% of global final energy consumption, which is NOT the same as electricity generation as depicted in this statement. A more accurate statement would be, "Renewable energy, including hydropower, now supplies approximately 18% of global electricity production. Wind power dominates the renewable energy mix, excluding hydropower." For reference of these figures from the latest REN21 report, see SRREN_Draft2_Review_Fulton_Mark_Material_03.pdf; page 16.	WILL TAKE IT
Patrick Matschoss (TSU)	1	28	27	28	28	-	-	-	why singling out one particular country?	WILL DELETE IT
Brazil (Ministry of Science and Technology)	1	28	6	28	6	1.3.3.2	-	-	Should add the information of Brazil with 75% hydropower.	Noted.
Richard Taylor (International Hydropower Association)	1	28	24	28	26	1.3.3.3	-	-	Rephrase to delete distinction between large and small hydropower. Comment: The classification of hydropower by scale is out of step with the SRREN SOD Hydropower Chapter (5). REN21 is not a credible source for this information as its classification of hydropower by scale is under dispute with the hydropower sector.	WILL BE CONSIDERED
Canada (Environment Canada)	1	29	6	-	-	-	1.11	-	Graph could be improved by showing components of total energy supply (i.e., renewable, non-emitting, and fossil fuel energy supply).	SUCH INFORMATION WILL BE ADDED TO ANOTHER FIG (FIG 1.8)

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Patrick Matschoss (TSU)	1	29	20	-	-	-	-	-	energy in developing countries (see Figure 1.9 and section 1.3.3.3). Table	WILL RESTRUCTURE THE SUBSECTIONS
United States (U.S. Department of State)	1	29	15	-	-	-	-	-	Availability of electric lighting in developing nations also supports education. A PV system with battery back-up can allow people who worked in the fields during the day to study at night.	WILL BE CONSIDERED
David Clubb (European Environment Agency)	1	29	19	30	18	-	-	-	I don't think this mini-section does justice to its heading; it is not very coherent as a summary of 'utilization of RE'	WILL RESTRUCTURE THE SUBSECTIONS
Patrick Matschoss (TSU)	1	29	20	30	4	-	-	-	merge with last para on p. 30, repeats the point on inefficient bio-energy use and on black carbon	WILL RESTRUCTURE THE SUBSECTIONS
David Clubb (European Environment Agency)	1	29	20	29	21	-	-	-	Perhaps this sentence would be better stating that energy use was higher in rural areas with the implication that energy efficiency is less (rather than stating it as fact unless there's a relevant reference of course!).	WILL RESTRUCTURE THE SUBSECTIONS
Gustavo Nadal (Fundacion Bariloche)	1	29	12	-	-	-	-	-	The average electrification rate mentioned for Latin America (60%) is not coherent with Table 5.3 (90%). Could be the rural electrification rate.	WILL USE THE NEWEST DATA
United States (U.S. Department of State)	1	29	21	30	7	-	-	-	The text that precedes the table should be referenced to China only, and not generally for all developing countries. China has a unique definition of rural vs. urban, plus some questionable statistics.	WILL DELETE THE TABLE
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	29	7	-	-	-	-	-	TJ/capita should be GJ/capita	Accepted
United States (U.S. Department of State)	1	29	12	-	-	-	-	-	Use consistent number of significant digits. Also, the 2004 IEA reference may be outdated.	WILL USE THE NEWEST DATA
Norway (Climate and Pollution Agency)	1	29	13	29	18	-	-	-	We suggest that the last two sentences are deleted.	WILL USE THE NEWEST DATA
Patrick Matschoss (TSU)	1	29	23	-	-	-	-	-	why is the use of non-commercial energy per se a sign of inefficiency?	WILL DELETE THE TABLE AND SENTENCE

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Patrick Matschoss (TSU)	1	29	4	30	18	1.3.4	-	-	section is in particular need for restructuring and rewriting due to many redundancies and unclear structure (see specific comments). Merge with 1.3.5 as specific comments on p. 30 lead to significant shortening. Thread should be that access to modern energy, esp. electricity (energy ladder), correlates with development but raises a number of issues (esp. electrification), this does not necessarily mean to copy developed countries' infrastructures since these may raise vulnerability, management and capacity issues (as mentioned earlier in chapter and in other relevant chapters already) and don't account for regional circumstances; However, don't go into details of particular technologies, regional resource discussions or technical cooperation programmes here - Furthermore, the whole section needs to be much better supported by the literature	WILL RESTRUCTURE THE SUBSECTIONS
Richard Taylor (International Hydropower Association)	1	29	-	30	-	1.3.4.2	-	-	Insert reference to hydropower as this section contains references to all RES except hydropower.	WILL RESTRUCTURE THE SUBSECTIONS
Patrick Matschoss (TSU)	1	30	40	31	31	1	-	-	Statement not entirely compatible with ch2; See the following statements in chapter 2: ¿Assuming fuel savings from 30- 60% (Jetter and Kariher, 2009; Berrueta et al 2008) and average energy use of 40 GJ/HH/yr for cooking with open fires, the technical energy mitigation potential ranges from 10-17 EJ/yr (GEA, 2010).¿ (p. 50); ¿ICS GHG emissions are difficult to determine because of the wide range of fuel types, stove designs, cooking practices, and environmental conditions across the world but small-scale gasifier stoves and biogas stoves dramatically reduce short-lived GHG production up to 90% relative to traditional stoves (Jetter and Kariher, 2009).¿ (p. 67); ¿ICS health benefits include a 70%-90% reduction in indoor air pollution, and 50% reduction in human exposure as well as reductions in respiratory and other illnesses (Armendariz et al. 2008; Romieu et al, 2009).¿ (p. 75)	Will reconcile with chapter 2
Youba SOKONA (Sahara and Sahel Observatory)	1	30	8	30	9	-	-	-	Blackouts occurring in developing countries and in particular in Africa is very different from the ones in developed countries. The reasons are different and frequency as well	WILL BE CONSIDERED
Ernst Rauch (Munich Reinsurance Company (Munich Re))	1	30	15	30	18	-	-	-	delete "and the Mediterranean littoral" and list "deserts" only as an example; this avoids confusion as the Mediterranean littoral would be only one of many other regions suitable for solar thermal power generation	WILL BE CONSIDERED
Patrick Matschoss (TSU)	1	30	15	30	18	-	-	-	delete; anecdotal evidence singling out specific technologies	WILL BE CONSIDERED

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Rory Gilsean (Natural Resources Canada)	1	30	2	30	4	-	-	-	Equally important, and probably easier to implement would be an increase in the use of more energy-efficient biomass conversion devices ζ modern day wood stoves, for example, are significantly (up to 50% or more) more efficient than traditional open-pit fires that one often finds in developing countries.	WILL BE CONSIDERED
Ernst Rauch (Munich Reinsurance Company (Munich Re))	1	30	15	30	18	-	-	-	line 16 add to: ""suitable for concentrated thermal power plants"": ""which can produce electricity also during night hours and cloud coverage if thermal storage systems are added""	WILL BE CONSIDERED
Patrick Matschoss (TSU)	1	30	15	30	18	-	-	-	merge with l. 25-36 on same page and move to "1.3.3.2 regional aspects of RE" (or 1.3.3.5 when restructured - see addendum)	WILL RESTRUCTURE THE SUBSECTIONS
Patrick Matschoss (TSU)	1	30	8	30	11	-	-	-	merge with para l. 8-11 on this page	WILL RESTRUCTURE THE SUBSECTIONS
Patrick Matschoss (TSU)	1	30	25	30	36	-	-	-	merge with l. 15-18 same page and move to "1.3.3.2 regional aspects of RE" (or 1.3.3.5 when restructured - see addendum)	Section 1.3 has been re arranged
Patrick Matschoss (TSU)	1	30	25	30	36	-	-	-	No sources! statements need to be supported by - preferably peer-reviewed - Sources; language in l. 20 colloquial, rephrase	Will provide new refs otherwise delete section
Cédric Philibert (International Energy Agency)	1	30	16	30	18	-	-	-	Please write either ""the potential is important"" or ""Exports of solar and wind could be come important in the future"".	WILL BE CONSIDERED
United States (U.S. Department of State)	1	30	20	-	-	-	-	-	Provide supporting evidence for the claim that RE can "advance consumers up the energy ladder".	Will provide
Patrick Matschoss (TSU)	1	30	37	31	4	-	-	-	repeats first para on page, merge; statements need to be supported by lit!	Will adjust and provide ref
Ernst Rauch (Munich Reinsurance Company (Munich Re))	1	30	15	30	18	-	-	-	replace "clear sky solar energy" with "direct normal radiation"; this is a more commonly used technical expression	WILL BE CONSIDERED
Youba SOKONA (Sahara and Sahel Observatory)	1	30	25	30	26	-	-	-	This is not the case of all developing countries. All the emerging economies have their energy infrastructure in place and they have followed the same model of developed countries. There is a need of differentiating developing countries	Will differentiate
United States (U.S. Department of State)	1	30	37	-	-	-	-	-	This section is redundant with pg 29 lines 20 - pg 30 line 4.	Will adjust
United States (U.S. Department of State)	1	30	39	-	-	-	-	-	This sentence is difficult to understand and needs to be rewritten.	Rejected
Norway (Climate and Pollution Agency)	1	30	20	31	15	-	-	-	We suggest that this subsection is deleted, as it is unnecessary. The energy ladder is also illustrated in table 1.8	Will assure used only once in revision

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Brazil (Ministry of Science and Technology)	1	30	37	30	38	-	-	-	What is the evidence of that ""biomass.. Is increasingly being harvested in an environmentally unsustainable way""? Some references should be included and the rationale explained and justified.	Will clarify during write up
Richard Taylor (International Hydropower Association)	1	30	31	30	31	1.3.5	-	-	Delete ""two thirds"" replace with ""three quarters"". Comment: According to the SRREN Hydropower Chapter (5), three quarters of technically feasible potential is in developing countries.	Accepted
Brazil (Ministry of Science and Technology)	1	30	23	30	23	1.3.5	-	-	MDGs, it should be written Millenium Development Goals - MDGs	Already defined
Patrick Matschoss (TSU)	1	31	-	-	-	-	-	-	almost no sources! statements need to be suported by - preferably peer-reviewed - Sources	Will add additional refs
David Clubb (European Environment Agency)	1	31	29	31	30	-	-	-	Assertion as fact: Is the assertion that 'modern transport liquids' cut the monetary cost of transport really true? Or do the economic benefits (e.g. time, transfer of information) far outweigh the increased cost of the transport?	Will clarify during write up
United States (U.S. Department of State)	1	31	5	-	-	-	-	-	Needs a better explanation of what is meant by climbing and improving the energy ladder.	Will clarify
United States (U.S. Department of State)	1	31	10	-	-	-	-	-	This energy ladder discussion is very generic--as is much of the chapter. The chapter is supposed to be on renewable energy and climate change, but there is very little discussion of how the different forms of renewable specifically compare to each other in terms of their impact on global warming (GHG and carbon black emissions).	Focus should be on how RE affects energy ladder and this will be reflecte
United States (U.S. Department of State)	1	31	25	-	-	-	-	-	What will be the quantitative impact of displacing diesel generator emissions on global warming?	Noted.
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	32	-	-	-	-	-	1.8	The use of table 1.8 is unclear. Although it gives some examples of some technologies that are being used in more or less extensive ways in several countries, it is in no way complete (and doesnt pretend to be so) it doesnt really tell us more then just the above sentence. It is unclear why this should fill up almost an entire page. Just to be an example, it could be that much shortened.	Table 1.8 will be deleted and describe the message in verbal form
Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	32	4	32	4	-	-	-	It would be good to reflect some data from the Pacific region, if available for comparison purposes	Will include data from pacific area if made available
Youba SOKONA (Sahara and Sahel Observatory)	1	32	4	32	5	-	-	-	on the table for ""village scale mini grids/ hybrid combinations"" why again Chine on II	Will correct during write up

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Canada (Environment Canada)	1	32	6	-	-	1.3.6	-	-	Section 1.3.3 is the Current Status of RE. Suggest that distinction between 1.3.3 and 1.3.6 be clarified - is 1.3.6 actually focused only on future of RE?	Section has been deleted and aspects transferred to 1.3.5
China (China Meteorological Administration)	1	32	4	32	5	1.3.5	-	1,8	Add in ¿Small scale biomass gasification in China¿: There are 856 gasification plants in China benefiting 190,000 rural households. Reference: National Rural Renewable Energy Statistics from the MOA of China, 2008.	Accepted
China (China Meteorological Administration)	1	32	4	32	5	1.3.5	-	1,8	Change the number in ¿Cooking and lighting: II¿. 30.48 million households in China. Reference: National Rural Renewable Energy Statistics published by MOA of China, 2008	Accepted
China (China Meteorological Administration)	1	32	4	32	5	1.3.5	-	1,8	Change the number in ¿Improved biomass cookstoves: II. China¿ with 146 million household representing 66% of such households. Reference: National Rural Renewable Energy Statistics published by the Ministry of Agriculture (MOA) of China, 2008.	Accepted
China (China Meteorological Administration)	1	32	4	32	5	1.3.5	-	1,8	Change the number in ¿Village scale mini grids/hybrid combinations: I¿. 55000 mini grids in China based on pico hydro with total installed capacity of 184 MW. Reference: National Rural Renewable Energy Statistics published by MOA of China, 2008.	Accepted
China (China Meteorological Administration)	1	32	4	32	5	1.3.5	-	1,8	Change the number in ¿Village scale mini grids/hybrid combinations: III¿. 113000 mini grids based on small wind power with total installed capacity of 31 MW and 227,000 solar PV power in mini grids with 6.9 million peak watt. Reference: National Rural Renewable Energy Statistics published by MOA of China, 2008.	Accepted
Christoph von Stechow (IPCC WGIII TSU)	1	33	28	33	31	1.4	-	-	Are cost consideration intentionally avoided in the opening paragraphs? Please consider adding at least one sentence on this issue along the lines of a sentence provided in chapter 7 (p. 28, l. 42-4): "Perhaps most importantly, in many regions of the world, wind energy remains more expensive than fossil-fuel generation options, at least if environmental impacts are not internalized and monetized (NRC, 2010b)."	Costs will be mentioned
Oluf Ulseth (Statkraft AS)	1	33	-	40	-	1.4	-	-	In chapter 1.4 ¿ there is a detailed description of barriers to implementation of renewable energy. A lot of emphasis is put on various barriers that have been dealt with for the last 20-30 years without too much success. The main problem for renewable is that the alternative ¿ fossil fuel ¿ is much cheaper. As it is emissions from fossil fuels that creates the problem that renewable energy can contribute to solve ¿ more emphasis should be put on the cost of carbon. One option is some form of a global market for CO2 in order to get a breakthrough for renewable ¿ this has to be given more attention in the report on behalf of all the other barriers that are of more or less marginal importance.	Cannot be policy prescriptive, but will try to make this point
Patrick Matschoss (TSU)	1	33	3	-	-	-	-	-	"It is clear¿" colloquial, rephrase	Section deleted

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Patrick Matschoss (TSU)	1	33	1	-	-	-	-	-	delete sub-heading, para will do without	Section taken to 1.5
Patrick Matschoss (TSU)	1	33	10	-	-	-	-	-	delete sub-heading, para will do without	Accepted
STEPHANE POUFFARY (Energies 2050)	1	33	18	-	-	-	-	-	I am not so sure about the title choice: ¿Barriers, opportunities and issues¿ as we have 7 pages of barriers and less than one page of ¿opportunities¿.	Required to have most on barriers
Patrick Matschoss (TSU)	1	33	21	33	22	-	-	-	last two sentences colloquial, pls rephrase	Accepted
Patrick Matschoss (TSU)	1	33	23	33	42	-	-	-	need more sources, esp since there is more than one way to structure barriers (see l. 40) there is at least a need for hints to a broader literature, not just AR4 and one additional source, chosenb structure of barrier needs to be put into perspective of bigger picture	Will add references
John Twidell (AMSET Centre)	1	33	19	-	-	-	-	-	now 'Almost everywhere in the world, one can find a RE resource of one kind or other' CHANGE TO 'Almost everywhere in the world, one can find SEVERAL RE resources of one kind or other, e.g. BIOMASS, solar radiation, wind, ¿.. [there is no populated place without meaningful resources of at least 2 of biomass, solar and wind (the big three! It is incorrect to suggest there may be just one RE resource]35	Will consider revision
Patrick Matschoss (TSU)	1	33	8	-	-	-	-	-	refer to section 1.5 instead of 1.4.6.2	Section deleted
United States (U.S. Department of State)	1	33	29	-	-	-	-	-	Replace with: "...may be too small or too expensive to be useful ..."	Accepted
Youba SOKONA (Sahara and Sahel Observatory)	1	33	3	33	6	-	-	-	This is not clear and from the table 1.8 it is not clear that Brazil has one of the successful example of technological leapfrogging	Will clarify Brazil's position on leapfrogging on biofuels
Emmanuel Branche (Electricité de France)	1	33	30	33	31	-	-	-	This is not true for hydropower. It should be removed as hydropower significant size of low head schemes can be developed in relatively flat areas (Rhine, Mississippi, ¿), e.g. on the lower reaches of large rivers which usually flow in flat areas	Will clarify run of river
Canada (Environment Canada)	1	34	-	-	-	-	-	1.9	The difference between "market failures" and "economic barriers" is not clear in this table. Even after looking at sections 1.4.1 and 1.4.5 that describe both types of barriers in more detail, the distinction remains ambiguous. For example, the problems related to public goods and external costs are described as both market failures (section 1.4.1, p. 34, lines 10-17) and economic barriers (section 1.4.5.1, lines 22-28). The authors should decide whether they want to consider those two issues as a market failure or an economic barrier and then review their definition accordingly.	Has been revised

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Modesto Fernandez Diaz-Silveira (Ministry of Science, Technology and Environment)	1	34	-	-	-	-	-	1.9	TO include text in 1.4.3, last column of the Table, after Improved processes for land use: ". Strategies to avoid competition with food crops in the case of biofuels".	Will add text
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	34	15	-	-	-	-	-	GHG emissions and climate change are not multiple examples; one leads to the other..	Will revise text
Patrick Matschoss (TSU)	1	34	18	34	23	-	-	-	I would use the broader term of market structures that deviate from Debreu's ideal and hence give the opportunity to exercise monopolistic power to some degree. These include natural monopolies of grids, entry barriers due to sunk and others. These are particularly relevant to energy and even more relevant to grid-based markets. Furthermore, monopoly power per se is not market failure	Will add to barriers
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	34	18	34	23	-	-	-	Monopoly and oligopoly structures sometimes might be helpful to reach RE deployment. Having more competition the price is more relevant and more expensive technologies have a barrier to enter. In addition, huge investment is needed, which might be better served by big companies.	Noted.
Arieta Gonelevu (International Union for Conservation of Nature (Oceania Office))	1	34	1	34	1	-	-	-	One of the barriers that is related to technical issues is the intergration of both conservation (demand and supply side management) and renewable energy development into smarter grids - so this can be explained further in detail	Will add
United States (U.S. Department of State)	1	34	18	34	23	-	-	-	The third bullet on pg. 34 in particular, but also the entire section 1.4.1, needs to be rewritten to be more understandable.	Has been revised
Patrick Matschoss (TSU)	1	34	4	34	17	-	-	-	There is no oversupply of neg. externalities. There are market failures due to the existence of externalities (positive and negative). Undersupply (resp. overconsumption) of public goods is the result of not bearing the full costs of the benefits received. That is, the producer does not get the full reward and the benefits are external and therefore private markets do not supply enough public goods. The same is true for (not just RE-related) R&D where the full benefits cannot be appropriated by the investor (as mentioned in the text), hence the benefits are external. Likewise, the un-priced environmental impacts are the result of negative externalities and are "produced" too much.	Will add these points
Rory Gilsenan (Natural Resources Canada)	1	34	-	-	-	1.4.1	-	-	May want to consider the tremendous amount of government support for traditional fossil-fuel industries as being a primary market failure for the expansion of RE.	Good point
Canada (Environment Canada)	1	34	-	35	-	1.4.1	-	-	Section 1.4.1 is difficult to understand and requires editing.	Has been revised

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ICHIRO MAEDA (The Federation of Electric Power Companies of Japan)	1	34	-	-	-	-	-	Table1.9.	<comment> Change the description from "Some relevant policy instruments" to "Some relevant potential policy instruments". <reason> Whether "policy instruments" could become the solution to barriers depends on the circumstances, so it would be better to describe according to the wording of Line33, 12 of 135 in Technical Summary.	Accepted
John Twidell (AMSET Centre)	1	35	17	-	-	-	-	-	ADD SENTENCE 'In addition, RE requires an extensive knowledge of subjects associated with the natural environment, e.g. meteorology, forestry, oceanography, ecological impact.'	Stated generally later in the paragraph
John Twidell (AMSET Centre)	1	35	6	-	-	-	-	-	now 'RE is widely distributed (e.g. the sun shines everywhere)' MORE MEANINGFUL 'Wherever there is settled human habitation, RE is available in 2 or more forms (e.g. sunshine, biomass, wind, wastes, hydro)	This statement is obvious and certainly not limited to human habitation
John Twidell (AMSET Centre)	1	35	38	-	-	-	-	-	now 'support from not only the public, but the government, utilities and industries.', ADD 'educational and training resources'	Accepted
Patrick Matschoss (TSU)	1	35	6	-	-	-	-	-	parenthesis colloquial, delete	Accepted
Patrick Matschoss (TSU)	1	35	13	-	-	-	-	-	statements need to be supported by - preferably peer-reviewed - Sources	Chapter has been restructured
United States (U.S. Department of State)	1	35	13	-	-	-	-	-	The entire wind farm should be modeled to account for both local terrain effects and interactions between different turbines.	Accepted
United States (U.S. Department of State)	1	36	25	-	-	-	-	-	A distinction needs to be made here with regards to the scale of renewable energy penetration. Much higher penetration levels can be achieved than are seen today without the need for greater information technology.	Will discuss relative to chapter 8
Patrick Matschoss (TSU)	1	36	38	-	-	-	-	-	delete 'financial'	Replaced with capital
Patrick Matschoss (TSU)	1	36	17	36	18	-	-	-	delete last sentence; belongs to 1.1.6 (Co-issues of RE - 1.1.5 after restructuring (refer to addendum)) if deemed necessary	See revision
Patrick Matschoss (TSU)	1	36	33	36	34	-	-	-	don't judge, rather use outline described for 1.4.4 and argue along the lines "centralized infrastructure well-suited for fossils but need for decentralization arises with RE" or the like	Will consider revision
Australia (0)	1	36	30	-	-	-	-	-	'Existing infrastructure' and 'Energy market regulation' should be separate sections	See revision
Australia (0)	1	36	1	36	6	-	-	-	Geothermal could be included, citing Basel and Geysers	Accepted

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Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	36	4	36	6	-	-	-	It is true that many wind farms have had to battle the "not in my backyard" (NIMBY) attitude before they could be established. However, it should be added that in many regions of the world wind farms have been erected by local citizens, farmers or SME. E.g. in the Mid West of the US community windpower is seen as an additional source of income for rural areas in the face of declining price for agricultural products.	Good point to be added
Patrick Matschoss (TSU)	1	36	43	37	2	-	-	-	Not included in ch6; liaise with ch6 whether worth including; delete, if not	Will discuss with Ch 6
Emmanuel Branche (Electricité de France)	1	36	37	36	38	-	-	-	Note that environmental and social issues are also important for transmission/distribution grids. Those issues may limit the development of networks	GOOD POINT
Steve Sawyer (Global Wind Energy Council)	1	36	4	36	6	-	-	-	NYMBYism attitude not only for wind and nuclear but for all power plants. Suggest, '¿a mark of the owner's environmental commitment, although they are still banned in some localities (Bruce, Watt, & Passey, 2009). By contrast, man wind farms have had to battle the 'not in my backyard' (NIMBY) attitude, as have nuclear power stations, transmission lines, utility scale solar plants, CCS plants and coal plants.	WILL REVISE LANGUAGE
United States (U.S. Department of State)	1	36	17	36	18	-	-	-	p. 36 of 50, lines 17 - 18: this is the first place where the unintended consequences of some types of policies are mentioned. This should be expanded a bit more to discuss how some policies that intend to reduce GHG emissions may in fact do the opposite (this applies to a range of policies, such as biofuel standards that are too inclusive, policies that treat biomass as a net zero emitter, and RES that treat displacement of natural gas as identical to displacement of coal - and therefore can actually promote more coal use).	Accepted
Emmanuel Branche (Electricité de France)	1	36	33	36	33	-	-	-	Replace "Unfortunately" by "However". It is not possible to criticise decisions that have been implemented in the past which were based on economical studies	Deleted word altogether.
United States (U.S. Department of State)	1	36	18	-	-	-	-	-	This is an example of a critically important point that is made casually. This deserves a much more detailed and quantitative treatment. Similarly, the formation of a reservoir for hydropower has negative impacts in terms of a loss of carbon sink and increased emissions of carbon dioxide and methane. The impacts are quite location-dependent (e.g., dams located in tropical regions have more negative impacts than those located in temperate regions).	Will consider revision

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United States (U.S. Department of State)	1	36	39	-	-	-	-	-	This report should not make decisions on which projects (distributed or central) are deployed. This should come out of economic considerations, including the cost of climate damage that results from NOT deploying low-carbon energy projects.	WILL NOT BE POLICY PRESCRIPTIVE
United States (U.S. Department of State)	1	36	33	-	-	-	-	-	This represents another example of a bias here toward distributed energy technology that needs to be addressed. The world can ill afford to pick its favorite deployment approach. A central approach like Desertec can help get a great deal of renewable energy tapped by going to where the resource is the greatest. Lines like 33-34 on pg. 36 ("Unfortunately....") show a policy advocacy towards distributed generation and away from central generation that is inappropriate and unnecessarily limits our options for deploying low-carbon energy.	Will remove biased language
Modesto Fernandez Diaz-Silveira (Ministry of Science, Technology and Environment)	1	36	18	-	-	-	-	-	TO include text, after ...rain forests: "or crops for food production (at least in developing countries)"	Accepted
Patrick Matschoss (TSU)	1	37	34	37	35	-	-	-	again confusing definition of costs; instead of introducing the terms of financial costs and site-specific value, simply state: using local PV system is cheaper/requires less resources than building new power line (due to more equal distribution of solar in contrast to fossils fuel/central power plant)	Will revise
United States (U.S. Department of State)	1	37	39	38	3	-	-	-	As explained in the comment for p. 16, line 17, the cost of RE projects may be well understood, but the rate of return often does depend indirectly on the marginal cost of generation, which is typically set by gas-fired power plants. In electricity markets, RE is a "price-taker" while natural gas is a "price-maker."	Needs revision
Patrick Matschoss (TSU)	1	37	28	-	-	-	-	-	carbon tax found in section 10.5.3, not in 10.6; pls liaise with ch10 for best citation	Will check
Patrick Matschoss (TSU)	1	37	5	-	-	-	-	-	delete ' ' from liberalized and from independent power producers	Sentence does not make sense
Jorge Martínez Chamorro (Agencia Canaria de Desarrollo Sostenible y Cambio Climático)	1	37	1	37	41	-	-	-	Delete "0020" between "]" and "per".	The final draft of the SRREN will be processed by a professional copy-editor. All editorial comments such as this will be resolved at that time.
Japan (the Japanese Ministry of Foreign Affairs)	1	37	12	37	15	-	-	-	For intellectual property rights, there should also be a reference to the importance of the effort of developing countries to protect intellectual property by establishing robust registration and rules.	Noted.

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Patrick Matschoss (TSU)	1	37	22	37	28	-	-	-	From economic perspective it is not the financial cost but the economic costs/resource use that matters. The question relates to which frame of analysis to use, i. e. whether to use direct engineering cost, economic sectoral cost, macroeconomic costs or welfare costs, pls refer to Edenhofer et al (2006) in "The Energy Journal, Endogenous Technological Change and the Economics of Atmospheric Stabilisation", Special Issue. What costs to consider relates to the model type use, i. e. partial or general equilibrium analysis, pls refer to Pizer and Kopp (2004) "CALCULATING THE COSTS OF ENVIRONMENTAL REGULATION" in "Handbook of Environmental Economics, Volume 3. Edited by K.-G. Mäler and J.R. Vincent", Elsevier	Will review
Steffen Schlömer (IPCC WGIII)	1	37	43	-	-	-	-	-	I wouldn't say that the LCOE of RE are know with certainty from the outset. The calculation of LCOE needs to take into account the O&M costs as well, which are smaller but may still be significant. Particularly for the less mature RE technologies, uncertainty with respect to the reliability of power systems and the resulting O&M cost play a major role. Rephrase, e.g.: "The LCOE of RE projects (except for bioenergy projects) do not depend on fuel prices, which are usually a relatively large source of uncertainty when calculating the LCOE of conventional power plants. In contrast to this the major cost components of RE power systems, the most important of which is usually the cost of the technical equipment, are generally known with higher certainty in advance. Hence, the LCOE of RE projects at specified sites can be estimated quite precisely (1_footnote)." "(1_footnote) The relatively large ranges for LCOEs in table 1.4 are amongst others due to the fact that they are not site specific, but cover a range of reasonable capacity factors. Other cost components can also differ from project to project increasing the breadth of the range given there (cf. this chapter, p.20, and Annex II on methodology)."	Needs revision
Patrick Matschoss (TSU)	1	37	5	-	-	-	-	-	leave away '...' because suggestive; instead mention directly if liberalization was unsuccessful - And support statement by sources!	Ref will be added
Patrick Matschoss (TSU)	1	37	36	38	3	-	-	-	merge with 1.4.5.2	See revised text
Frank Krysiak (University of Basel)	1	37	20	37	38	-	-	-	Most of the questions raised here have clear and straightforward answers once the purpose of a cost-benefit analysis is specified. The point here is only that cost/benefit estimates depend on the reference frame, which is hardly surprising and probably not worth half a page.	Will condense
Patrick Matschoss (TSU)	1	37	3	37	10	-	-	-	Pls check whether all statements covered in ch's 8 and 11. Otherwise need sources	Will check

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Patrick Matschoss (TSU)	1	37	30	-	-	-	-	-	point raised in 1.3.1.2 or Annex II once moved - refer to comment on that section	Changed
Patrick Matschoss (TSU)	1	37	22	37	28	-	-	-	relates to negative externalities of section 1.4.1, merge	Accepted. See Revision.
Steffen Schlömer (IPCC WGIII)	1	37	31	-	35	-	-	-	<p>The cost do not depend so much on the quality of the resource, but the revenues do. The costs of a PV system are usually largely independent of the site (transport costs may vary as well as the cost of workers to install, operate and maintain the system, but the cost of equipment are similar if not identical). In remote locations that are not connected to the grid or in locations that are only connected through power lines with high power losses alternative ways to provide the energy services there are simply also very costly. Hence, PV systems can be the best alternative. In other words, the cost at which renewables like PV are competitive with other options is not a fixed value, but one that varies geographically.</p> <p>Chapter 11 puts it very simple: "Another significant benefit of RE is that it often provides the lowest-cost option for remote and off-grid areas (Mahapatra et al. 2009; Pereira et al. 2006)" (chapter 11, p. 29, l. 35 f.)</p>	Thank you for references
Australia (0)	1	37	15	-	-	-	-	-	The counterargument is that private sector research may not occur without the financial benefits of IP rights	Valid point
ICHIRO MAEDA (The Federation of Electric Power Companies of Japan)	1	37	4	37	9	1.4.4.2	-	-	<p><comment></p> <p>Liberalization of electricity markets in many countries has been more progressed than described here. For example, in Europe, full liberalization has been already introduced in 2007. These recognitions are incorrect. Many countries have already made laws and regulations which accelerate RE introduction into the electric power system.</p>	Important to recognize different stages of implementation

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Canada (Environment Canada)	1	37	-	-	-	1.4.4.3	-	-	This section needs to be balanced. It should be mentioned that intellectual property rights (IPR) are seen by many authors as an enabler to technology development and transfer rather than a barrier because IPR encourage innovation. This view is expressed later in the SRREN (e.g. chap. 11, p. 85, line 7-11, section 11.6.1.2) and should be reflected in this introductory section for consistency of the message. For references, see: Copenhagen Economics (2009). Are IPR a barrier to the transfer of climate change technology? http://trade.ec.europa.eu/doclib/docs/2009/february/tradoc_142371.pdf Khor, M. (2008). Note on Access to Technology, IPR and Climate Change, TWN Briefing Paper 1, www.twinside.org.sg/title2/climate/briefings/BP.bangkok.2.doc	Noted.
ICHIRO MAEDA (The Federation of Electric Power Companies of Japan)	1	37	31	37	35	1.4.5.1	-	-	<comment> Too high voltage can affect adversely customer equipments. So, this negative aspect of voltage boost should be also described here.	Will consider
Steffen Schlömer (IPCC WGIII)	1	38	10	-	-	-	-	-	"bankers are still often reluctant to lend for almost any purpose" - delete! This statement is not at all backed by the reference cited (Wright, van der Heijden, Burt, Bradfield, & Cairns, 2008). In fact, Wright et al. do not even once mention the term "banker", "lend" or any statement that could be interpreted to derive such a generalized statement.	Accepted
Patrick Matschoss (TSU)	1	38	40	-	-	-	-	-	check whether this really dealt with in chapter 8	Will check
Patrick Matschoss (TSU)	1	38	31	-	-	-	-	-	delete "2.4.7", insert "2.4.5.2"	Accepted
Canada (Environment Canada)	1	38	12	38	17	-	-	-	Examples in lines 12 to 17 are too underdeveloped to add value and could be deleted to help shorten text.	Will revise
Australia (0)	1	38	10	-	-	-	-	-	Financial crisis is not a good example it is not a typical event	This issue for aviation is a typical event
Patrick Matschoss (TSU)	1	38	26	-	-	-	-	-	GAO 2007 not in reference list	Will add to ref list
Patrick Matschoss (TSU)	1	38	43	39	2	-	-	-	inconsistent with 1.3.3.2 where China, Spain, Germany and India as the front runners in RE	Statement does not contradict your comment
United States (U.S. Department of State)	1	38	2	-	-	-	-	-	Need to cover integration costs that accrue from renewable energy variability and low capacity credit.	See chapter 8
Patrick Matschoss (TSU)	1	38	30	38	31	-	-	-	no such barriers for any fossil fuels?	None

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Brazil (Ministry of Science and Technology)	1	38	29	38	31	-	-	-	On line 30 it should read: ""There are tariff barrier (import levies) AND NON TARIFF BARRIER in some countries that render uneconomic some trade..."". Also, reference should be made to sec 2.4.5 of Chapter 2 (and not sec 2.4.7) when it comes to trade barriers.	Will add
Canada (Environment Canada)	1	38	42	39	4	-	-	-	Paragraph is somewhat discursive and references to figures in other pieces of literature are not helpful for reader's ease of understanding.	Will clarify
Christoph von Stechow (IPCC WGIII TSU)	1	38	31	-	-	-	-	-	Section 2.4.7 does not exist. Please amend the cross-reference.	Accepted
Canada (Environment Canada)	1	38	9	-	11	-	-	-	Sentence is unclear.	Accepted
Patrick Matschoss (TSU)	1	38	26	-	-	-	-	-	Source not in reference list	Will add to ref list
Patrick Matschoss (TSU)	1	38	23	38	24	-	-	-	Sources?	Will supply ref
Steffen Schlömer (IPCC WGIII)	1	38	29	-	31	-	-	-	The debate on trade in environmentally sound goods as part of the Doha negotiations is not mentioned at all. Information on tariffs on renewable energy systems or components thereof need to be included or, at least, it needs to be mentioned where such information can be found. The following website of ICTSD can serve as starting point: http://ictsd.org/i/publications/3533/ .	Will mention
Cédric Philibert (International Energy Agency)	1	38	30	38	31	-	-	-	There are also trade barriers for RE technologies, not only bioenergy. See Steenblik, Ronald, 2005, Liberalisation of trade in renewable-energy products and associated goods: charcoal, solar photovoltaic systems, and wind pumps and turbines, OECD, Paris	Will add
Patrick Matschoss (TSU)	1	39	33	-	-	-	-	-	"...despite that chapter ₂ " unclear, delete	Accepted
Patrick Matschoss (TSU)	1	39	2	-	-	-	-	-	accusing tone, rather talk about political resistance of incumbent industry or the like	Will change tone
Canada (Environment Canada)	1	39	40	-	-	-	-	-	Barriers section (1.4) deals with market and economic barriers. Reference should be made back to this section rather than repeating here.	Will clean up ref
Patrick Matschoss (TSU)	1	39	27	-	-	-	-	-	check whether issue is really dealt with in chapter 9	Will check
Youba SOKONA (Sahara and Sahel Observatory)	1	39	10	39	12	-	-	-	I do not know cases where kerosene is a payed on monthly basis. Kerosene is purchase in very small fraction depending on availability of financial resources in most of poor rural areas. Here you certainly mean electricity.	IT is the payment within a month that is meant. This will be clarified.
United States (U.S. Department of State)	1	39	40	-	-	-	-	-	It is not addressed that the construction of dams and reservoirs can lead to overall increased carbon emissions due to deleterious land impacts.	Will mention

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Rory Gilsean (Natural Resources Canada)	1	39	25	39	28	-	-	-	Note that the development of RE, particularly biomass energy systems, can also improve the economics of many traditional primary industries. For example, farmers and foresters might be able to obtain economic value from residues that were traditional burnt or landfilled as waste. Or, as you have previously mentioned, farmers can erect windmills on their land. In this way, rural economies can be revitalized.	This point is made in ch 2
Japan (the Japanese Ministry of Foreign Affairs)	1	39	20	-	-	-	-	-	Perhaps "Section 1.1.4" should be "Section 1.1.6"	Accepted
Patrick Matschoss (TSU)	1	39	20	-	-	-	-	-	refers to section 1.1.6	See revised text
Norway (Climate and Pollution Agency)	1	39	6	39	8	-	-	-	Some refer to this as 'creating a technological ecosystem', a rather nice picture which you may wish to use.	Will consider. Do you have a reference?
Canada (Environment Canada)	1	39	30	39	32	-	-	-	Suggest deleting "AR4 includes (Klein, et al, 2007)" as it references information in another literature source without integrating it into assessment.	Will examine ref
United States (U.S. Department of State)	1	39	27	39	28	-	-	-	This is not a well documented result. It is suggested that the language be tempered to say some types of RE systems "may" create considerably more jobs. This is also a case where centralized electricity generation is criticized.	Will provide ref
STEPHANE POUFFARY (Energies 2050)	1	39	19	-	-	-	-	-	This paragraph may be deleted here (see the previous comment) and reused elsewhere. Adaptation issues need to be more developed (it is the case in another Chapter).	Accepted
Patrick Matschoss (TSU)	1	39	10	39	12	-	-	-	up front cost as barrier already mentioned under cost issues (1.4.5.1 d), financial mechanism belongs to policy	See revised text
ICHIRO MAEDA (The Federation of Electric Power Companies of Japan)	1	39	1	39	2	1.4.6.1	-	-	<comment> This should be exaggeration, and should be replaced with a weaker expression, such as "some energy suppliers have taken a cautious stance to RE".	Accepted
Emmanuel Branche (Electricité de France)	1	40	39	40	39	-	-	-	"novel" is not appropriate as there is no new RE (they are all known by many years, even if they are non commercially viable at the moment). Proposition to replace "novel" by "non mature"	Accepted
Patrick Matschoss (TSU)	1	40	13	40	19	-	-	-	A number of concluding statements that need to be supported by - preferably peer-reviewed - Sources, or refer to other chapters where it is covered, if at all; colloquial style, rephrase	Will search for peer reviewed support and add references.

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United States (U.S. Department of State)	1	40	18	40	19	-	-	-	Authors should include a discussion of the pros and cons of feed-in tariffs as well as other policy options without favoring particular options.	The discussion takes place in Ch 11. We do not advocate but use this example to illustrate the point that a policy has impact on RE growth.
Patrick Matschoss (TSU)	1	40	39	40	46	-	-	-	Here, too, overlap with barrier discussion on external effects, do not discuss here again	Will reduce or eliminate as necessary and ensure the concept is captured under barriers.
Patrick Matschoss (TSU)	1	40	44	40	46	-	-	-	Overlap to barriers on market regulation and also needs to be referred to integration chapter	Will reduce or eliminate as necessary and ensure the concept is captured under barriers.
Patrick Matschoss (TSU)	1	40	27	40	38	-	-	-	Para redundant to barrier discussion in 1.4.1, there the stringency of the argument is better then here. The conclusion at the end of para appears unrelated to the text, instead reasoning should be that because appropriability for firms is harder/easier in basic/applied research governments should play a stronger/weaker role (as laid out in 1.4.1). The real discussion on this in Fisher et al 2007 is in 2.7.2.2. and 2.7.2.3 under the label of demand pull vs technology push. The basic arguments should be made in the barrier discussion and not be repeated in 1.5. Focus here on the policies themselves and refer to 1.4.1 where necessary. That is, use 1.4.1 (or the merged sections 1.4.1 and 1.4.5 - see comments there) as the main place to discuss the issue of double externality/market failure (environmental & R&D) building on Fischer et al 2007, section 2.7.2.3	Will reduce or eliminate as necessary.
Huiyong Zhuang (National Bio Energy Co., Ltd.)	1	40	-	-	-	-	-	-	part of 1.5 can be shortened.	Accepted
Patrick Matschoss (TSU)	1	40	7	40	8	-	-	-	strong statement, not clear from text whether this statement is covered as it is in chapter 11, rewrite along the lines "literature consistently shows¿" to show that this is conclusion from literature review	Statement doesn't seem strong, if RE to move ahead, policy action is required.
United States (U.S. Department of State)	1	40	18	-	-	-	-	-	The report should not come across as favoring feed-in tariffs.	We agree, these are given as examples, not as support
United States (U.S. Department of State)	1	40	39	40	46	-	-	-	This section makes a good point about market barriers but this should be moved to the previous section devoted to market barriers.	Will reduce or eliminate as necessary and ensure the concept is captured under barriers.
United States (U.S. Department of State)	1	40	44	40	46	-	-	-	This statement may be true, but one should not dismiss the fact that there are not just regulatory barriers but also technical reasons that make it more difficult for utilities to incorporate variable resources into their systems.	We agree, these are given as examples related to policy, the title of this section. This does not contradict the notion that there are other issues (which are addressed elsewhere).
Patrick Matschoss (TSU)	1	41	1	-	-	-	-	-	...to the market¿	Text is fine as is.

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massimo tavoni (FEEM and CMCC)	1	41	10	-	14	-	-	-	Bosetti etl a. 2010[Bosetti, V., C. Carraro, R. Duval, M. Tavoni ""What should we expect from innovation:A model assessment of the environmental and mitigation cost implications of climate related R&D"", FEEM working paper 42.2010] have shown that complementary R&D policies can improve efficiency, though to a lower extent when second best policies are considered.	While a valid point, as gray literature, we will retain as written
United States (U.S. Department of State)	1	41	15	41	16	-	-	-	Edmonds, et al 2004 should be checked to if it has been misrepresented.	It is Edmond, et al, 2008
United States (U.S. Department of State)	1	41	29	-	-	-	-	-	Fossil fuels receive large government subsidies, according to one study \$50 billion per year in the U.S. Renewables would be much more competitive with a level playing field. This is mentioned in the next section but should be pointed out here.	The issue of subsidies is major but is very complex and is not useful here where the focus is on .
United States (U.S. Department of State)	1	41	46	42	13	-	-	-	It would be helpful to put these policies in the context of a socially optimal investment framework. This paragraph speaks only to policies that result in more RE, not to whether those policies were cost-effective. It is useful to distinguish between the support necessary to account for the climate externality and other market failures and that which is simply done in support of a social goal to achieve more RE deployment.	This is addressed in more detail in Ch 9 and Ch 11
Rainer Walz (Fraunhofer Systems and Innovation Research)	1	41	42	41	43	-	-	-	literature quotation is printed twice; Freeman/Soete 2000 is a textbook for students; there has been specific experience published on the experience of demand and supply policies; referring to them would also enhance the argument of this paragraph (see comments to chapter 11)	Accepted
Patrick Matschoss (TSU)	1	41	46	42	22	-	-	-	rendundant to p. 27, l. 13-22, merge there; seems to be partly contradictory or at least unclear who was the leading producer of wind turbines at what point in time; furthermore, need more sources and NEWER sources, in particular: the assessment of policies as it is, is not based on peer reviewed literature but on one dissertation from 2001 and REN 21	Will reduce or eliminate, ensuring consistency with earlier section.
Patrick Matschoss (TSU)	1	41	10	41	21	-	-	-	Scenario discussion would be better suited in ch10, coordinate with section 10.5	Accepted
Patrick Matschoss (TSU)	1	41	6	41	8	-	-	-	sentence unclear and needs to change language at the end	Accepted
United States (U.S. Department of State)	1	41	46	42	13	-	-	-	Some discussion of policies intended to support R&D should be included.	This is addressed in more detail in Ch 11
Patrick Matschoss (TSU)	1	41	27	-	-	-	-	-	statements need to be supported by - preferably peer-reviewed - Sources	Will supply ref
Canada (Environment Canada)	1	41	7	-	-	-	-	-	Suggest replacing "ameliorate" with "reduce".	Accepted

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
United States (U.S. Department of State)	1	41	39	41	40	-	-	-	The description of price is incomplete. The price affects not only demand but also supply. It isn't only about affecting consumer's preferences but also about suppliers looking for the cheapest ways to abate, which often means fuel switching.	Commenter is correct but we wish only to reflect the impact of price on demand pull.
Patrick Matschoss (TSU)	1	41	14	-	-	-	-	-	The question on crowding out needs fuller discussion or leave away since there is diversion of funds from general R&D in other models; see, for instance Goulder & Schneider (1999, resource and energy economics 21)	left out
United States (U.S. Department of State)	1	41	21	-	-	-	-	-	There is a danger here in implying that renewable technologies are not yet ready. PV modules are very reliable and there is over 20 years of experience with CSP, biomass, and geothermal power plants. These technologies can be deployed on a large scale now. As in Table 1.2, pg. 18, in the section on Technology Maturity, most of the renewables have checks in the last column indicating later stage commercialization. It should be made clear that while some renewables need development most are deployable and will experience further cost reductions as they are deployed due to economies of scale and learning curve effects.	The statements clearly refer to NEW TECHNOLOGIES and thus doesn't relate to existing ones.
United States (U.S. Department of State)	1	41	10	41	18	-	-	-	This is a run-on sentence. The next sentence is also endless and needs to be rewritten.	Software generated error now corrected
Australia (0)	1	41	32	-	-	-	-	-	This section could be summarised as 'policy certainty is important'	Accepted
Patrick Matschoss (TSU)	1	41	4	-	-	-	-	-	would enable?	Text is fine as is.
Rory Gilsenan (Natural Resources Canada)	1	41	-	-	-	1.5.2	-	-	General comment on this section ζ one could also argue that there is a role for government to provide support for supporting infrastructure. For instance, most RE technologies require grid integration that the technology developers can do little about. Some of the new biofuels need different distribution equipment and networks to get product to market ζ mixing centres, hydro-cracking, stainless-steel equipment to avoid corrosion are all examples.	The statement is true but this section focusses on commercialization. One could argue that infrastructure issues are more universal, and are not related to commercialization alone.. They are also addressed in a following section.
Brazil (Ministry of Science and Technology)	1	41	10	41	11	1.5.2	-	-	Probably it is missing BUT in the sentence: The importance of policies to enhance technology development, described above, is crucial to the	Accepted
Canada (Environment Canada)	1	41	-	-	-	1.5.2	-	-	Section is difficult to understand and requires editing.	Will modify
Brazil (Ministry of Science and Technology)	1	41	11	41	16	1.5.2	-	-	The sentence needs revision. The comprehension is not clear.	Software generated error now corrected
Steve Sawyer (Global Wind Energy Council)	1	42	27	42	28	-	-	-	Suggest, " ζ .need to introduce new technologies and to upgrade and transform transmission and distribution systems.	Accepted

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
United States (U.S. Department of State)	1	42	14	-	-	-	-	-	In mentioning the U.S. it should be stated that half the states have renewable portfolio standards. Some attempt should be made to discuss how successful they have been.	We will address this point
Japan (the Japanese Ministry of Foreign Affairs)	1	42	18	-	18	-	-	-	It should be noted that Japan has reinstated domestic incentives in April 2010.	Accepted
Patrick Matschoss (TSU)	1	42	27	42	34	-	-	-	liaise with chapter 8	Will address this in the context of ch 8
Patrick Matschoss (TSU)	1	42	27	42	34	-	-	-	no sources! Needs to be coordinated with integration chapter	Will address this in the context of ch 8
United States (U.S. Department of State)	1	42	19	42	22	-	-	-	Quantitative and complete comparison between FE, NE, and RE subsidies is very hard to come by. Please provide some estimates of how they compare to support this section. In line 20, the mention of nuclear power plants along with fossil is inappropriate. Attempts have been made to remove subsidies for fossil fuels because they contribute to the climate change problem, which is the subject of this report. Nuclear plants do not, however, contribute to the climate change crisis.	While the statement is true, the point of this section is not a relative subsidy comparison but rather a notion that subsidies can distort supply side
Patrick Matschoss (TSU)	1	42	32	42	34	-	-	-	refer to barrier section	Will coordinate with barriers section
Patrick Matschoss (TSU)	1	42	2	-	-	-	-	-	relatively easy? Explain or delete	Deleted
Emmanuel Branche (Electricité de France)	1	42	14	42	14	-	-	-	RPS should be defined	Accepted
Mark Fulton (Deutsche Asset Management, Deutsche Bank)	1	42	9	42	10	-	-	-	We would argue that the supply push of RE technologies has been primarily driven by financial incentives and subsidies in the US over recent years (particularly the Production and Investment Tax Credits, Section 1603 Treasury Grant Program and Loan Guarantees), and NOT R&D subsidies. If the R&D subsidies are meant to reference an earlier point in time (prior to the creation of these other policy mechanisms), please note the specific timeframe or clarify the statement.	We will address this point
Emmanuel Branche (Electricité de France)	1	42	27	42	34	-	-	-	What is the source of this paragraph ?	Will find references
Canada (Environment Canada)	1	43	-	-	-	-	1.13	-	Diagram is overly simplified and could be deleted. Suggest also caution at using photos and clipart without citing sources	Diagram will be modified
Patrick Matschoss (TSU)	1	43	2	43	4	-	-	-	difficult to read, rephrase	Will modify

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
David Clubb (European Environment Agency)	1	43	7	43	9	-	-	-	Further information: One recent study suggests that the effect of RE could be to increase short-mid-term consumption of fossil fuels (see http://www2.toulouse.inra.fr/lerna/travaux/cahiers2010/10.08.314.pdf)	Unable to access this source without special permission
Patrick Matschoss (TSU)	1	43	12	43	21	-	-	-	integrate into 1.3.1.1, also relates to 1.4.3.2	Will integrate with suggested sections
Christoph von Stechow (IPCC WGIII TSU)	1	43	16	-	-	-	-	-	Please consider inserting a cross-reference to chapter 2.5.3	Will integrate with suggested sections
Patrick Matschoss (TSU)	1	43	9	43	11	-	-	-	unclear: analyses on demand of oil? Is the impact on unconventional oil even greater than on conventional oil?	Will modify
Emmanuel Branche (Electricité de France)	1	44	6	44	12	-	-	-	I am not sure that such a political proposal should be included in an IPCC special report ?	Deleted
Patrick Matschoss (TSU)	1	44	6	44	11	-	-	-	quote has no value added, delete	Deleted
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	44	6	44	6	-	-	-	This is not an official goal of the German government. BMU is only one ministry, and its statement is neither an official nor even a publicly announced and binding goal.	Deleted
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	44	1	44	5	-	-	-	This only true in the short run. In the long run demand must follow supply. If there is a huge share of RE, only the balance between demand and supply is an answer to ensure security of supply.	Will be reviewed and rewritten
United States (U.S. Department of State)	1	44	6	44	12	-	-	-	This paragraph should should be improved considerably so that is much more balanced and could also be combined with earlier material.	Deleted

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United States (U.S. Department of State)	1	44	1	44	20	-	-	-	This section needs to be less plaintive and more balanced and factual. For example, while it may be true that feed-in tariffs appear to be more effective than RPS, it should be noted for balance why this may be true. If this conclusion is based on the German feed-in tariffs as the model, it should be stated that these tariffs provide an incentive of about 50 cents/kwhr and guarantee that rate for 20 years. The reader can then interpret the conclusion with some specificity, rather than an undefined absolute. There are, indeed, institutional barriers, to RE integration into the grid. But a balanced context should say why. Rather than inferring that these are "biases" against RE, one might say, "Most countries have found that there are significant non-economic, non-technical, institutional barriers to introducing RE power to the grid. This is often a result of the regulatory structures that govern power supply and delivery to the public. Because of the importance of electricity to health and safety, as well as economic activity, these structures tend toward conservatism and risk avoidance, emphasize reliability, favor traditional technologies over less knowns, and seek community-wide benefits of low cost power. These values have their place, but perspectives that both acknowledge them and include RE can give rise to win-win solutions. Where these issues have been successfully addressed, the penetration of RE has been greatest.	Will be reviewed and rewritten
United States (U.S. Department of State)	1	44	5	-	-	-	-	-	This seems to repeat earlier statements.	Will be reviewed and rewritten
Patrick Matschoss (TSU)	1	44	1	44	5	-	-	-	Very big statement, it cannot stand here as an overall conclusion, it does not flow from the previous market-pull versus techn-push double externality discussion, integrate statement and lit into revised 1.4.1, 1.5.1, 1.5.3, furthermore, buttress by more up-to-date AnD PEER-REVIEWED lit	Will be reviewed and rewritten
United States (U.S. Department of State)	1	44	1	44	5	-	-	-	Yes, but at a higher cost, right? I thought it would be helpful somewhere in the report (Chapter 11 doesn't seem to address it either) to discuss some of the long-term impacts of feed-in tariffs vs. RPSs, especially how do they affect the R&D chain?	Will be reviewed and rewritten
ICHIRO MAEDA (The Federation of Electric Power Companies of Japan)	1	44	16	44	20	1.5.7	-	-	<comment> Nowadays, many utilities in the world are making efforts to introduce and expand RE into the existing energy system. These recognitions are incorrect and should be corrected.	Will modify
Richard Taylor (International Hydropower Association)	1	44	15	44	15	1.5.7	-	-	Delete ""large"". Comment: The classification of hydropower by scale is out of step with the SRREN SOD Hydropower Chapter (5).	Accepted

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Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	44	-	-	-	1.5.7	-	-	The section seems to be unfinished. Its heading is not corresponding to the text.	Will modify
Patrick Matschoss (TSU)	1	-	-	-	-	-	-	1.1	All ratios need to be double checked! Liaise with techn chs; Inconsistent when 500 EJ/y is used, value for Solar: numbers switched; column "total reserve" necessary at all if not available? Pls clarify why no nbers given (n/a)	Reviewer misinterprets data, which means we need to be clearer as to what it means.
Gerrit Hansen (TSU)	1	-	-	-	-	-	-	1.1	Figure reported for Geothermal is not a flux (but total energy stored in earth crust). Please reconcile with chapter 4 to retrieve a significant figure. Table is misleading: ratio and lifetime figures seem to be compared (resulting in a comparison of renewable flux with stock lifetime), it is not clear if total lifetime relates to the current use of the fuel or the global energy demand. please consider the use of the term "theoretical potential" in text relating to this figures.	Thank you for your interesting calculation
Patrick Matschoss (TSU)	1	-	-	-	-	-	-	1.1	Geothermal potential appears extraordinarily high, here order of magnitude is wrong	These data are being reviewed for final draft
Christoph von Stechow (IPCC WGIII TSU)	1	-	-	-	-	-	-	1.1	How do the numbers 2,900 EJ/y for bioenergy and the 1,260 EJ/y of NPP mentionend in chapter 2 on page 10, line 3 relate to each other?	These data are being reviewed for final draft
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	1.1	The number on geo-thermal has to be corrected. It is impossible to believe that the annual flux from the earth is 40 times higher than that from the sun. The number implies that we are living on a world wide pavement heating system at about 8.7kW per m2!!! How do I find this number? 140 Million EJ are a constant output capacity of 4.439ExaWatt Distributing this equally on the world surface (land and water) of 510 Million km2 gives 8.7kW per m2. This is absolutely not reproduceble for me.	These are the data reported. Will recheck source
Ladislau Rybach (Geowatt AG Zurich (company))	1	-	-	-	-	-	-	1.2	An $\zeta \times \zeta$ must be added in the row ζ Geothermal/Direct use applications ζ also in the column ζ Primary Distribution Method/Centralized ζ (geothermal district heating systems operate in many countries).	Table is being redesigned. Will consider suggestion
Gerrit Hansen (TSU)	1	-	-	-	-	-	-	1.2	information on Bioenergy could be condensed without loss of information. "Sails and kites" in demo stage is misleading as sailing for transport is an ancient technology and should be specified. Why are "solar fuels" decentralized if all other alternative fuels are categorized as central. Table as such is very useful, but needs some refinement and consolidation with tech chapters.	Will examine

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Patrick Matschoss (TSU)	1	-	-	-	-	-	-	1.2	Source?; Taken from/checked with technology chapters? Bioenergy: Torrefied wood (ch2, p. 86) and pyrolysis (ch2, p. 33, 86), Microbial fuel cells (ch2, p. 93), Biomass CCS (ch2 p. 94) not included; Wind energy: delete "and sails";	Will add source
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	1.2	The cross at biomass lignocellulosic ethanol production being at an early commercialization stage seems to optimistic.	Will examine
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	1.2	The cross at wind kites and sails being at a demo stage seems too pessimistic. There is at least one firm in Hamburg, Germany, that aims at commercialization.	Will examine
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	1.2	The cross of biomass gasification-based power plant being at early stage commercialization is too optimistic in my perspective. I only know of a pilot plant operated in the 70ies in Scandinavia.	Will examine
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	1.2	What is the information content of this table. Where is it taken from?	Better explanation is coming in revision
Gerrit Hansen (TSU)	1	-	-	-	-	-	-	1.3	It is not evident why, based on the definition given above, the technical potential should be different in 2020, 2030 and 2050. Please comment on this in the text, as the use of the term technical potential throughout the SRREN and in technology chapters is rather unconditional concerning time.	Will explain how new research can expand technical potential
Gerrit Hansen (TSU)	1	-	-	-	-	-	-	1.3	please reconcile figures for Solar CSP range of estimates, and information given in the column named "sources for ranges of estimates". The according figures can not be found in chapter 3. table is not consistently reporting SRREN numbers in addition to Krewitt et al. for ranges of estimates. Compare e.g. for geothermal table TS4.1; a row for "total" values might add to readability as TS and chapter 1 text refers to total technical potentials.	will address
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	-	-	-	-	-	-	1.3	Seems strange that offshore wind has a lower technical resource than ocean energy??? Technology for former exists today whilst not for latter; from our point of view, this is out of date.	Data is being updated
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	1.3	The table should summarize the findings on potentials from the report. The table however seems to be additional to all the other findings in the technology chapters. This must be coordinated with the technology chapters.	This will be done

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Timm Zwickel (IPCC WG III)	1	-	-	-	-	-	-	1.3	This table can also be found in Chapter 10 (Table 10.3.1) and the TS (TS.1.1) and SPM (SPM.4.1). I suggest to remove this table from Chapter 10 and to only have it in Chapter 1. It should then be referenced and discussed in Ch.10 if needed. Before removing the table please provide all information collected in Ch.10 to Chapter 1, as though the tables seem to have the same origin, they have forked and developed differently. In the columns "Range of Estimates" this table should give the full range that is found in the report, not just Krewitt, 2009. It should be discussed why this figure gives the Technical Resource Potential particularly for the Krewitt paper.	Will consider deleting in Ch 10. Justification of Krewitt paper will be provided
Emmanuel Branche (Electricité de France)	1	-	-	-	-	-	-	1.3	Why to add different values that the one provided by Krewitt et al. (2009) in the column "sources for Range of Estimates". According to me only Krewitt et al. (2009) values should be provided, and the column "Sources for Range of Estimates" should be deleted. Reference to the relevant technical chapters for accurate data should be mentioned	Range is based on technical chapter assessments
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	-	-	-	-	-	-	1.4	If biomass costs are not included, should Ocean energy costs be included? Latter is at R and D stage/early demonstration.	WILL BE REVISED
Steffen Schlömer (IPCC WGIII)	1	-	-	-	-	-	-	1.4	Include numbers on the total capacities installed worldwide. LRs do not provide much useful information, unless it becomes clear how much capacity is required to achieve the next doubling and bring cost down by the percentage figure given as LR.	Will explain how new research can expand technical potential
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	-	-	-	-	-	-	1.4	Offshore wind cost appear to be to low, cost for North Sea projects are about 18 ct/kWh (2010).	WILL BE REVISED
Steffen Schlömer (IPCC WGIII)	1	-	-	-	-	-	-	1.4	Please correct LRs to reflect updated input from chapter 3. Solar 11-26%, CSP 5-15%.	WILL BE REVISED
Robert Pietzcker (PIK)	1	-	-	-	-	-	-	1.4	The learning rates still use the old FOD numbers, not the updated SOD numbers	WILL BE REVISED
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	1.4	The table only presents number on electricity, though the caption says energy. Moreover, note that the %-numbers refer to the interest rate. Finally, a lot of cells are empty.	WILL BE REVISED
Patrick Matschoss (TSU)	1	-	-	-	-	-	-	1.5	As the whole section should be deleted/be placed in appendix II only, an extract of this, using the direct equivalent numbers only, should go into 1.3.3. (i.e. the new section 1.3.3.1 - refer to addendum); on numbers: i) are these consistent with what technology chapters are using? They should, at least as a starting point, pls coordinate; ii) Is it possible to estimate that precisely? Suggest to round to full numbers	MOVED TO APPENDIX
Patrick Matschoss (TSU)	1	-	-	-	-	-	-	1.6	a) include overall % of electricity to put into perspective, b) sort technologies by chapter order, c) for purely didactical reasons pls use real percentage, 100%, 73% etc	Accepted

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Patrick Matschoss (TSU)	1	-	-	-	-	-	-	1.8	delete table; summarizing para instead; the main point that needs to be made is that moving up the energy ladder means improvements of energy services and it may be mentioned that this is one target of technical cooperation but there is little value added in listing how many devices have been distributed in what countries; detailed comments: Cooking and lighting: what about the households in II, III and IV? Also bio digestors? Small scale biomass gasification II: how many more?	Delete
Gerrit Hansen (TSU)	1	-	-	-	-	-	-	1.8	Information on solar home systems is missing. 2 rows on small scale biogas (2 and 3) should be condensed, for rural electrification, to differentiate between small and mini/micro hydro would be useful. Information in this table is mostly not contained in technology chapters. Please reconcile.	SHS data to be provided and differentiate on mini hydro systems
Gustavo Nadal (Fundacion Bariloche)	1	-	-	-	-	-	-	1.8	Mechanical Wind pumps in Argentina were around 360,000 in year 2007 (source: Balance Energético Nacional, Serie 1960-2007, Año2007 (preliminar), Secretaría de Energía, República Argentina,page 36,October 2008.	Figures to be adusted based on additional data provided
Patrick Matschoss (TSU)	1	-	-	-	-	-	-	1.9	amend when 1.4.1 and 1.4.5 are merged	done
Taishi Sugiyama (Central Research Institute of Electric Power Industry (CRIEPI))	1	-	-	-	-	-	1.1	-	Delete this diagram. It is misleading as this graph overly downplays the uncertainty of climate sensibility. At least you must consult with WGI LCAs of AR4 if it is appropriate representaiton.	Revising figure
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	-	-	-	-	-	1.1	-	Figure is disarranged.	REVISED
Gerrit Hansen (TSU)	1	-	-	-	-	-	1.1	-	figure is not clear, particularly regarding the sinks	Revising figure
Brazil (Ministry of Science and Technology)	1	-	-	-	-	-	1.1	-	Should change to: Historical data is gross emissions of fossil fuels, cement, forest burnings and land use change for agriculture and landfill gases from 1860 to 2000.	Revising figure
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	1.1	-	The depiction of the sinks is somehow confusing. Moreover, do the positive values indicate that sinks were a net source of emissions to the atmosphere? Moreover, the overall level seems high to me.	Revising figure
Ladislau Rybach (Geowatt AG Zurich (company))	1	-	-	-	-	-	1.1	-	The EJ number for Geothermal in Primary Energy Supply (second from bottom) should be 0.4 (see Table SMP 2 [2]) instead of 2.1.	REVISED
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.1	-	Title: Primary renewable energy supply	Noted.

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Patrick Matschoss (TSU)	1	-	-	-	-	-	1.1	-	Unclear. Why do sinks only appear 1980-2010? To make the point on gross emissions exceeding absorption rate: show continuous line over the whole time frame representing amount of absorption; show continuous line of gross emissions of the past as well as several for the respective scenarios: mark difference as net emissions / net absorption. Legend is missing; Text: delete "moderately" in front of "uncertain"	Revising figure
United States (U.S. Department of State)	1	-	-	-	-	-	1.1	-	Would prefer to see "Other" category in final energy use be broken out.	Noted.
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	1.11	-	The figure is not referenced in the body of the text.	Ref will be provided in text or in figure caption, but not both
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	1.11	-	The figure makes no sense in the section where it is placed because it is about energy and the section is about "energy consumption and access to electricity". Hence a figure that brings together the two aspects would be helpful.	Figure is moved
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	1.11	-	The x-axis refers to GJ per capita, but the caption talks about TJ per capita. This is a difference of three orders of magnitude. [The physical distance on my print out between the two contradicting entities is less than a centimeter.]	Will fix. Thank you
Norway (Climate and Pollution Agency)	1	-	-	-	-	-	1.11	-	This figure about Total primary energy supply per person in various countries should be moved to after the text in this section since it only deals with the supply while the title on the section is consumption and accessibility to electricity. It should be made clear if the figure is about total energy or only electricity. Consider a different wording in the title or an explanation. Energy supply can potentially be very high due to import of energy and may not be the best indicator in relation to the purpose of the section. In Europe there is a lot of import and export of electricity and natural gas and for oil this is true for all countries. Hence it would be more useful to focus on aspects like "energy consumption per person" or "domestic energy production per person". Furthermore the figure should be supplied with more figures to complement the picture.	REVISED
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.11	-	TWh for electricity	The final draft of the SRREN will be processed by a professional copy-editor. All editorial comments such as this will be resolved at that time.
Fernando Rubiera (Instituto Nacional del Carbon (CSIC))	1	-	-	-	-	-	1.12	-	It could be removed to shorten the Chapter, as it is well explained in the text, and the figure is quite simple	Figure will be adjusted or removed during write up

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Patrick Matschoss (TSU)	1	-	-	-	-	-	1.2	-	Value added? Time frame should be 1860-2050 in order to show the past rise of fossil fuels with industrialization and the future re-emergence of RE. IEA-ETP may have data until 2050	This is being considered
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.3	-	Both graphs necessary? Suggest to have b) only	Will consider
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	1.3	-	The little jump in the year 2005 for the population component was already mentioned in my last review. Why has this not been changed? The data problem is obvious and it raises doubts regarding all other information contained in the graph.	We have found correction to data. Thanks for bringing this to our attention
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.4	-	changes with respect to previous year or previous 5-year-period?	Previous year
Gerrit Hansen (TSU)	1	-	-	-	-	-	1.5	-	Figure design should be changed to distinguish between nuclear (producing radioactive waste) and other fossils (producing co2), at the moment it could be read as both technologies produce both impacts. It should be justified in the text why e.g. uranium and coal surface mining and LUC is not included.	Figure is being revised
Fernando Rubiera (Instituto Nacional del Carbon (CSIC))	1	-	-	-	-	-	1.5	-	It could be removed to shorten the Chapter. Only a brief reference to this figure (that should be also removed) is made in page 13 line 27: See Figure 1.5	Revised and explained better
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.5	-	What's the main message here? Also needs explanation what are the different shapes, symbols etc?	Figure is being revised and improved explanation provided
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.6	-	Fig puts RE and fossil fuels in the same category which is only true for very long time scales; needs a qualifier or delete fossil fuels altogether fom Fig	Figure has been revised
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	-	-	-	-	-	1.6	-	Figure is not well explained, the arrows in both directions are not explained, disarranged.	Figure has been revised
Brazil (Ministry of Science and Technology)	1	-	-	-	-	-	1.6	-	In Figure 1.6 ""types of energy conversion"" are illegible.	Figure has been revised
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.6	-	Is it correct that geothermnl is fed by nuclear fission? According to glossary it is renewable	Figure is revised Should say nuclear energy as radioactive decay is the source of deep earth heat
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.6	-	It should be mentioned that the original source "Nuclear Fusion" is not man made but the sun radiation	YES
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.6	-	Nuclear produces electricity via thermal conversion - arrow nuclear-thermal conversion is missing	Figure has been revised
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.6	-	Solar (PV) can be converted into electricity directly - arrow is missing	Figure has been revised

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Ladislav Rybach (Geowatt AG Zurich (company))	1	-	-	-	-	-	1.6	-	This figure is incorrect and incomplete: 1) no connecting line can be drawn between the boxes Nuclear fission and Geothermal energy: geothermal heat is generated by the decay of naturally radioactive isotopes and not by nuclear fission; 2) a line needs to be drawn between the boxes Heat and Cooling (the widespread absorption chillers use heat sources like solar or geothermal).	Should say nuclear energy. New figure will address direct solar heating and cooling
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.9	-	despite its size and meaning biomass should not be singled out, rather put %-bars of RE into Figure or delete altogether (the point that biomass is important can be made in the text as well)	Figure deleted
Fernando Rubiera (Instituto Nacional del Carbon (CSIC))	1	-	-	-	-	-	1.9	-	The data corresponding to this Figure are given in the text, so the figure can be eliminated to shorten the Chapter	Figure deleted
United States (U.S. Department of State)	1	-	-	-	-	0	-	-	This chapter must provide more detail on the present status and future potential of RE, especially as it specifically relates to mitigating climate change. This should be the major focus of this chapter.	Revision will address this better
Brazil (Ministry of Science and Technology)	1	-	-	-	-	1.1	-	-	According to the AR4 WGI report, a fundamental aspect of renewable energy as compared to the fossil baseline is that energy from fossil origin results in a decrease in the atmospheric concentration of oxygen, whereas energy of a renewable nature does not	True, but will not be discussed here
Dr. Md. Sirajul Islam (North South University)	1	-	-	-	-	1.2	-	-	The term "renewable" can be further divided under two categories as "Perpetually Renewable" and "Potentially Renewable". Solar energy belongs to the first category, which means the resource will never end or unlimited; whereas biomass/firewood belongs to the second category, which means the resource can be renewed up to a certain limit, and they should be used within the sustainable yield limit. Potential for future development, Policy option to flourish them, etc in all aspects they are different. However, I wonder nowhere in this report such a classification is made. Biofuel, firewoods, etc are discussed in the same fashion as perpetually renewable energy sources, which they are not.	Mention this but will expand discussion
Patrick Matschoss (TSU)	1	-	-	-	-	1.3	-	-	Section needs to be restructured in a number of sub-sections (see addendum); especially 1.3.4 is redundant in many respects and needs to be rewritten (see specific comments); the thread of 1.3 should evolve around the main point that access to modern energy services correlates with development and that this needs to be low carbon, hence the case for RE. However, this is not clear from the structure of the text	1.3 has been revised to reflect comments

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IBRAHIM ABDEL GELIL (Arabian Gulf University)	1	-	-	-	-	1.4	-	-	discussion of barriers in different section of the reports creates some redundancy, it is preferable to devote a certain section to discuss all barriers except those which are relevant to specific technology. Those technology-specific barriers could be discussed in the relevant chapters of the report.	This is what is intended, and should be more consistent in final report
IBRAHIM ABDEL GELIL (Arabian Gulf University)	1	-	-	-	-	1.4	-	-	discussion of barriers in different section of the reports creates some redundancy, it is preferable to devote a certain section to discuss all barriers except those which are relevant to specific technology. Those technology-specific barriers could be discussed in the relevant chapters of the report.	This is what is intended, and should be more consistent in final report
Rory Gilsean (Natural Resources Canada)	1	-	-	-	-	1.4	-	-	General comment ζ since much of this section refers to later chapters, much of the text here might be considered unnecessary if you're looking to cut some text. You could simply list the barriers and give page references for where they are discussed in more detail.	Comprehensive overview here; particular application in chapters
Christoph von Stechow (IPCC WGIII TSU)	1	-	-	-	-	1.4	-	-	The analysis of capital market barriers (6th paragraph of 1.4.5.1, 1.4.5.2 and 2nd paragraph of 1.4.6.2) should not be scattered among different sub-sections and could even be classified under market failures.	This has now been done
IBRAHIM ABDEL GELIL (Arabian Gulf University)	1	-	-	-	-	1.5	-	-	Role of policy in RE deployment should come after reviewing the different policy options in chapter 11.	WILL CONSIDER
IBRAHIM ABDEL GELIL (Arabian Gulf University)	1	-	-	-	-	1.5	-	-	Role of policy in RE deployment should come after reviewing the different policy options in chapter 11.	WILL CONSIDER
Steffen Schlömer (IPCC WGIII)	1	-	-	-	-	1.5	-	-	The whole barriers section is very weak. There's a lot of overlap between the different subsections. Overall section 1.5 needs to be restructured.	See revised section
Norway (Climate and Pollution Agency)	1	-	-	-	-	1.5	-	-	This section is very broad, and rather fragmented (not systemized). Consider deleting it if page constraints are binding.	Noted.
Patrick Matschoss (TSU)	1	-	-	-	-	-	-	-	-	Blank
Emmanuel Branche (Electricité de France)	1	-	-	-	-	-	-	-	"Adaptation to climate change" should be more developed according to me in this chapter as it is a key issue	will address
Atul Raturi (The University of the South Pacific)	1	-	36	-	-	-	-	-	Check the sentence	Cannot determine which sentence
Gian-Kasper Plattner (IPCC WGI TSU, University of Bern)	1	-	-	-	-	-	-	-	formatting of CO2 emissions lacks a blank throughout and sometimes the subscript 2 is missing: "CO2emissions"	Accepted
Ladislaus Rybach (Geowatt AG Zurich (company))	1	-	-	-	-	-	-	-	My comments to Chapter 1 of the FOD have been considered.	Thank you

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Peter de Haan (Ernst Basler + Partner AG)	1	-	-	-	-	-	-	-	no comments from Reviewer P de Haan	INFO IS NEEDED
Frank Krysiak (University of Basel)	1	-	-	-	-	-	-	-	Some of the chapter's figures do not add much insight, such as Fig. 1.12, 1.13.	Will be addressed in revisions
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	-	The authors should contemplate about the audience they want to address. I do find only little interesting things for decision makers at the international level of climate change negotiations. There is much more being relevant for national policy makers. But, why do we need an IPCC Special Report for this audience? Why is not the IEA or IRENA the better institution to publish such a report?	will address
Patrick Matschoss (TSU)	1	-	-	-	-	-	-	-	The chapter has improved significantly with respect to the FOD. However, the chapter's structure and text flow still needs significant improvements in various parts. This requires the restructuring of a number of sections. Whereas rearrangements and streamlining is sufficient for some sections, other contain so many redundancies that an actual rewrite is necessary. An addendum to the chapter in combination with the comments provided in this xls suggests the necessary steps. Taken together, the task of final editing that would turn the various contributions into one coherent text has not yet been performed. On top of that many, many statements are still not properly referenced.	Will be addressed in revisions
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	-	The chapter must generally improve in scientific quality. There is a lot of small, formal mistakes that are self-evident from reading the chapter. The errors and contradictions put general doubt on the overall chapter.	Addressed in revision

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Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	-	The Chapter should elaborate what the relationship between RE, fossil fuels and climate change is. The chapter should make clear that it is technically feasible and - under current policies - most competitive to utilize fossil fuels over the coming decades. Although that would have a lot of positive effects on welfare, there is the problem of climate change and other externalities that would have negative impacts. If a certain cap on emissions should be achieved it would be necessary to employ various mitigation options. Supplying energy demand with RE would make it possible to maintain economic growth without growing GHG emissions. The potentials of RE are enormous, but there are a number of barriers and issues that need to be addressed. Appropriate policies can help to increase the deployment of RE and reduce the deployment of uncontrolled CO2 emissions from fossil fuel use. The most important policy tool - and this has to be emphasized in the report - is to limit CO emission by either a tax or cap-and-trade. This might not be sufficient to achieve mitigation targets at lowest possible costs, hence the need to implement additional instruments increases. Otherwise the emission mitigation costs would increase.	Revised text will reflect this
Netherlands (KNMI (Royal Dutch Meteorological Institute))	1	-	-	-	-	-	-	-	The overall quality of this introductory chapter does not meet the standard that may be expected from IPCC. Most importantly, the big picture as well as the red line is missing. There is no story conveyed and limited coherence between paragraphs. Introductions to the why to some pieces of information are sometimes missing and the links between the various bits of information in the chapter are not always clear. Texts are sometimes longwinded on more trivial matters and repeat similar messages multiple times. Examples are sometimes given without an indication of the general message they should support.	Addressed in revision
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	-	The report should ask the question what the role of early RE deployment is in a world where international climate policy lacks an internationally binding agreement on emission reductions.	This is a valid point but is beyond the scope of the report
Finland (Finnish Meteorological Institute)	1	-	-	-	-	-	-	-	The SPM divides the drivers for low fossil carbon economy in two groups. However, this is missing in Chapter 1. The practice of SPM also in Chap 1 could be used, as it gives very good overview of the drivers. In drivers related to policy factors like abatement of particulate emissions could be mentioned also.	Will make consistent with SPM
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	-	The text must be clear what arguments are supported by figures and tables. Sometimes the reader does not understand what he/she should learn from a figure; e.g. Fig1.11 is not even referenced in the text.	Figures and integration into text will be improved

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Name (Institute)	Chapter	From page	From line	To page	To line	Section	Figure	Table Info	Comments	Considerations by the writing team
Finland (Finnish Meteorological Institute)	1	-	-	-	-	-	-	-	The text of Chapter 1 contains some material which fits better to the ordinary chapters of SRREN. Especially subchapters 1.4 (Barriers, opportunities and issues) and 1.5 (Role of policy, R&D, deployment, scaling up and implementation strategies) could be shortened and material transferred to the Chapter 11.	Revisions will be done, but material will stay in revised ch1
Oluf Ulseth (Statkraft AS)	1	-	-	-	-	-	-	-	This chapter should elaborate bit more on the importance of long-term and predictable framework conditions.	Useful suggestion will be addressed
United States (U.S. Department of State)	1	-	-	-	-	1,5	-	-	Quantitative discussion of government-supported R&D worldwide in RE would be very useful here. Also, this section could be significantly shortened to meet page limits.	R&D will be addressed, and section shortened
Patrick Matschoss (TSU)	1	-	-	-	-	1.1.	-	-	See addendum for suggestion on restructuring this section	Noted.
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	-	-	-	-	1.1.1	-	-	Could be shortened and still give message.	will address
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	1.1.1	-	-	It would be helpful to refer to the Emission Budget approach proposed by Malte Meinshausen. See SRREN_Draft2_REVIEW_Bauer_Nico_Material6.pdf	Will examine ref.
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	1.1.1	-	-	The section would need a word on land conversion (deforestation for agricultural purposes) and bio-fuel production (co-emissions of nonCO2 GHGs).	will address
Patrick Matschoss (TSU)	1	-	-	-	-	1.1.1.	-	-	correct citation necessary as shown in AR4 (look up), not IPCC 2007 or WG1 or AR4 or Synthesis	will address
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	-	-	-	-	1.1.2	-	-	Could be shortened and still give message.	will address
United States (U.S. Department of State)	1	-	-	-	-	1.1.4	-	-	Some condensation of this paragraph would be helpful. It may be better to discuss the report as a whole in an Introduction to the report as opposed to chapter 1.	Will address in revisions
Patrick Matschoss (TSU)	1	-	-	-	-	1.1.6	-	-	addresses only positive aspects, should also address unintended side-effects, e.g. from biomass use such as land use conflicts (despite their mentioning in the barrier section)	will address

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United States (U.S. Department of State)	1	-	-	-	-	1.2.1	-	-	In addition to the need to address cost, this section should also cover the source of carbon emissions that are displaced. When renewables like PV provide peak power, they are typically displacing natural gas. But hydro, geothermal, and biomass power can displace some coal, which produces about twice the carbon emissions per MW as natural gas. This lack of a connection between the various renewables and the carbon emissions displaced is a major oversight in this chapter.	Excellent point will address
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	1.2.1	-	-	This sub-section must be coordinated with Chapter 8. So far it only refers to electricity, but there is much more to say about also other issues like co-emissions of bio-fuels, food-vs-fuel, bio-diversity loss, nature protection, fluctuations, etc. pp.	Will examine
Brazil (Ministry of Science and Technology)	1	-	-	-	-	1.2.1.1	-	-	Miss a reference to biofuels where the cost for integration in the conventional distribution chain is both known and low for low blends. Higher blends require adaptation (such as FlexFuel Vehicles) but are doable as prove the Brazilian experience at no cost uncertainty.	This is discussed in the biofuels chapter
Patrick Matschoss (TSU)	1	-	-	-	-	1.2.3	-	-	Has the additional use of the Ecofys 2009 study on potentials been considered (as agreed in Oxford)?	Yes, it is being used
United States (U.S. Department of State)	1	-	-	-	-	1.3.1	-	-	The discussion in this section seems a bit over simplified. The structure of the supply side is also informed by the nature of demand and its variation by time of day, so that some sources of energy are available to meet base load energy demand, while others can easily be online or offline to meet peak demand. Suggest adding some discussion of this to the section since it informs what mix of energy one might need.	Will address in revisions
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	1.3.1.1.	-	-	The sub-sub-section tries to treat two very distinct topics: energy conversion routes and energy efficiency issues. That part of the report should be devoted to the first part! The other issues are too technical for the introductory chapter.	Done
Patrick Matschoss (TSU)	1	-	-	-	-	1.3.1.2	-	-	Delete section, almost completely redundant with Annex II, instead place Box 10.1 here & amend (refer to long explanation in Annex II), insert very small section on methods in 1.1.7 (see addendum)	Removed from chapter and placed in Annex II with a brief explanation
Fernando Rubiera (Instituto Nacional del Carbon (CSIC))	1	-	-	-	-	1.3.1.2	-	-	Remove this section: already included in Annex II	Done
Patrick Matschoss (TSU)	1	-	-	-	-	1.3.2	-	-	include in new section 1.2.5 (specific characteristics), refer to addendum	Done

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Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	1.3.2	-	-	The whole sub-section is based on a hypothesis that renewables and energy end-use efficiency are connected by a positive synergy. However, there is not a single reference from the scientific literature. Anecdotal evidence like on page 25 line 17ff cannot count as scientific evidence according to IPCC standards. The four references provided here only pick-up single examples and at least the reference of Casten regarding CHP is not exclusively related to RE, but to CHP is general.	Will supply additional references
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	1.3.2.2.	-	-	This part is completely overstretching the reader. Put this into a technical appendix.	It has been moved to the technical appendix
Patrick Matschoss (TSU)	1	-	-	-	-	1.3.3	-	-	better references needed! With few exceptions it as all based on REN21	REN 21 is a good up to date reference, but will be supplemented with IEA data
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	1.3.3	-	-	The sub-section is poorly structured. Why are there two issues (alternative energy conversion pathways and statistical accounting system for primary energy) put into one sub-section? The technical stuff should be either deleted or put to a technical appendix	It has been moved to the technical appendix
Gerrit Hansen (TSU)	1	-	-	-	-	1.3.3.1	-	-	figures should be reported using direct equivalent method (e.g. 482 EJ PE in 2007)	Yes it should, thank you for finding this oversight
Patrick Matschoss (TSU)	1	-	-	-	-	1.3.5	-	-	Merge with 1.3.4 - see specific comments; here too the main point should be that climbing the energy ladder increases energy service levels and hence development but this thread is missing	1.3 has been re arranged
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	1.3.5	-	-	The hypothesis that RE are accelerating the climbing of the energy ladder has to be backed with scientific literature. Currently the opposite seems to be the case: more and more people abandon traditional biomass and replace it by cleaner and more comfortable use of fossil fuel and electricity to satisfy basic services such as cooking, heating and lighting.	1.3.5 will be revised to reflect effects of RE on energy ladder
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	1.3.5	-	-	The whole section is not backed with scientific literature. But there is some available and the results reported there would give the sub-section a different direction; see http://linkinghub.elsevier.com/retrieve/pii/S0301421508003029 , http://www.jstor.org/stable/4414526 , http://e-collection.ethbib.ethz.ch/view/eth:26089	Thank you for the references will revise accordingly
United States (U.S. Department of State)	1	-	-	-	-	1.3.5	-	-	This section could be more tightly focused on climbing the energy ladder, while eliminating the other stuff. In the 2nd paragraph, there is a chicken and egg problem with RE and, especially, institutions. Many developing countries need institutions and other human development before they can create the base for RE.	Text to be changed
Fernando Rubiera (Instituto Nacional del Carbon (CSIC))	1	-	-	-	-	1.3.6	-	-	This section can be removed in order to shorten the Chapter, as it is a wordy one.	Section deleted

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United States (U.S. Department of State)	1	-	-	-	-	1.3.6.1	-	-	This section, and the one following it, seem out of place. Consider deletion.	Section re arranged to 1.4
Patrick Matschoss (TSU)	1	-	-	-	-	1.4.1	-	-	merge with 1.4.5	This is what is intended, and should be more consistent in final report
Patrick Matschoss (TSU)	1	-	-	10	19	1.4.2.2	-	-	statements need to be supported by - preferably peer-reviewed - Sources	WILL CLARIFY DEFINITION
Patrick Matschoss (TSU)	1	-	-	10	30	1.4.2.3	-	-	statements need to be supported by - preferably peer-reviewed - Sources	Will provide ref
Christoph von Stechow (IPCC WGIII TSU)	1	-	-	-	-	1.4.3	-	-	Please consider discussing the relevant publications of Elinor Ostrom and behavioural aspects that are mentioned in section 11.4.1.2.	Will supply ref
Gerrit Hansen (TSU)	1	-	-	-	-	1.4.3.1	-	-	Reference to "NIMBY" could be read as belittling public concerns (particularly towards nuclear energy, comparison here seems not appropriate), an impression that should not be created. ["By contrast, many wind farms have had to battle the 'not in my backyard' (NIMBY) attitude before they could be established, as have nuclear power stations (Pasqualetti, Gipe, & Righter, 2002); (Klick & Smith, 2010); (Webler & Tuler, 2010)."]	NIMBY applies to many technologies and reference is made to wind
Patrick Matschoss (TSU)	1	-	-	-	-	1.4.3.2	-	-	Introductory sentence necessary that some RE lead to land use conflicts (hence barrier) and others don't	Agreed. will add
Patrick Matschoss (TSU)	1	-	-	-	-	1.4.4	-	-	merge subsections as resource and infrastructure issues are intertwined: centralized system due to high energy density of fossil fuels, most RE with less density, therefore more decentralized system necessary, some counter-examples exist however (large CSP/Desertec, offshore wind, co-firing biomass), Regulation has followed technical necessities - And the text needs to be better supported by sources!	Useful examples and references will be supplied
United States (U.S. Department of State)	1	-	-	-	-	1.4.4.1	-	-	This section should also mention how resource availability may be correlated with extremes in temperature (and other effects, such as cloud cover, rainfall, wind patterns, etc.) associated with climate change.	Impacts of weather conditions and CC will be expanded
Patrick Matschoss (TSU)	1	-	-	-	-	1.4.4.3	-	-	This needs a more thorough discussion on the issue of rate of investment in R&D and property rights and it relates to underinvestment in R&D mentioned in 1.4.1; patents shall increase appropriability of the returns on investments in order to have an incentive to invest in R&D, so there are two counter-acting effects	Will try to capture this conflict
Patrick Matschoss (TSU)	1	-	-	-	-	1.4.5	-	-	merge with 1.4.1	Chapter revised
Patrick Matschoss (TSU)	1	-	-	-	-	1.4.5.1	-	-	all the questions rely on only one source	Will try to add additional sources

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Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	-	-	-	-	1.4.5.2	-	-	Multinational and big companies are often in a better position to provide needed investments instead of project financed investments. This should be mentioned because for large offshore projects a well balanced risk structure is needed.	Will consider
Patrick Matschoss (TSU)	1	-	-	-	-	1.4.6.1	-	-	redundent with 1.4.4.2, merge under 1.4.4.	IT IS MOVED IN REVISION
Christoph von Stechow (IPCC WGIII TSU)	1	-	-	-	-	1.4.6.2	-	-	1st paragraph of 1.4.6.2 and 1.4.2.2 redundant, please consider merging.	will address
Patrick Matschoss (TSU)	1	-	-	-	-	1.4.6.2	-	-	it should be clear what the barrier is: the support? Lack of infrastructure	will address
Fritz Vahrenholt (Prof. Dr.) (RWE Innogy GmbH)	1	-	-	-	-	1.5.3	-	-	It should be mentioned that in the long run demand must follow supply. If there is a huge share of RE, only the balance between demand and supply is an answer to ensure security of supply.	Noted.
Patrick Matschoss (TSU)	1	-	-	-	-	1.5.3	-	-	redundant to 1.5.1, merge and together move to 1.4.1 (see comments on p.34, 14-23 and on p. 40 l. 27-46)	See revisions
United States (U.S. Department of State)	1	-	-	-	-	1.5.3	-	-	Some discussion of policies around the world is redundant with language in an earlier section so should be consolidated. This section is appropriate for discussion of the unintended consequences of some policies. Since GHGs are emitted by almost every sector of the economy, policies that take a partial approach or do not have GHG reductions as their direct goal could result in leakage, etc. Also, this section seems to be only discussing success when measured against penetration rates of renewables, while the goal should be achieving GHG reductions in the lowest cost way possible.	Will consider
Patrick Matschoss (TSU)	1	-	-	-	-	1.5.4	-	-	This section talks about technology needs instead of policy needs. As this is the policy section I would have expected text on the integration of RE-POLICIES in the sectoral POLICIES, e.g. integration of policies on solar PV in building codes etc	Policies are discussed in chapeer 11
Patrick Matschoss (TSU)	1	-	-	-	-	1.5.5	-	-	value added of this section unclear, POLICIES not mentioned, seems to be an issue policy-design; break up section: integrate parts of l. 2-12 in preceeding section and in 1.1.6 (or 1.1.5 after restructuring there - see addendum), move l. 14-23 to 1.3.1.1 and merge there	Will coordinate with ch 11
Patrick Matschoss (TSU)	1	-	-	-	-	1.5.6	-	-	merge what's left with 1.5.7 and conclude with what flows from the previous discussion; 1.5.7, however, relates to integration chapter, pull from there; choose less colloquial title (better alignment facilitates?)	This sectin is revised

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United States (U.S. Department of State)	1	-	-	-	-	Executive Summary	-	-	It would be useful if the ES also briefly acknowledged that in the mix of technologies that can be used to meet concentration goals are non-renewables such as nuclear and coal or natural gas with CCS. Current modeling efforts show that these could play a large role, though they are accompanied by their own set of barriers, risks, and uncertainties that are not the focus of this report.	Executive summary is being rewritten. Will consider
United States (U.S. Department of State)	1	-	-	-	-	-	1,1	-	Insert "Annual" between "Global" and "CO2". Change y-axis legend to read GtCO2/yr.	Done
United States (U.S. Department of State)	1	-	-	-	-	-	1,1	-	The 'sinks' treatment in this figure is unclear. Why are sinks floating in the middle? As a negative, consider plotting them below the x axis. Does the placement in time have significance? Where these the only times estimated?	Revising figure
United States (U.S. Department of State)	1	-	-	-	-	-	1,11	-	Figure should include a bar with the global average. Also address the discrepancy that units on x-axis are GJ, but the caption referenced TJ.	Noted.
United States (U.S. Department of State)	1	-	-	-	-	-	1,2	-	The projections shown in Fig. 1.2 would result in unacceptable atmospheric CO2 concentrations and should be eliminated or discussed in the proper context.	will address
United States (U.S. Department of State)	1	-	-	-	-	-	1,3	-	A clearer description in the text of Fig. 1.3 is needed.	Will explain more clearly
United States (U.S. Department of State)	1	-	-	-	-	-	1,3	-	The figure requires much more explanation. What are the units for the four multiplicative factors in the Kaya identity, and why aren't different vertical axes provided for each?	Will explain more clearly
United States (U.S. Department of State)	1	-	-	-	-	-	1,3	-	These are great charts. Is it possible to add data from more recent years to illustrate the impact of the financial crisis?	We are able to update by one year, and will try to add another, but it is hard to find more recent data
United States (U.S. Department of State)	1	-	-	-	-	-	1,4	-	Considering noting China's particular contribution to emissions' growth from 2001-2006--most of which was due to infrastructure build-out associated with urbanization and investment in heavy industry.	Will expand for each group
United States (U.S. Department of State)	1	-	-	-	-	-	1,5	-	Eliminate Figure 1.5 and the reference to it on pg. 13, line 27.	Will explain figure better
United States (U.S. Department of State)	1	-	-	-	-	-	1,6	-	Difficult to read the small text in the figure.	FIGURE IS BEING REVISED
United States (U.S. Department of State)	1	-	-	-	-	-	1,6	-	If figure is retained, show arrow going from Nuclear Energy down to Solid Fuel. A y-axis label is also needed.	FIGURE IS BEING REVISED
United States (U.S. Department of State)	1	-	-	-	-	-	1,6	-	The Nuclear Energy box is not connected to anything below it in the figure. Presumably it should be connected to the Heat and Kinetic Conversion boxes.	FIGURE IS BEING REVISED
United States (U.S. Department of State)	1	-	-	-	-	-	1,8	-	This figure is very misleading as a result of the inclusion of traditional biomass in the RE total.	Traditional biomass is part of total energy system
United States (U.S. Department of State)	1	-	-	-	-	-	1,9	-	Fix this discrepancy: the text says India has 20%, but the figure shows 28%.	Figure will be re adjusted during write up

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Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	1.2&1.3	-	Why this sequence of graphs? First history and future of energy supply is shown, then the view is turned on history in the broader perspective of also population, GDP is shown. It would make more sense to me to twist the sequence.	First graph shows overall trends, and next figure shows the factors leading to those trends
Patrick Matschoss (TSU)	1	-	-	-	-	-	1.6.	-	No arrows indicating that electricity may be used to produce hydrogen (i.e. store energy)	Actually to electrochemical box. Figure is revised
Richard Mueller (Climate Monitoring Satellite Application Facility, DWD)	1	-	-	-	-	-	TS1.2	-	same comment as for SPM1	First graph shows overall trends, and next figure shows the factors leading to those trends
United States (U.S. Department of State)	1	-	-	-	-	-	-	1,1	Combine Tables 1.1 and 1.3. The numbers in Table 1.1 showing that the geothermal flux is greater than the solar flux should be checked. The various potentials need to be properly defined when first used. It is important to explain how PV and CSP are divided and whether there is any double counting.	Will reverify data. This is not about specific technologies, but the total solar energy that strikes the earth's disk.
United States (U.S. Department of State)	1	-	-	-	-	-	-	1,3	Simplify this table and consider combining it with Table 1.1 to give theoretical potential and a mid-range technical potential for each type of energy.	Table is being revised
United States (U.S. Department of State)	1	-	-	-	-	-	-	1,4	Table 1.4, and the text supporting it, is too detailed. It is better to give a comparative table with all major generation technologies (coal, gas and nuclear as well as RE), their capital costs, and their LCOEs. This overview chapter is best for a comparative perspective, not details on different discount rates.	Noted.
Patrick Matschoss (TSU)	1	-	-	-	-	-	-	1,7	Delete table: Not clear from table that the use of non-commercial energy is a sign of inefficiency per se; would be only clear if energy use was related to service levels (if this kind of data is available); That is, the point that is made in the text cannot be seen in table; therefore explanations in text suffices	DELETED
United States (U.S. Department of State)	1	-	-	-	-	-	-	1,8	Omit Table 1.8 or address errors in the table: China represents 82% of improved biomass stoves, and India 15%. The Table states 95% and 25% respectively. Consider eliminating section 1.3.6.1.	Table to be deleted and figures adjusted based on additional data provided
United States (U.S. Department of State)	1	-	-	-	-	-	-	1,9	Include an explanation and/or an example in the table for each type of barrier.	explanation is in text
Nico Bauer (Potsdam Institute for Climate Impact Research)	1	-	-	-	-	-	-	1.1&1.3	What is the reason to have the two tables. The interested reader does not really find a justification in the text why both tables are presented.	The first table is the resource potential. The second one is the technical potential as to what part of that resource might be captured by RE technology