

Comments and Responses on Public Review Draft of SOCCR/SAP 2.2 (September 2006)

COMMENTS FROM PUBLIC REVIEWERS						AUTHOR'S RESPONSE						
Comment Number	Reviewer ID	Chapter	Page	Line	Comment Text	Acknowledged, but no further response or revisions are required	Revisions have been incorporated as suggested in the comment	Agree, but see "Notes on Response"	Agree, but elaboration is precluded by length limitations	Disagree; see "Notes on Response"	Beyond scope of report/chapter	Notes on Response
ES-001	13	Ex Summ & Chapt 1	All		We have chosen to comment on the draft SAP 2.2 report's Executive Summary (ES) after commenting on Chapters 1-5 because we understand that most of the summary material is derived from those chapters and we have, for example, commented on such ES matters as the statement that "The Earth's Carbon Budget Is In Balance" (see p. ES-1, p. 17) and the extent of stakeholder participation (see ES-2, lines 14-20) in the context of the relevant chapters. Therefore, it is not necessary to repeat those comments here. We presume that to the extent changes are made in the chapters pursuant to comments by EEI and others, corresponding changes will be made by the authors to the ES.		X					See response to comments for the individual chapters.
ES-002	3	Ex Summ & Chapt 1	All		It would be useful for users to include a table with the carbon budget listed separately for the U.S., Canada, and Mexico, similar to Table ES-1 in content and to Tables 3-1 and 11-3 in listing carbon budgets by country.		X					Table 3-1 has been reproduced in the Executive Summary. The former Table ES-1 has been deleted.
ES-003	11	Ex Summ & Chapt 2	ES-1		The first sentence in the Executive Summary is incorrect. The report focuses on the imbalance in the atmosphere's budget, not that of the whole Earth. The Earth is not losing or gaining carbon, and hence is in balance. Only some internal compartments are out of balance. While readers will appreciate the rhetorical intent of the first sentence, the fact still stands that it is wrong.		X					
ES-004	1	Ex Summ & Chapt 2	ES-1	26-27	There is a statement: "The concentration has increased by 31% since 1750, and the present concentration is now higher than at any time in the past 420,000 years, and perhaps the past 20 million years". This statement, based in part on studies of CO2 in the polar ice cores, is false. [See original comment for lengthy critique of ice core data] Ice core data do not present a reliable reconstruction of the composition of the past atmosphere, because polar ice is not a proper matrix for such studies.					X		The balance of scientific evidence and understanding is overwhelmingly in support of the ice core records as a reliable record of past atmospheric CO2 concentrations. The statements in the report are based on peer-reviewed published current best understanding such as those of the third (last published) IPCC assessment and describe that current state of accepted understanding.
ES-005	1	Ex Summ & Chapt 2	ES-1	26-27	To date, ice core studies are not able to provide a reliable reconstruction of CO2 level in the pre-industrial atmosphere. Obviously, you may ignore the evidence on lack of reliability of ice core studies, which consist the very foundations of the man-made climatic warming hypothesis. But then how can you escape from the trap of being biased?					X		See Note in Response to comment ES-005 above.
ES-006	1	Ex Summ & Chapt 1	ES-1	26-27	Why to mention 20 million years and not 35 million years, when CO2 concentration was 1500 ppm, and the global temperature was slightly lower than now? Why not say that 450 million years ago atmospheric concentration of CO2 was >6000 ppmv and temperature was about 3 centigrades lower than now?		X					Text has been revised to reflect the more scientifically certain characterization of atmospheric history and to more closely reflect, as a summary, the material in revised chapters (e.g. Chapter 2).
ES-007	3	Ex Summ & Chapt 1	ES-2	4	It is important to present here, at the beginning of the executive summary, the report's primary finding. Add the sentence "North America emits a net amount of 1 billion tons C y ¹ (± 500 million tons C y ¹) to the atmosphere (Table ES-1)		X					
ES-008	12	Ex Summ & Chapt 1	ES-2	5	The statement that N.A. is an "important" sink in the context of the global carbon budget is susceptible to misrepresentation unless it is immediately qualified by saying that it is much smaller than the emissions source.		X					

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ES-009	3	Ex Summ & Chapt 1	ES-2	10	It is important to state here the risk that climate change will cause a loss of the North American carbon sink. Add the sentence "Because climate change is increasing the frequency and extent of forest fires in North America (Gillett et al. 2004, Westerling et al. 2006), climate change could completely reverse the carbon budget by changing carbon sinks to emissions sources (Flannigan et al. 2005, Schaphoff et al. 2006)." References: Flannigan, M.D., K.A. Logan, B.D. Amiro, W.R. Skinner, and B.J. Stocks. 2005. Future area burned in Canada. Climatic Change 72: 1-16; Gillett, N.P., A.J. Weaver, F.W. Zwiers, and M.D. Flannigan. 2004. Detecting the effect of climate change on Canadian forest fires. Geophysical Research Letters 31: L18211. doi:10.1029/2004GL020876; Schaphoff, S., W. Lucht, D. Gerten, S. Sitth, W. Cramer, and I.C. Prentice. 2006. Terrestrial biosphere carbon storage under alternative climate projections. Climatic Change 74: 97-122; Westerling, A., H.G. Hidalgo, D.R. Cayan, and T.W. Swetnam. 2006. Warming and earlier Spring increase western U.S. forest wildfire activity. Science 313: 940-943.			X					The suggested revisions are too detailed and outside the style of the Executive Summary. However, revisions have been made to capture the point of the comment with details in the Chapters of the report.
ES-010	1	Ex Summ & Pt III Overview	ES-3	8-12	You cite IPCC, 2001, stating that CH4 and CO2 contribute together up to about 80% to the greenhouse effect. This is incorrect, as water vapor alone is responsible for >90% of the greenhouse effect, and man-made CO2 emissions contribute about 0.05 to 0.25% to this effect.		X						
ES-011	12	Ex Summ & Pt III Overview	ES-3	10-12	This sentence should specify whether the proportions of GH forcing are "instantaneous" (i.e., for forcing increments in the late 1990's) or cumulative (since 1750).					X		The information requested by the reviewer is already in the parenthetical on line 12.	
ES-012	13	Ex Summ & Chapt 1	ES-4	16-18	The sentence notes that North America, while accounting for about "30% of global" fossil fuel emissions, only provided "10% of the global extraction of fossil fuels" and "imported more than 50% of fossil fuels used." First, there is the absence of any calendar year for these statistics. Second, we question the relevance of these statistics to the issue of the North American carbon cycle, because other regions in Asia and Europe are also heavy importers of fossil fuels. (e.g., natural gas to Europe from Russia and oil to China and Japan). Moreover, as to some fossil fuels, the imports are within North America. There appears to be an unnecessary criticism of North America, which, like other regions, depends on fossil fuels for some imports, while also providing fossil fuels for its own use (such as coal). We urge deletion of this sentence.		X						
ES-013	12	Ex Summ & Pt III Overview	ES-4	30-32	The stated consistency between estimated global and NA sinks and areas holds only for the high end of the range of global estimates.		X						
ES-014	12	Ex Summ & Chapt 4	ES-5	10-16	This statement of mitigation and sequestration options is very general, and would be much more useful if the report included an assessment of likely future trajectories of sources and sinks. The endorsement of national government programs is not well substantiated in the report; in particular, the report does not contain any comparative assessment of voluntary vs. government measures.			X				This paragraph has been deleted from the Executive Summary and discussion of the topics left to Chapter 4 and its summary under the question of options later in the Executive Summary	

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ES-015	1	Ex Summ & Chapt 1	ES-5	23	Your report is misleading uninformed people. In the Executive Summary, page ES-5, line 23, it is stated that "The primary source of carbon in North America is the release of CO2 during the combustions of fossil fuels (Figure ES-1)". In fact, primary source of atmospheric carbon in Northe America and everywhere else, is not fossil fuel burning, but natural sources. The annual natural flux of CO2 (expressed as carbon) from ocean into the global atmosphere is about 106 Gt, and from the lands 63 Gt, summing up to a total of about 169 Gt. To this natural flux of CO2 the fossil fuels, land use, and cement production add about 6.3 Gt per year, i.e. about 3.7%. The North American contribution of 1.6 Gt per year adds a triffle 0.95% to the natural flow of CO2 into the global atmosphere. This hardly could be defined as "primary source".		X					
ES-016	1	Ex Summ & Chapt 1	ES-5	23	Your Figure ES-1 distorts the reality by not showing the total oceanic CO2 flux, but only flux from coastal ocean. However, the air and CO2 over Noth America comes not only from the coastal ocean but from its whole body. Ignoring in your Table ES-1 the natural flux of CO2 into the global atmosphere misguides the public and authorities.					X		It is clear that sources and sinks in North America are being presented, and not sources and sinks that influence that amosphere over North America. Those would indeed include the global ocean, but also source and sinks on land outside of North America..
ES-017	12	Ex Summ & Chapt 3	ES-6	8-9	The statement that, "increasing emissions and declining carbon intensity imply that emissions growth is to a large extent decoupled from economic growth," needs major qualification. The relationship between emissions growth and economic growth is clearly more complex, and its elasticity is one of the central debates regarding present and future policies.		X					
ES-018	12	Ex Summ & Pt II Overview	ES-6	12 ff	The emissions tabulated in these paragraphs (electricity generation, transportation, buildings, and industry) are overlapping categories. This is confusing and leads to double counting -- the percentages given (40 + 31 +25 +12) sum to more than 100%.		X					
ES-019	8	Ex Summ & Chapt 8	ES-7	3-8	Part of the reason for the declining emissions from Industry in North America is the proactive approach by industry to climate change issues, which include both individual corporate initiatives and cooperative efforts through trade associations (e.g. American Chemistry Council (ACC) and CEFIC, European Chemical Industry Council.		X					
ES-020	12	Ex Summ & Chapt 1	ES-7	10 ff	This summary of sinks is not complete. The magnitudes of agricultural sinks should be included for comparison to those given for other sinks. The sink attributed to rivers and reservoirs should also be included.		X					
ES-021	12	Ex Summ & Chapt 4	ES-9	29 ff	It is disappointing to see that the report's treatment of "options and measures" does not include any cross-references to the detailed information in chapters 6-15. This topic should be a major focus addressed in each of the sector-specific chapters.		X					Chapters do include discussion of options as appropriate.
ES-022	12	Ex Summ & All Chapters (including Chapt 4)	ES-10	1-16	The stated preference for reducing emissions, rather than increasing biological sinks, is appropriate; but a glaring omission is the absence of carbon capture and storage among the options described.		X					

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ES-023	Sakai	Ex Summ & Chapt 4	ES-10		On page ES-10, there are statements that some economic analyses suggest that the potential mitigation is greater at relatively low prices for agricultural soil carbon sequestration than from fossil fuel use reduction. In addition, analyses suggest that carbon emission cap and trading policies could reduce carbon emissions significantly without a major net economic cost by providing incentives to use the least-cost combination of mitigation/sequestration alternatives. Although it is absolutely true from economic stand point, some concern that cap and trade might discourage efficiency improvement should be mentioned in the same section. For example, fuel efficiency technology, such as hybrid system is very costly compared to afforestation at carbon (CO2) unit reduction. If cap and trade is adopted across the different sectors, then a company in transportation sector may want to purchase credit from forestry sector because this would be cheaper. At the same time we need to realize this is kind of disincentive to invest for efficiency technology in the future.		X					
ES-024	Sakai	Ex Summ & Chapt 4	ES-10	6-16	There are list of options for reducing carbon emissions. All the option does include efficiency improvement. I completely agree this assessment. This is supported by the statistic that indicates CO2 sources are predominantly fossil oil combustion. If report mentions positive thing of C&T here and failed to mention to any concern associated with C&T here, it seems to contradict what was written above in the same page.		X					
ES-025	12	Ex Summ & Chapt 4	ES-10	20-23	This statement about the cost effectiveness of agricultural soil sequestration seems to contradict the earlier statement, same page (lines 1-2) that "carbon sinks in soils and biomass can contribute ... but their potential is far from sufficient to deal with the magnitude of current imbalances." The difference between cost comparison and mass balance comparison should be explained.		X					Discussion about specific cost effectiveness of agricultural soils has been deleted.
ES-026	12	Ex Summ & Chapt 5	ES-11	9 ff	The report's treatment of decision support is focused primarily on process, not substance. Although new and improved processes are certainly needed, the report itself should be a more compelling demonstration of how scientific information can be applied to decision support. The report does not adequately integrate information across sectors, making comparison of broad mitigation response options very difficult. The report does not adequately assess present and future research directions, making comparison of research options equally difficult. The report thus falls short of its decision-support objectives in the two areas most needing this kind of support.		X					See the summary of individual chapters R&D requirements in the revised Executive Summary. Also see the responses to Comments # 05-003 and # 05-008 in Chapter 5.
ES-027	12	Ex Summ & Chapt 1 & Pt III Overview	ES-13	Table ES-1	The separate tabulation of "emissions from land use change" and "terrestrial sink" is not well explained. Explanation is required, especially because the "terrestrial sink" in NA is attributed mostly to recovery from historical land use change. Footnotes e, f, g, and h point to inconsistencies between the given N.A. and global estimates.		X					

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ES-028	3	Ex Summ & Chapt 1	ES-13	Table ES-1	Column 3, first row: According to the carbon estimates produced by the author team, the net carbon balance of North America is +1000 Mt C y ⁻¹ ± 500 Mt C y ⁻¹ . Because this is the part of the Earth's total atmospheric increase that originates in North America, delete "NA" and insert "1000 ± 500".					X		The global number is the observed increase in atmospheric loading of carbon (as CO ₂). There is no comparable observation for the atmosphere above North America and the net emission for North America in the report is not directly comparable. An explanation has been added to NA.
ES-029	12	Ex Summ & All Chapters	All		The discussion of permanence and leakage (see, for example, page 10-11, Line 13ff) is very important and should be reflected in the chapter summary, other chapters that address carbon sequestration, the Part III overview, and the Executive Summary.		X					Revisions have been made in the executive summary.
ES-030	9	Ex Summ & Chapt 1	All		I've reviewed CHAP 15 and feel that the executive summary statement: "Ocean carbon sequestration studies should also be continued." Should be eliminated from this summary. The topic of the purposeful enhancement of ocean carbon storage (direct injection and fertilization) is barely discussed in the chapter. The information provided on the topic is not particularly supportive of this statement. It should be removed.		X					