

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
03-001	12	3	3-1	24 ff	The key findings and many other estimates given in this chapter do not specify uncertainties.			X				We have added uncertainties to the Key Findings. If one looks for them, every number has an uncertainty that is reported in the chapter.
03-002	3	3	3-1	30	The chapter should state the report's key finding on the North American carbon budget as the third bullet point. 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."		X					Done.
03-003	13	3	3-2 to 3-4	1 to 25	This draft report is ostensibly supposed to focus on North America, not the U.S. Thus, we find it difficult to understand why in a report that is intended to be about three countries as a region, only the U.S. is mentioned in discussing fossil fuels. As everyone knows, fossil fuels are produced and consumed in Canada and Mexico, as well as in the U.S. and globally. A discussion of such fuels and related emissions of the U.S. only provides a partial and unbalanced picture of North America.	X						We report all available estimates for the three countries taken separately, including country-specific estimates of fossil fuels. The disproportionate emphasis of the extended discussion on the US is the result of three things: the availability of a large published literature on the US and the lack of information about the other two countries, the disproportionate US fossil emissions and sink size, and space limitation.
03-004	13	3	3-2 to 3-4	1 to 25	Moreover, according to the Final Prospectus (p. 4), all of the "lead authors" are from U.S. institutions and none is from Canada or Mexico. While the Prospectus states (p. 11) that the "SAP 2.2 Coordinating Team will establish informal communications with . . . national programs in Canada and Mexico," this section and the draft report generally show little evidence that such "communications" have been extensive and meaningful.	X						Note that one of the contributing authors teaches at U Toronto and that lead author M. Johnston is both Canadian and works in Canada.
03-005	13	3	3-2 to 3-4	1 to 25	Even more puzzling is the fact that Figure 3-1 (p. 3-20) indicates that there must be some data available for the latter two countries. However, Figure 3-2 [but not sourced (p. 3-21)], Figure 3.3 (p. 3-22), and Figure 3-4 [cited to EIA (p. 3-23)] are all just applicable to the U.S. There is no mention in the EIA report of the "service" sector, and we were unable to find the EIS cite provided on p. 3-23.	X						See above for the focus on the US. We now clarify the that we mean the EIA commercial sector (not the service sector), and provide an alternative route to the relevant EIA website.
03-006	13	3	3-2 to 3-4	1 to 25	As to the issue of carbon intensity, the focus of this section is solely on the U.S. Indeed, the section notes that "[h]istorical decreases" thereof "began early in the 20 <sup>th</sup> century and continue despite the approximate stabilization of per capita emissions," and then it asks "[w]hy". It states that this "question is the subject of the <u>extensive literature on the so-called structural decomposition of the energy system between GDP and environment</u> " (emphasis added), citing a number of sources, all of which would appear to provide no definitive answer. The section goes on to provide so-called " <u>possible causes of the decline in U.S. carbon intensity</u> " which it states are " <u>changes in the economy, technical improvements in energy efficiency, behavioral changes by consumers and producers, the growth of renewable and nuclear energy, and the displacement of oil by gas, or coal by oil and gas</u> " (emphasis added). Much of the above appears to be speculation on the part of the authors.					X		A list of possible causes does not imply definitive answers. These factors are in the cited literature and thus are not our speculations.

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03-007	13	3	3-2 to 3-4	1 to 25	Referring to the U.S. "service sector," the draft states that the sector "is likely to grow more rapidly than other sectors of the economy" and thus the authors "expect" the emissions will "continue to grow," but "more slowly than GDP, which the draft states "is <u>important</u> because it <u>implies</u> that emissions growth is essentially <u>decoupled</u> from economic growth. It speaks to the issue of" the U.S. " <u>technological readiness to achieve an emissions target</u> " (emphasis added) that is unspecified and, more importantly, has not even been discussed or mentioned heretofore in the draft report. Nor is there any indication that decision-makers are contemplating such a regulatory scheme for the U.S. While there have been bills in Congress over several years proposing targets, two have been rejected by the Senate and none has been enacted into law.		X					We have rewritten the final paragraph on page 3 and the first full paragraph on page four to address both this concern and concerns in subsequent comments.
03-007 (cont)					Finally, nothing is mentioned about Canada, recalling that Canada has ratified the Kyoto Protocol and is subject to its mandatory, binding commitments, nor Mexico, recalling that the latter is a developing country Party to the Protocol and not subject to its binding commitments.	X						See responses to comments 03-003 and 03-004, above.
03-008	13	3	3-2 to 3-4	1 to 25	This extensive focus on the U.S., rather than North America, which is supposed to be the focus of the draft report, is inappropriate. The fossil fuel section should be revised consistent with the true nature of the report.	X						See responses to comments 03-003 and 03-004, above.
03-009	3	3	3-2	10	Add the sentence "Because climate change is increasing the frequency and extent of forest fires in North America, climate change could completely reverse the carbon budget by changing carbon sinks to emissions sources."		X					Added: Increases in decomposition and fire caused by climate change could, in principle, convert the sink into a source.
03-010	12	3	3-2	11-14	This statement should clarify whether the claim is made for the annual rate or the cumulative capacity of NA sink.		X					The claim is for the annual rate. The bullet now says the CURRENT magnitude of the North American sink ...
03-011	12	3	3-3	29-31	It is an exaggeration to say that "emissions growth is essentially decoupled from economic growth." The relationship between emissions growth and economic growth is complex, and its elasticity is one of the central debates regarding present and future policies.		X					We have rewritten this sentence.
03-012	12	3	3-3	23-25	There is no Fig 3-5, and it is not clear what source or method was used for the carbon intensities of service vs. manufacturing sectors. The text and figures should be clarified to explain how the categories in Fig 3-3 map to those in Fig 3-4.		X					We apologize for the mistakes in the Figure numbers and have corrected them. We also explain the relationship between the categories in Figures 3-3 and 3-4 whenever a comparison is made.
03-013	12	3	3-4	1-2	The text and figures should be clarified to explain how the categories in Fig 3-3 map to those in Fig 3-4.		X					See immediately above.
03-014	12	3	3-4	28 ff	Although the reporting of uncertainties is described in the text (p. 3-5 lines 33ff), the uncertainties themselves are only reported in the tables. This creates an exaggerated impression of certainty in reading the text. The problem is exacerbated by the "ND" entries for some important fluxes in the tables. The numbers in the tables are very important, but they appear to be simply reported from literature sources, without the critical assessment that should be expected in this report. For example, there should be much more discussion of the different methods used from flux to flux and country to country (e.g., why is the Canada ratio of forest soil to aboveground sinks so much lower than that given for the US?)		X					As stated in our response to comment 1, we have added uncertainties to the Key Findings. The method of reporting uncertainties will draw fire no matter what we do and we and the editors have discussed the issue at length. If one looks for it, every flux has an uncertainty that is reported in the chapter. As for "critical assessment" of the literature, we are caught between the directive to synthesize the literature faithfully and comments like this one. We should not introduce new estimates for processes because we do not like the literature, but we do emphasize the relative uncertainties in the reported numbers. For example, we stress inventories over atmospheric inversions for this reason, and stress the >100% uncertainty in the woody encroachment

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03-015	13	3	3-4 to 3-8	28 to 17	The section begins appropriately as a discussion of North America but then seems to focus entirely on the U.S., apparently because, as the draft states, the U.S. "is responsible for 27% of the global carbon sink and 86% of the North American sink." The section does not indicate the percentages for Canada or Mexico, but it should.		X					Done.
03-016	12	3	3-5	6-7	No uncertainties are specified.		X					Done.
03-017	12	3	3-6	27-34	This is a welcome assessment of sources of uncertainty, but it appears that the claim of "significant carbon mitigation" by land management applies to annual rates and not necessarily to anticipated cumulative amounts. This distinction should be emphasized.		X					See response to comment 03-010.
03-018	3	3	3-7	15	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. Sitch, 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. Cayán, and T.W. Swetnam. 2006. Warming and earlier Spring increase western U.S. forest wildfire activity. Science 313: 940-943.		X					Done.
03-019	12	3	3-8	13-17	The attribution of a sink to wood products appears to assume that they are replaced by forest regrowth. This assumption should be clarified.					X		Not true. Carbon lost from a forest is a gross source. Carbon gained by the product pool is a sink. Their summ correctly yields the net.
03-020	12	3	3-8	25-27	This statement should be clarified to specify whether the "similar magnitude" of gains and losses refers to rates or integrated amounts.		X					Done.
03-021	12	3	3-10	1--16	This analysis appears to assume that none of the tabulated imports/exports are among US/Canada/Mexico.					X		We correctly accounted for the ~12MtC/y that moves from Canada to the US as lumber,plywod and chip-board. This is now mentioned in the text.
03-022	12	3	3-11	2-9	This summary does not state uncertainties.		X					Done.
03-023	3	3	3-17	Table 3-1	The table should include a line that give the net carbon balance. Add a row below sources and sinks titled "Net carbon emissions". The data values will be the sum of sources and sinks.		X					Done.
03-024	13	3	3-17 to 3-19	Tables 3-1 to 3-3	With respect to the tables, there are citations to the sources of some, but not all, of the data. There should be complete citations to all data sources or sources for the tables themselves.		X					Done.

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03-025	13	3	3-25 to 3-26	App 3A	Appendix 3A also largely concerns the U.S. In addition, the U.S. history of land use refers to the "Cooperative Fire Protection Program" in effect after 1920, but also does not mention and discuss the preservation of large segments of forests, grasslands and other potential sink sources due to congressional enactments in the 1900's establishing, for example, vast areas as national parks and forest areas, as well as wilderness and wildlife refuge areas. Those congressional establishments are also part of the history of U.S. sinks.	X						Small magnitude.