

February 26, 2010

Response by Howard Friel to Bjørn Lomborg's comments about *The Lomborg Deception: Setting the Record Straight about Global Warming* (Yale University Press, March 16, 2010)

Lomborg posted his comments (hereinafter "Lomborg's comments") about *The Lomborg Deception* on February 23, 2010, on his Web site at <http://www.lomborg.com/>.

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Bjørn Lomborg's comments about my book, *The Lomborg Deception*, display all of the features that characterize the two books that I've already written about, *The Skeptical Environmentalist* (2001) and *Cool It* (2007). Thus, for a more comprehensive interpretation of Lomborg's work, I refer the reader of my comments below to my book about Lomborg's books. Before I read *Cool It* in fall 2007, my experience in the hermeneutics of deception mostly dealt with books and texts that sought to justify war. Lomborg's books are no worse than those, but they are no better. Perhaps twenty or fifty years from now, if and when the fuller impacts of man-made global warming are more apparent, people might argue that they were worse. This is because at least wars usually end whereas global warming past a certain point probably won't. My comments below do not respond in a comprehensive way to Lomborg's comments about my book that were posted to his Web site three days ago. But I believe they accomplish enough in response to those comments.

Lomborg's reference to my use of the term "Lomborg's Theorem" (Lomborg's comments, p. 1) comes from the Author's Note of my book, where I explain, in succinct form, that due to the volume of raw material that I collected as a result of looking up Lomborg's endnotes in his 2007 book, *Cool It*, I decided to divide that material into two categories in order to present a coherent book. Accordingly, in the Author's Note, I wrote:

"Lomborg's Theorem" refers to [Lomborg's] claim that anthropogenic (man-made) global warming is "no catastrophe." And "Lomborg's Corollary" represents his contention that since global warming is no catastrophe, there is little need to incur the costs of reducing greenhouse-gas emissions to the extent urged by concerned experts to avoid the worst impacts of global warming.

I then wrote:

The focus of this volume is on Lomborg's Theorem as presented in his books *The Skeptical Environmentalist: Measuring the Real State of the World* (2001) and *Cool It: The Skeptical Environmentalist's Guide to Global Warming* (2007). The aim is to show that Lomborg's Theorem is grounded in highly questionable data and analysis, and that there is little if any factual or analytic basis for the theorem.

Given Lomborg's straw-man claim that I don't understand "fundamental economic principles" (Lomborg's comments, p. 1), his reference to "Friel's Problem with Water (and Economics)" (p. 18), and similar statements: "It is obvious that [Friel] simply does not understand economics" (p. 21); "he shows he doesn't understand basic economics" (p. 22); "he never mentioned GDP once in his book or engaged with any economic arguments (p. 24); and "[Friel] did not participate in the relevant, constructive discussion about the economic arguments central to *Cool It*" (p. 24), it is necessary to reiterate what is clear in my book. That is, that "Lomborg's Theorem" (per the Author's Note and the book itself) implicates the physical science basis and impacts and adaptation issues that are relevant to the question of whether global warming is a catastrophe or not (Lomborg argues that it's not); and that "Lomborg's Corollary," which features his related but additional claim that "there is little need to incur the costs of reducing greenhouse-gas emissions," implicates the economic issues related to global warming. My book's declared and actual focus is on Lomborg's Theorem. There is, in fact, almost nothing in *The Lomborg Deception* that directly, or probably even indirectly, implicates the economic issues that apply, for example, to the costs of reducing greenhouse emissions (which is relevant to Lomborg's Corollary).

Furthermore, most of his claims about my failure to understand the economics of climate change occur in Lomborg's comments from page 18 onward, beginning with the headlined section—"Friel's Problems with Water (and Economics)"—which pertains to one of the last chapters in *The Lomborg Deception* titled, "On Water Shortages." And the portions that he mainly cites to criticize my knowledge about economics do not appear in the final bound book. Although I don't know with certainty which pre-publication draft of my book that Lomborg read, it appears that he used the "Advance Uncorrected Page Proof," which Lomborg refers to as "the advance copy of Friel's book." If this is the case, it is worth noting that the "Advance Uncorrected Page Proof" states on the first page: "Reviewers are reminded that changes may be made in this proof copy before books are printed. If any material from the book is to be quoted in a review, the quotation should be checked against the final bound book." Thus, Lomborg should have withheld his critique of my book until he was able to check it against the final bound book, which is what the "Advance Uncorrected Page Proof" directed and scholarly ethics require. The fact is that Lomborg derived much of his misplaced criticism about my non-existent economic analysis from text that did not appear in the final bound book.

Further disregarding the Author's Note, which reports that "the focus of this volume is on Lomborg's Theorem" and not on Lomborg's Corollary, and right after his first reference to "Lomborg's Theorem" in his comments about my book, Lomborg footnoted that reference in its entirety as follows:

Friel also refers here to a related notion he calls “Lomborg’s Corollary,” the idea that “there is little need to incur the costs of reducing greenhouse-gas emissions to the extent urged by concerned experts,” but he makes no effort to challenge it. (Lomborg’s comments, p. 1)

This is another straw man. My book makes no effort to challenge directly Lomborg’s Corollary because that is not what *The Lomborg Deception* is about, as I reported in the Author’s Note. However, to the extent that I prove that Lomborg’s Theorem (that global warming is no catastrophe) has no validity, I also demonstrate that the portion of Lomborg’s Corollary that asserts little need on environmental grounds to reduce greenhouse emissions also has no validity, since it rests on the assertion of Lomborg’s Theorem.

Lomborg claims toward the bottom of page 1 that the 2002 *Scientific American* scientists’ forum on *The Skeptical Environmentalist* is “long-since debunked,” though he neither identifies nor footnotes any source to support that claim. I didn’t cite his response to that forum, as Lomborg notes, because it did not honestly respond to the issues raised by the scientists; in other words, Lomborg would have fared no better if I had cited and assessed his response. Nor did I cite John Rennie’s excellent response to Lomborg’s response (Rennie was the editor of *Scientific American* at the time), though I probably should have, since it was devastating to Lomborg’s response. Lomborg writes that *Scientific American* did not allow him to publish a response to its January 2002 forum on *The Skeptical Environmentalist* until “six months later,” though Lomborg’s response was published four months later in May 2002, as his own footnote on the same page stipulates.

Toward the bottom of page 1 and the top of page 2, Lomborg accurately noted that I misread a chart (Table SPM.3, p. 14) in the “Summary for Policymakers” from Working Group I of the 2007 IPCC Assessment Report. The chart clearly shows a yellow line depicting “Year 2000 Constant Concentrations” which I misread as “emissions” rather than “concentrations”; I do know the difference (contrary to Lomborg’s elaboration) between concentrations of greenhouse gases and greenhouse emissions. By my own admission, I also mistakenly equated on page 97 of *The Lomborg Deception* a centennial to a thousand years, though I know the difference between centennial and millennial time periods. What we’re talking about here are mistakes; however, my book about Lomborg’s scholarship is not about mistakes, but rather a persistent pattern of misrepresenting his own footnoted sources.

After his introductory remarks, where he cited the claims and comments noted above, Lomborg issued a series of specific complaints about my book, each one appearing in a bold-type headline. I have addressed as many of these items as I could in the three-day interim between the February 23 posting of Lomborg’s comments and the February 26 posting of this response on the Web site of Yale University Press.

Friel and My “Missing” Endnotes

In *The Lomborg Deception*, I wrote about no such “missing” endnotes. However, chapter six is titled, “On Greenland and the Missing Figures,” where I document how Lomborg itemized an important but misleading claim—that the 2007 IPCC assessment had projected a 12-inch sea-level increase by year 2100—by footnoting the entire itemization of that claim to numbered figures in the IPCC report that do not exist. (*The Lomborg Deception*, pp. 117–119).

In a key paragraph in *Cool It* (pp. 62–63), Lomborg footnoted this itemization to figures 10.6.1, 10.6.3, and 10.6.4 that, as his footnotes indicate, are to be found in Chapter 10 of Working Group I of the 2007 IPCC assessment report. However, no such figures exist there or anywhere else in the 2007 assessment. Nor did Lomborg mistakenly write “figure 10.6.1” etc., for “section 10.6.1” etc., since those sections also do not support his itemization of a 12-inch sea-level increase by year 2100. In other words, Lomborg detailed a key tenet of Lomborg’s Theorem—that sea-level rise due to global warming poses no serious threat—by footnoting non-existent sources in the IPCC assessment.

Lomborg then wrote that “Friel claims that my ‘modus operandi’ is to cheat with my footnotes,” though I never used the word “cheat” in my book. Here is what I wrote about Lomborg’s difficult tripartite documentation system by which he catalogues nearly 3,000 endnotes in *The Skeptical Environmentalist*:

Given the essence of Lomborg’s scientific dissent—that he uniquely holds and presents the facts [about the real state of the world’s environment, per his claim]—one might have thought that he would have sought to make the validation of his facts as simple and transparent as possible. Instead, Lomborg presented his documentation system in *The Skeptical Environmentalist* as the scholarly equivalent of an obstacle course, seemingly designed to test the limits of an inquisitive reader’s perseverance and sanity. (*The Lomborg Deception*, pp. 47–48)

And about *Cool It*:

The documentation system in *Cool It* is even more challenging, as Lomborg eliminated numbered citations in the text, thus challenging the reader to muster an additional level of resolve by having to identify which sentences or assertions in the text were sourced in the first place. (*The Lomborg Deception*, p. 48)

Thus, my complaint about Lomborg's citations is about the lack of functional transparency that present a significant obstacle to accessing the sources that Lomborg uses. It seems likely that had Lomborg simplified his baroque documentation system for the reader and researcher, someone would have looked up as many of his endnotes as I did much earlier than I did, in which case the Lomborg phenomenon might not have gotten this far. Rather than address the issue of transparency, Lomborg merely noted that his documentation system "is entirely consistent with the protocols of major academic research," which I also noted. But by merely noting with some expediency that his documentation system is merely acceptable does not adequately respond to the charge that his system maximizes the difficulty of accessing and organizing (a) his substantive claims in the text, (b) the author/date citations in the endnotes, and (c) the fuller endnote reference in the bibliography—all of which must be in hand as the necessary condition for finding a footnoted reference. Multiply this process by almost 3,000 endnotes and the problem is apparent.

Though a shorter book, this process is more complicated in *Cool It*, given the additional step of having to determine which factual assertions in the text are sourced in the first place. To accommodate Lomborg's documentation system in this instance, I had to copy the "Notes" section to *Cool It*, place it next to the main text of *Cool It*, and proceed line-by-line through both the text and the Notes in order to ascertain which portions of the text were sourced by the Notes, given that Lomborg's Notes are cued to the first words of the sourced assertions in the text. Only then could I commence with the juggling act required in traversing three sections of the book to identify each sourced assertion and reference. Nor does this account for the "mirage in the desert" and "wild goose chase" phenomena that I commonly confronted upon searching for Lomborg's sources, including the additional amount of research required to look for missing sources that ultimately were never found. The missing figures in chapter six of *The Lomborg Deception* ("On Greenland and the Missing Figures"), which concerns Lomborg's phony itemization of his shady claim of a precise 12-inch sea-level increase, is a noteworthy example of exactly this process.

Lomborg also reproduces a large block quote at the bottom of page 2 of his comments that I had excerpted from *The Skeptical Environmentalist*. My intention in *The Lomborg Deception* was to show that while Lomborg up to that point had footnoted a number of relatively trivial and non-substantive assertions, he had produced no footnotes upon listing a lengthy number of important assertions that spoke to the core of his thesis that the real state of the world was better than what most environmentalists had claimed. In this un-footnoted passage—that is, as it appears on page 4 of *The Skeptical Environmentalist*—Lomborg claimed that fewer people are starving, there will be more food for people in the future, the threat of global warming is exaggerated, cutting fossil fuel consumption would be worse than the effects of global warming, the rate of species extinction is small, and that acid rain is not harmful.

About this list of claims, I wrote in *The Lomborg Deception* that Lomborg “fails to document” any of them, that is, and as I clearly noted, as Lomborg initially presented them on page 4 of *The Skeptical Environmentalist*. (*The Lomborg Deception*, p. 49) After reproducing Lomborg’s list of claims, and after noting which ones were uncontroversial (for example, that “in 1900 we lived for an average of 30 years; today we live for 67”), and after noting which ones were controversial (for example, that “early and radical fossil fuel cutbacks is way worse than the original affliction” of global warming”), I wrote in *The Lomborg Deception*, while clearly referring to the controversial claims, that “Lomborg presents these assertions without endnotes or otherwise citing any data, nor does he provide *supporting data* later in the book as he promised in note 14.” (*The Lomborg Deception*, p. 50). (Emphasis added.)

I then wrote about one of his controversial claims:

For example, Lomborg never provides published peer-reviewed data to support his claim that we will lose only 0.7 percent of all species throughout our lifetime. For one thing, “throughout our lifetime” is an unspecified period of time, and, for another, a 0.7 percent loss of species is a highly precise projection. It is unlikely that any studies exist that reconcile these seemingly incompatible variables.” (*The Lomborg Deception*, p. 50)

In his comments about my book, Lomborg commented:

If Friel had read my endnotes as exhaustively as he says he did, he would be aware that ample documentation is provided in subsequent chapters. Specifically, in the chapter [in *The Skeptical Environmentalist*] on biodiversity, I clearly document and discuss the 0.7% figure. Of course, one could dispute the figure or debate the relevance of the referenced material. But it does not seem reasonable to claim that no such documentation exists. (Lomborg’s comments, p. 3)

Checking back to what I actually wrote, it is clear that I did not refer to the seemingly ineffectual documentation that Lomborg appears to have admitted using; rather, I wrote that there was apparently no “data to support his claim that we will lose only 0.7 percent of all species throughout our lifetime.”

Friel’s inability to understand source tables

On pages 3–5 in his comments, Lomborg accused me of “an inability to understand source tables” due to his claim that I had misread a 1996 table that he had reproduced on page 4 of *The Skeptical Environmentalist*, which showed malnutrition statistics in the developing world that

were listed regionally as Sub-Saharan Africa, Near East & North Africa, East Asia, South Asia, and Latin America & the Caribbean.

However, as page 5 of *The Skeptical Environmentalist* shows, Lomborg's footnoted passage ended where I indicated that it did in *The Lomborg Deception* (p. 52), and the numbers that Lomborg cited—"237 million fewer people starving" and "more than 2000 million more people are getting enough to eat"—were themselves not footnoted to any source and do not appear as such in the table that Lomborg reproduced. Lomborg himself writes in his comments: "To be sure, the figures of 237 million fewer starving people and more than 2,000 million more people with enough to eat don't appear as such in the table" that he reproduces on page 4 of his comments. He then writes: "But they are readily and easily calculable from the figures that do [appear]." But in the text of *The Skeptical Environmentalist*, Lomborg did not footnote those figures to the table in question. In other words, Lomborg's three-page section (Lomborg's comments, pp. 3–5), which is titled, "Friel's inability to understand source tables," pertains to figures that Lomborg cited on page 5 of *The Skeptical Environmentalist* that he did not footnote to the table that I supposedly cannot read, and that do not actually appear in the table that I supposedly can't read.

Friel's misunderstanding of the "heat death/cold death" issue,

For this section in his comments, Lomborg wrote:

Friel goes on to take strong exception to my central point, which is that while there is often a focus on the extra heat deaths likely to be produced by global warming—which I agree will definitely happen—there is less recognition that global warming is also likely to result in fewer people dying as a result of cold weather. Unlike any mainstream participant in the climate change policy debate that I am aware of, Friel seems unwilling to entertain the idea that global warming will also lead to fewer cold deaths. (Lomborg's comments, p. 11)

It isn't true that I don't recognize that global warming will likely lead to fewer cold deaths—I make no such assertion anywhere in *The Lomborg Deception*. What I do assert in this regard is expressed in the chapter titled "Human Health" from Working Group II in the 2007 IPCC assessment, which I featured in *The Lomborg Deception* as a definitive finding about this question as follows:

Projected trends in climate-change-related exposures of importance to human health will Bring some health benefits, *including fewer deaths from cold*, although it is expected

that *these will be outweighed* by the negative effects of rising temperatures worldwide, especially in developing countries (high confidence). (Emphasis added.)

Though a major plank of Lomborg's Theorem, as he writes in *Cool It*, is that "it seems reasonable to conclude from *the data* that global warming might actually result in lower deaths rates" due to fewer cold-related deaths (*Cool It*, p. 15), he fails to mention this conclusion from the 2007 IPCC assessment—that while there will likely be fewer cold deaths due to global warming, they will be outweighed by the net health impacts of the negative effects of rising temperatures.

Also, Lomborg presents no "data" to support his "central point" that a reduction in cold-related deaths due to global warming will lead to a net reduction in human mortality, though Lomborg puts on an elaborate show while feigning to present such data. Immediately after writing in his comments that "Friel seems unwilling to entertain the idea that global warming will also lead to fewer cold deaths," Lomborg continued (reference in parens to Bosello study is in the original):

The only peer-reviewed study to calculate *all* extra heat deaths and avoided cold deaths globally shows that the number of avoided cold deaths strongly outweigh the extra heat deaths. This study, (Bosello, Roson, & Tol, 2006), shows that although we are likely to see about 400,000 more heat deaths because of global warming by 2050, we will likely see about 1.8 million fewer cold deaths. (Lomborg's comments, p. 11) (Emphasis to *all* added.)

Although Lomborg claims in his comments that the Bosello study calculates *all* extra heat deaths and avoided cold deaths due to global warming, the study is actually limited to only six diseases, as the authors themselves report:

The health effects assessed in this paper include cardiovascular diseases (heat and cold stress), respiratory diseases (heat stress), diarrhea, malaria, dengue fever, and schistosomiasis. The first four diseases are major killers without climate change, and may therefore be important in the total health burden of climate change as well. For the last two diseases, climate change impacts happen to have been estimated at a global scale. For other diseases probably affected by climate change, no global estimates are available. Our selection of diseases is therefore one of convenience, rather than comprehensiveness. (Bosello, Roson, and Tol, "Economy-wide Estimates of the Implications of Climate Change: Human Health," *Ecological Economics*, 58 (2006), p. 580.)

Though Lomborg wrote that this study represented "*all* extra heat deaths and avoided cold deaths" globally due to global warming, the authors themselves never made that claim. And for the record and with respect to an inability to read charts, while Lomborg claimed that the Bosello

study showed “that we are likely to see about 400,000 more heat deaths because of global warming by 2050” in overall human mortality, the study actually reported that there would be 915,000 more heat deaths due to the combined mortality from malaria, dengue, respiratory illness, and diarrhea. (Bosello, Roson, and Tol, 2006, Table 1, p. 582)

In *Cool It*, Lomborg similarly treats the Bosello study as if it pertained to “all extra heat deaths and avoided cold deaths.” Despite the circumscribed scope of the Bosello study as the authors themselves pointed out, Lomborg referred to it in *Cool It* as “the first complete survey for the world” about heat- and cold-related deaths due to global warming. (*Cool It*, p. 38) Immediately following this misrepresentation of the scope of the Bosello study, Lomborg wrote that it “shows us very clearly” that “climate change will not cause massive disruptions or huge death tolls.” (*Cool It*, p. 38) Here is the complete context from *Cool It*, with the bold-type portion indicating that Lomborg sourced this key claim to the Bosello study:

The first complete survey for the world was published in 2006, and what it shows us very clearly is that climate change will not cause massive disruptions or huge death tolls. Actually, the direct impact of climate change in 2050 will mean *fewer* dead, and not by a small amount. (*Cool It*, p. 38) (Emphasis in original.)

Here in its entirety is how Lomborg sourced this claim in his endnotes:

38 **The first complete survey for:** (Bosello, Roson, & Tol, 2006:582). (*Cool It*, p. 175)

It is thus clear that Lomborg issued a definitive and broad claim about the impacts of global warming on heat- and cold-related deaths that he footnoted to the Bosello study, though no such data or assertion is given in that study. Nor did Lomborg note that the scope of the Bosello study was limited to the impact of global warming on human mortality from six diseases.

Lomborg then proceeded to inaccurately itemize the findings from a table in the Bosello study. For example, the table shows that 850,000 people “will be saved each year” due to global warming (using Lomborg’s vernacular), not the 1.4 million figure that Lomborg gives in *Cool It*. (*Cool It*, p. 38; Bosello, et al., Table 1: Health Impacts of Climate Change, p. 582)

On the next page of his comments, Lomborg argues that a study about Europeans aged 65–74 supports his claim that “within reasonable limits, global warming might actually result in lower death rates.” (Lomborg’s comments, p. 12) The study that supposedly supports this claim, as Lomborg points out at the bottom of page 12 of his comments, is this one: Keatinge, Donaldson, Cordioli, et al., “Heat-related Mortality in Warm and Cold Regions of Europe: Observational Study,” *British Medical Journal*, vol. 321, September 16, 2000 (hereinafter, the “Keatinge study”) At the bottom of page 12 of his comments, Lomborg even cites page 672 of the Keatinge

study as the source for this claim. However, the abstract to the Keatinge study, which is on page 670, prominently reports that the subjects of the study are “people aged 65–74,” yet Lomborg applies the results of the study on a population-wide basis.

Lomborg also concealed this limitation of the study (that it studied “people aged 65–74”) while quoting my analysis of it in my book. In his comments, Lomborg wrote (LD stands for *The Lomborg Deception*):

Friel then argues that even if the statistics are correct, they “*do not substantiate [Lomborg’s] conclusion that fewer cold-related deaths will more than offset the additional heat-related deaths worldwide.*” (LD, p. 83) (Lomborg’s comments, p. 12)

Here is the same page and section in *The Lomborg Deception* from which Lomborg just quoted (the words in italics from each block quote are the words that match):

Furthermore, as its abstract indicates, the subjects of the Keatinge study were “people aged 65–74,” not the undifferentiated category of “people” used by Lomborg.

Regardless of the origin of Lomborg’s statistics—even assuming that they were accurately quoted from a legitimate source—they *do not substantiate his conclusion that fewer cold-related deaths will more than offset the additional heat-related deaths worldwide.* (*The Lomborg Deception*, p. 83)

Not only did Lomborg ignore, and thus conceal, how the authors of the Keatinge study identified their subjects, but he also concealed that I had reported this fact in *The Lomborg Deception* for the benefit of his comments about my book, even as he quoted a line from my book in a sentence directly adjacent to where I identify the subjects of the Keatinge study.

Finally, it is now clear (pursuant to Lomborg’s comments, p. 12) that Lomborg’s source of a key claim in *Cool It*—that “global warming might actually result in lower death rates” (*Cool It*, p.15)—is a study about Europeans aged 65–74. Prior to Lomborg’s comments, it was not altogether clear whether Keatinge was the source, since Lomborg’s footnote to Keatinge is three paragraphs and one-page distant (*Cool It*, p. 14) from Lomborg’s claim that “global warming might actually result in lower death rates.” And since the Keatinge study clearly applied only to Europeans aged 65–74, it seemed questionable on this count as well that Keatinge could have been the source for a claim about global death rates due to global warming.

On the next page (Lomborg’s comments, p. 13), Lomborg denied that he had footnoted another important claim about heat- and cold-related deaths in Europe to a World Health Organization report. This denial is not credible, as I explain below.

While itemizing his claim that the reduction in cold-related deaths will greatly outweigh the increase in heat-related deaths, Lomborg cited the following statistics in *Cool It* about heat- and cold-related human mortality in Europe:

In Europe as a whole, about two hundred thousand people die from excess heat each year. **However, about 1.5 million Europeans** die annually from excess cold. That is more than seven times the total number of heat deaths. Just in the past decade, Europe has lost about fifteen million people to the cold, more than four hundred times the iconic heat deaths from 2003. That we so easily neglect these deaths and so easily embrace those caused by global warming tells us of a breakdown in our sense of proportion. (*Cool It*, p. 17)

It is worth noting that these sentences are not part of a larger paragraph from *Cool It*; they represent a discrete, stand-alone paragraph in Lomborg's book. The bold type indicates how Lomborg sourced this paragraph. Correspondingly, Lomborg's endnotes to this paragraph in his "Notes" section read in their entirety as follows (p. 170):

In Europe as a whole: 207,000, based on a simple average of the available cold and heat deaths per million, cautiously excluding London and using WHO's estimate for Europe's population of 878 million (WHO, 2004a:121).

However, about 1.5 million Europeans: 1.48 million, estimated in the same way as total heat deaths.

Thus, the only referenced source here is "WHO, 2004a:121." Lomborg's bibliography identifies this source more fully as follows: "WHO. (2004a). The World Health Report 2004—Changing History."

Upon turning to page 121 (per Lomborg's endnote) of the WHO document, one finds a chart titled:

Annex Table 2: Deaths by Cause, Sex and Mortality Stratum in WHO Regions, Estimates for 2002.

This table is located at pp. 120–125 of the WHO report. Thus, page 121 of the WHO report (per Lomborg's endnote) is the second page of this table. (The WHO report, and the chart at pp. 120–125 of the report, can be found at http://www.who.int/whr/2004/en/report04_en.pdf.)

By my count, Annex Table 2 lists about 115 causes of human mortality. Thus, it would seem that Lomborg's claims about heat- and cold-related mortality in Europe, given his footnote to this

statistical table in the WHO document, would be located somewhere amidst the long lists of causes of human deaths presented. However, there is no category of human mortality in the WHO table listed as, or otherwise referring to, heat- and cold-related deaths. Referring to the WHO document and its Annex Table 2, I wrote in *The Lomborg Deception*: “Lomborg’s only source for these figures [on the heat- and cold-related deaths in Europe]—a chart in the statistical annex of a 2004 World Health Organization report—contains no data on human mortality due to excess heat or cold.” (*The Lomborg Deception*, p. 86)

In his comments, Lomborg denied that he had sourced his statistics of heat- and cold-related mortality to Annex Tale 2, which lists 115 causes of human mortality (parens in original):

I clearly used the WHO report solely to provide an estimate of Europe’s population (because WHO uses the standard geographical definition of Europe to the Ural Mountains). This is evident in the text that Friel himself quoted: “and using WHO’s estimate for Europe’s population of 878 million (WHO, 2004a:121).”

Thus, Lomborg is arguing that he cited a statistical annex from a World Health Organization report that listed causes of human mortality, not to support his claim about heat- and cold-related human mortality in Europe, but to support an estimate of what the population of Europe is. I think most people would view a statistical table on human mortality from the World Health Organization to be a somewhat exotic source for an estimate of the population of Europe. It is also difficult to escape the appearance that Lomborg footnoted the WHO and a statistical annex on human mortality to create an appearance that the figures that he had cited on heat- and cold-related human mortality were substantiated by this footnoted source.

Since Lomborg claims that he did not use the WHO report as his source for his statistics on heat- and cold-related mortality, what did Lomborg claim to use as his source? Before I proceed, I reproduce again (below) the discrete, stand-alone paragraph that is at issue, in addition to the page number in *Cool It* in which this paragraph appeared:

In Europe as a whole, about two hundred thousand people die from excess heat each year. **However, about 1.5 million Europeans** die annually from excess cold. That is more than seven times the total number of heat deaths. Just in the past decade, Europe has lost about fifteen million people to the cold, more than four hundred times the iconic heat deaths from 2003. That we so easily neglect these deaths and so easily embrace those caused by global warming tells us of a breakdown in our sense of proportion. (*Cool It*, p. 17)

While arguing that he did not footnote the above claims about heat and cold deaths to the WHO report, Lomborg wrote in his comments (p.13):

In fact, the text and first endnote in this section make it very clear where the figures are sourced from: “Based on the summary of the biggest European heat and cold study (Keatinge, et al., 2000, p. 672.” (p. 170)

Turning to page 170 in Lomborg’s endnotes (per his comment above), we indeed find this reference to the Keatinge study; however, the Keatinge reference is to a paragraph on page 14 in the text of *Cool It*. This is three pages before page 17, which is the location of the discrete paragraph above with the statistics on heat and cold deaths. Furthermore, Lomborg claims that this page 14 reference to Keatinge is the “first endnote in this section”—that is, the section where the page 17 paragraph is located. However, the page 17 location of the paragraph is located in a section titled, “Death in Europe,” while the page 14 reference to the Keatinge study is located in a different section titled, “Heat Deaths—Way of the Future?” Finally, as we know, and as we know that Lomborg knows, the subjects of this same Keatinge study are “people aged 65–74,” yet Lomborg applies the Keatinge study to his population-wide claims about heat- and cold-related deaths on page 17.

Thus, what I wrote in *The Lomborg Deception* appears to be accurate: “Because Lomborg presents no actual source for his claim that 1.5 million Europeans die annually from cold-related causes, and because that estimate is the predicate for Lomborg’s claim that 15 million people died in Europe from excess cold in some ten-year period that preceded the publication of *Cool It*, it seems that Lomborg presented no evidence that either 1.5 million Europeans die annually, or that 15 million Europeans died because of cold weather in a recent decade.” (*The Lomborg Deception*, p. 87).

Friel’s tendency to miss (or at least ignore) the point

For this one we have to start from scratch. On February 24, 1995, the journal *Science* published a research paper by David Pimentel and his colleagues titled, “Environmental and Economic Costs of Soil Erosion and Conservation Benefits.” The abstract of the paper reads in full:

Soil erosion is a major environmental threat to the sustainability and productive capacity of agriculture. During the last 40 years, nearly one-third of the world’s arable land has been lost by erosion and continues to be lost at a rate of more than 10 million hectares per year. With the addition of a quarter of a million people each day, the world population’s food demand is increasing at a time when per capita food productivity is beginning to decline.

Such a study could have gone a long way in upsetting Lomborg's apple cart in *The Skeptical Environmentalist* that the real state of the world's environment is in good shape. Furthermore, Pimentel and his colleagues also reported:

To adequately feed people a diverse diet, about 0.5 hectares of arable land per capita is needed, yet only 0.27 hectares per capita is available. In 40 years, only 0.14 hectares per capita will be available both because of loss of land and rapid population growth.... With the world population increasing at a quarter of a million per day and continued land degradation by erosion, food shortages and malnutrition have the potential to intensify.

It is thus quickly apparent that Pimentel's paper was not consistent with Lomborg's thesis in *The Skeptical Environmentalist*. Accordingly, in a key reference to the Pimentel paper, Lomborg alleged that Pimentel had inappropriately cited a paper about Belgium farmland to misleadingly or sloppily claim that European soil erodes at an estimated rate of 17 tons per hectare per year. The part that is italicized below is the extent of Lomborg's references to Pimentel's paper:

*In many ways this [a reference to Lomborg's claim in the previous paragraph that a U.N. report, Global Environmental Outlook Report 2000, had exaggerated the extent of soil erosion in Africa] is reminiscent of one of the most cited European soil erosion estimates of 17 tons per hectare. This estimate turned out—through a string of articles, each slightly inaccurately referring to its predecessor—to stem from a single study of a 0.11 hectare sloping plot of Belgian farmland, from which the author himself warns against generalization. In both examples [that is, in *GEO 2000* and *Pimentel's paper*], sweeping statements are made with just a single example. Unfortunately, such problematic argumentation is pervasive, and we will see more examples below. The problem arises because in today's global environment, with massive amounts of information at our fingertips, an infinite number of good stories can be told, good ones and bad. (*The Skeptical Environmentalist*, p. 7)*

Note that Lomborg is talking about a research paper published in one of the world's most prestigious science journals (*Science*) and authored by a prominent scientist at arguably the best college of agriculture in the United States (the college of agriculture at Cornell University). Also note that Lomborg never referred to the contents of Pimentel's paper, including the abstract and the excerpt from it above, which reported a serious global problem with soil erosion, and implications about the diminishing capacity of the Earth's soil to feed a growing population.

It seems to me that the best thing one can say about Lomborg's treatment of Pimentel's paper is that he "missed or at least ignored the point," which is what Lomborg accuses me of doing in my book, *The Lomborg Deception*, including on the issue of my treatment of the Pimentel paper.

In his comments about my book, Lomborg wrote: “A similar problem arises with Friel’s critique of my assessment of a well-cited soil erosion estimate. My point is that it is dangerous to make sweeping estimates of continent-wide erosion based on a single, small-scale study.” He then writes:

Friel takes issue with me for not noting that “the United States and Europe had the lowest rates of soil erosion in the world.” This is certainly true, but has nothing to do with whether the 17 tons per hectare figure is accurate. *He then spends a page summarizing the problems that Pimentel found soil erosion would engender.* Again, this is interesting but not at all relevant to the question of whether the 17 tons per hectare figure is right. (Emphasis added) (Lomborg’s comments, p. 7)

The italicized portion here refers to the fact that I described the contents of Pimentel’s paper in my book, including reproduction of the key passage that I already noted:

To adequately feed people a diverse diet, about 0.5 hectares of arable land per capita is needed, yet only 0.27 hectares per capita is available. In 40 years, only 0.14 hectares per capita will be available both because of loss of land and rapid population growth. (See, *The Lomborg Deception*, p. 64)

An honest assessment of Pimentel’s paper would have noted that it potentially undermines Lomborg-like “optimism” about the ability of the Earth to feed a rapidly growing human population, as I noted in *The Lomborg Deception*. (p. 63) However, in his section titled, “Friel’s tendency to miss (or at least ignore) the point,” Lomborg accused me of missing the point of the Pimentel paper. To assess this claim, I reproduce below what I wrote in *The Lomborg Deception* about Pimentel’s paper:

Here is the context, including the comparative context, in which Pimentel presented the 17 tons of soil erosion estimate: “Soil erosion rates are highest in Asia, Africa, and South America, averaging 30 to 40 tons [per hectare per] year, and lowest in the United States and Europe, averaging about 17 tons [per hectare per] year.” Without mentioning that Pimentel and his colleagues had reported that the United States and Europe had the lowest rates of soil erosion in the world, Lomborg implied that Pimentel had exaggerated estimates of soil erosion in Europe. Even so, and more importantly, in the next sentence of the study in *Science*, Pimentel wrote: “The relatively low rates of soil erosion in the United States and Europe, however, greatly exceed the average rate of soil formation of about 1 ton [per hectare per year].” This means that even if Pimentel had exaggerated soil erosion rates in Europe, say, by doubling the actual erosion rate, this would still leave an undesirable eight-to-one ratio of soil erosion to soil formation. Thus one might ask why Lomborg would leave these key portions of Pimentel’s paper out of *The Skeptical*

Environmentalist, even as he accused Pimentel of exaggerating soil erosion rates in Europe. (*The Lomborg Deception*, p. 63)

I reproduced this passage from my book to help show how (to put it as generously as possible) Lomborg somehow “misses or at least ignores the point” when he accuses environmentalists and scientists of bad scholarship when they detail serious environmental problems that run contrary to Lomborg’s claims.

Friel’s trouble with glacier-related issues

In his section titled “Melting Glaciers” in *Cool It*, Lomborg overwhelmingly attributes the melting glaciers in the last half of the twentieth century to the natural waxing and waning of temperatures over thousands of years, and more acutely to a thaw from the Little Ice Age over the past few hundred years, while giving the briefest of treatments to man-made global warming as an influence. Meanwhile, he utilizes these brief mentions of man-made global warming to maintain “plausible denial” that he overwhelmingly attributed the melting glaciers in *Cool It* to these natural swings in temperatures.

The passage below contains one of Lomborg’s references to man-made global warming in the “Melting Glaciers” section in *Cool It*. Note below the abrupt shift upon accusing “Many” and “Al Gore” of exaggerating the influence of global warming:

It is clear that part of the [worldwide] temperature increase since then has simply been a result of coming out of the Little Ice Age. It is also clear, though, that we are now seeing a warming trend beyond that, indicating man-made global warming. Both of these warmings have caused glaciers to recede. Many have seized on pictures of these retreating glaciers as symbols of global warming. Al Gore, for example, fills eighteen pages of his book with before-and-after pictures of glaciers. (*Cool It*, pp. 54–55)

Immediately following these words, Lomborg launched an un-nuanced discourse on the natural waxing and waning of melting and growing glaciers over thousands of years, including in the more recent context of our emergence from the Little Ice Age over the past few hundred years:

But several facts impede [Gore’s] rather simple narrative. First, glaciers have been greatly advancing and receding since the last ice age. In Switzerland, there have been twelve such advances and retreats over the past ten thousand years. One of the best-studied glaciers in Norway—my namebrother Bjørnbreen—was entirely absent for three thousand years over two periods about seven thousand years ago; over the last ten thousand years, it has been reborn six times. In fact, most glaciers in the Northern

Hemisphere were small or absent from nine thousand to six thousand years ago. While glaciers since the last ice age have waxed and waned, they overall seem to have been growing bigger and bigger each time until reaching their absolute maximum at the end of the Little Ice Age. It is estimated that glaciers around 1750 were more widespread on Earth than at any time since the ice age twelve thousand years ago. When Bjørnbreen peaked around 1800, it was actually twice as large as in any of its five previous incarnations.

So it is not surprising that as we're leaving the Little Ice Age we are seeing glaciers dwindling. We are comparing them with their absolute maximum over the past ten millennia. (*Cool It*, p. 55)

And these passages followed Lomborg's introductory words to his "Melting Glaciers" section, where he also emphasized the natural swings in temperatures over the past several hundred years due to natural causes, and where his treatment of man-made global warming is also merely parenthetical, in this case literally:

Over the past millennium, temperatures have gone up and down and up again from natural causes. (In the past 150 years, temperatures have diverged even more upward due to global warming.) Between 900 and 1200 there was a relatively warmer period known as the Medieval Warm Period. The warmer climates and reduced sea ice made possible the colonization of the otherwise inhospitable Greenland and Vinland (Newfoundland) by the Vikings. In Alaska, the mean temperature was 3 to 5°F warmer in the eleventh century than today, and the snow line in the Rocky Mountains was about three hundred yards higher than today. (*Cool It*, pp. 53–54)

From Lomborg's point of view, he's covered his bases, and can argue, as he did in his comments about my book, that he not only attributed the causes of melting glaciers to *both* man-made warming and natural causes, but that I criticized him for doing so. This is how Lomborg begins his section titled, "Friel's trouble with glacier-related issues":

Friel spends more than four pages criticizing my point that glaciers are dwindling *both* because of global warming and because we are coming out of the Little Ice Age. (Lomborg's comments, p. 14) (Emphasis in original.)

I instead criticized Lomborg for his excessive treatment of the Little Ice Age as a natural force playing a major role in the worldwide melting of glaciers over the last half of the twentieth century. That is what I spent several pages in *The Lomborg Deception* doing, not what he claims. (See, *The Lomborg Deception*, pp. 90–99.)

For example, I wrote:

The 2007 IPCC assessment report noted that the atmospheric warming responsible for these changes in the Earth's cryosphere, including a significant melting of glaciers, was not due to natural causes, that is, increased solar insolation (the amount of solar radiation reaching the Earth): "The present-day near-global retreat of mountain glaciers cannot be attributed to the same natural causes [as the retreat of glaciers thousands of years ago], because the decrease of summer insolation during the past few millennia in the Northern Hemisphere should be favourable to the growth of glaciers. (*The Lomborg Deception*, p. 93)

I also wrote:

And equally relevant to Lomborg's analysis, as we shall see, the 2007 IPCC assessment also reported: "It is *very likely* that average Northern Hemisphere temperatures during the second half of the 20th century were higher than for any other 50-year period in the last 500 years. It is also likely that this 50-year period was the warmest Northern Hemisphere period in the last 1.3 kyr [1,300 years], and that this warmth was more widespread than during any other 50-year period in the last 1.3 kyr.... The rise in surface temperatures since 1950 very likely cannot be reproduced without including anthropogenic [man-made] greenhouse gases in the model forcings, and it is very unlikely that this warming was merely a recovery from a pre-20th century cold period" (*The Lomborg Deception*, pp. 93–94)

Like his previously noted claims that a study of the impact of global warming on six diseases was a study about "all" extra heat and cold deaths, and that a study of people aged 65–74 applied to the population-wide results that he reported, Lomborg—in both *Cool It* and his comments about my book—cited the emergence from the Little Ice Age as if it could explain the recent melting of glaciers on a global scale, when it is more likely, as the IPCC reported in both 2001 and 2007, that the Little Ice Age was not a global climate event, an emergence from which could not explain the recent and current worldwide melting of glaciers. This is what I wrote in *The Lomborg Deception* in this respect:

The 2001 IPCC assessment also reported that the Medieval Warm Period and the Little Ice Age were likely regional and not global climate events:

The terms "Little Ice Age" and "Medieval Warm Period" have been used to describe two past climate epochs in Europe and neighbouring regions during roughly the 17th to 19th and 11th to 14th centuries, respectively. The timing, however, of these cold and warm periods has recently been demonstrated to vary geographically over the globe in a considerable way. Evidence from mountain glaciers does suggest increased glaciation in a number of widely spread regions outside Europe prior to the 20th

century, including Alaska, New Zealand and Patagonia. However, the timing of maximum glacial advances in these regions differs considerably, suggesting that they may represent largely independent regional climate changes, not a globally synchronous increased glaciation.

The 2001 IPCC assessment report stated further that “the ‘Little Ice Age’ appears to have been most clearly expressed in the North Atlantic region as altered patterns of atmospheric circulation” and that “Medieval warmth appears, in large part, to have been restricted to areas in and neighbouring the North Atlantic.” The IPCC also reported that evidence of temperature changes in past centuries in the Southern Hemisphere “is quite sparse,” though suggesting “markedly different behavior from the Northern Hemisphere” with “the only obvious similarity” between the two hemispheres being “the unprecedented warmth of the late 20th century.” (*The Lomborg Deception*, pp. 95–96)

Had Lomborg reversed the parameters of his summary of “Melting Glaciers” in *Cool It*, and made his discussion of the Little Ice Age parenthetical while emphasizing the influence of man-made greenhouse emissions on melting glaciers, he would have gotten it about right.

Friel’s reliance on newspaper articles.

This headline in Lomborg’s comments conveys at least an initial impression that I relied disproportionately on newspaper articles to substantiate the claims in my book. There are about 650 numbered endnotes in *The Lomborg Deception*, of which no less than 300 reference the 2001 and 2007 IPCC Assessment Reports, published peer-reviewed studies and papers, and reputable scientific sources, such as the International Union for the Conservation of Nature, the Arctic Climate Impact Assessment, and United Nations science-related agencies, including the World Health Organization and the Food and Agriculture Organization. In addition, there are over 200 numbered endnotes that reference Lomborg’s books *Cool It* and *The Skeptical Environmentalist*. There are 67 numbered endnotes that reference news sources, including eight that reference such sources in chapter 13, “Lomborg’s Triple-A Rating,” which is a review of how three major U.S. organizations reviewed and generally treated Lomborg’s books. In chapter 14, “How Wrong Was Lomborg?,” about 25 out of the 44 numbered endnotes referenced news sources.

About chapter 14, Lomborg wrote:

Friel ends his book with a chapter called “How Wrong Was Lomborg.” In it, he tells us that “Lomborg was wrong on virtually every major claim that he made.” Surprisingly, his

arguments are supported almost entirely not by citations of scholarly research but by uncritical references to newspaper articles. (Lomborg's comments, p. 22)

The sources that I used in chapter 14 to assess Lomborg's assertions in *Cool It* from the perspective of the state of knowledge per mid-2009 (in rough order of appearance) were a press release on polar bears by the U.S. Department of the Interior, the Center for Biological Diversity, BBC News, *Discovery News*, *New Scientist*, the Australian Broadcasting Corporation, an article by Ian Stirling and Andrew Derocher (two top polar bear scientists) in *The Wildlife Professional*, the *Guardian*, Reuters, *Nature*, the *New York Times*, *Nature Geoscience*, the *San Francisco Chronicle*, the Associated Press, Agence France Presse, the *Independent*, Bloomberg, *The Open Atmospheric Science Journal*, Grist, the Worldwatch Institute, "The Stern Review" (*The Economics of Climate Change: The Stern Review*, Cambridge University Press, 2007), and Al Gore's *The Assault on Reason* (Penguin, 2007). What these sources reported was later reinforced in *The Copenhagen Diagnosis: Updating the World on the Latest Climate Science* (December 2009, at <http://www.copenhagendiagnosis.org/>) by two dozen prominent climate scientists who updated the climate science published since the 2007 IPCC Assessment Report, and whose findings also severely undermine Lomborg's Theorem that global warming is no catastrophe.

END