

Testimony of David Bookbinder
Senate Environment and Public Works Committee
July 8, 2015

Good morning Mr. Chairman, Ranking Member Boxer, and thank you for the opportunity to testify as to the U.S. commitment to the Paris climate conference. My name is David Bookbinder, and I am a partner in Element VI Consulting, and an Adjunct Scholar at the Niskanen Center.

In order to make sure I used the correct format for this testimony, I went and found my testimony from the last time I addressed this committee, at the invitation of then-Chair Boxer back in 2008. And I saw that the very first sentence of what I said then is worth repeating today: “Let me begin by acknowledging that climate change, a problem that affects every aspect of our environment and whose solution that will affect every aspect of our economy, is best addressed by tailor-made legislation.” Seven years later, there are two reasons why the need for such federal legislation is even more true today.

First, as predicted, those seven years have seen significant federal and state greenhouse gas regulation, with far more to come. Everyone, and I mean everyone, agrees that such regulation is not the optimal way for the U.S. to reduce its emissions. Second, those seven years have made the current and future impacts of global warming all the more apparent, and thus the need for an international climate change agreement (the only way to deal with global warming) all the more imperative. Custom-made federal climate legislation – preferably in the form of a carbon tax -- would be the most useful thing Congress could do to make an effective agreement possible.

And so on to Paris. On March 31, the State Department issued the formal “Intended Nationally Determined Contribution” (“INDC”) ahead of the United Nations Framework Convention on Climate Change meeting in Paris this December. In the INDC, the United States said that it “intends to achieve” 26-28% reductions in its net greenhouse gas emissions by 2025. The INDC listed the “Domestic laws, regulations, and measures relevant to implementation”, followed by the relevant regulatory actions completed since 2009, and additional measures that the Administration is undertaking. Unfortunately, even when combined, I do not see how these measures will allow the U.S. to meet even the lower end – 26% -- of that goal.

Let’s begin with what “26% below 2005 levels” means. Net U.S. emissions in 2005 were 6,455 million metric tons (“MMT”) of CO₂ equivalent, and 26% of that is **1,678 MMT**. (28% of 6,455 is 1807 MMT). By 2013, net U.S. emissions were 5,860 MMT, a reduction of 595 MMT since

2005. (All emissions data are from EPA's 2015 *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2013*, which is the most recent official U.S. report to the Paris process; I use 2013 figures because those are thus the starting point for what remains to be accomplished.)

So, to meet the 26% goal, at first glance it looks like we would need to cut another **1,083 MMT** by 2025. But, as the Energy Information Administration points out, even with all the regulatory measures that were already in place as of 2014 (EIA, *Annual Energy Outlook 2015*, p. ii), due to economic growth their "Reference Case" energy and industrial emissions (approximately 90% of US emissions; *2015 Inventory*, p. ES-4) will increase by **106 MMT** between 2013 and 2025 (*Annual Energy Outlook 2015*, p. A-35). Thus to meet the 26% reduction target, we need to eliminate **1,189 MMT** of annual emissions over the next ten years.

Regrettably, the measures listed in the INDC do not appear to get us there; in fact, using what I believe are very generous assumptions, the U.S. will be at least 29% (and probably more) short of the 2025 goal. Because the INDC describes only the category of emissions where reductions will take place, and not any details, as described I use relevant EPA and Department of Energy figures for the *maximum* emissions reductions we can expect from these measures. They are as follows:

1. Power plant emissions standards. According to EPA, the Clean Power Plan will reduce 2025 emissions by **506 MMT** (79 FR 34932), and I use that figure to give the Administration every benefit of the doubt. However, I believe that achieving these reductions by 2025 is enormously optimistic; assuming that the Clean Power Plan is upheld by the courts, not delayed by a subsequent Administration, and works as intended, the realities of the Clean Air Act process and state implementation make it unlikely that it will achieve these reductions until 2030 or later.

2. Landfill methane standards. According to EPA, standards applicable to new landfills will reduce 2025 emissions by **3 MMT** (79 FR 42825). EPA has not proposed standards for existing landfills, and thus reductions from eventual regulations are very hard to calculate. Given that current landfill regulations have reduced these emissions by 30% between 1990 and 2012 (79 FR 41775), we'll assume a further 50% reduction of the 2012 emissions (103 MMT; *id.*) for **52 MMT**.

3. Oil & Gas exploration and production methane standards. Despite an announcement 18 months ago, EPA has not yet proposed regulations, so we use the upper end of the White House goal of "40 – 45 percent from 2012 levels by 2025" (*Administration Takes Steps Forward on Climate Action Plan by Announcing Actions to Cut Methane Emissions*; White House Fact

Sheet, January 14, 2015, p. 1) to estimate expected reductions. 2012 emissions from existing natural gas systems and petroleum systems were, respectively, 130 MMT and 32 MMT (*EPA Inventory*, p. ES-6)), and 45% of 162 MMT = **73 MMT**. It is worth noting that EPA has said that it only has plans to promulgate standards that apply to *new* infrastructure, and these emissions are all from *existing* infrastructure; presumably at some point EPA will follow the new source standards with standards for existing sources (as the Clean Air Act obligates EPA to do).

4. DOE energy conservation standards. This one is not easy to quantify. DOE has already completed 29 sets of standards for various equipment, appliances and building codes, with dozens more coming, and so I used the difference in emissions between EIA's Reference and "Extended Policies" projections. The former includes the measures DOE has already completed, and the latter includes "additional rounds of efficiency standards for residential and commercial products, as well as new standards for products not yet covered; adds multiple rounds of national building codes by 2026". EIA, *Assumptions to the Annual Energy Outlook 2014*, p. 10.

EIA says that the cumulative emissions difference between the two cases from 2012 to 2040 is 2.6 billion metric tons (*2014 Annual Energy Outlook*, p. IF-7). I then subtracted the 11% of which is due to increased fuel economy and another 5% for the "relatively small" reduction attributable to increased renewable generation (*id.*), leaving a total of 2.2 billion metric tons reduced between 2012 and 2040, which works out to an average of **80 MMT/year**. I consider this a generous estimate, because annual savings will increase over that time as new standards are added.

5. HFC replacement program. According to EPA's proposed rule, the expected reductions from this program will be 31 to 42 MMT in 2020 (79 FR 46128); the final was signed last week, but the discussion of the rule's benefits is in a document that will not be made public until the rule is published in the Federal Register. According to a White House blog post on the final rule (<https://www.whitehouse.gov/blog/2015/07/02/administration-takes-big-step-addressing-climate-damaging-hfcs>) reductions in 2025 could be as high as 64 MMT and I used that number.

6. Reducing Federal Government emissions. Executive Order 13693, Section 1, calls for a 40% reduction from 2008 emissions by 2025. Those 2008 emissions were 70 MMT (*Federal Progress Toward Energy/Sustainability Goals: Presentation to Federal Interagency Energy Management Task Force*, May 22, 2014, pp. 14, 17). Forty percent of 70 MMT is 28 MMT; by 2012, those emissions were down 13 MMT (*id.*), leaving another **15 MMT** to go, and I assume that the federal government will achieve those reductions.

7. Vehicle emission standards. The INDC's list of measures also includes both the current light-duty and medium and heavy-duty vehicle fuel economy standards. While these will have respective reductions by 2025 of 140 MMT (77 FR 62892) and 76 MMT (by 2030; 76 FR 57294), including them would be double-counting, as EIA has already factored those reductions into its baseline 2025 projections (*Assumptions to the Annual Energy Outlook 2014*, pp. 71, 80). In addition, EPA has recently proposed post-2019 medium- and heavy-duty vehicle standards. Assuming that these will be implemented on schedule, I use the maximum projected 2025 reductions – including both tailpipe and upstream emissions -- of **47 MMT**. Draft Regulatory Impact Analysis, p. 5-4.

As noted above, we need **1,189 MMT** in annual reductions to meet the 26% commitment. Even assuming (1) that standards that have not yet been proposed (for existing landfills, oil & gas operations, and some DOE efficiency ones) become law and work as expected; (2) that those as-yet unknown standards produce exceptional results (*e.g.*, 50% reductions for landfills and 45% for oil & gas); (3) that those standards plus all the ones that have been proposed but are not yet finalized (power plants, new landfills, heavy-duty vehicle standards and other DOE efficiency measures) are completed in a timely manner, survive judicial review, and produce the expected reductions on schedule; and (4) that any future Administration does nothing to slow down or weaken any of them, then we're looking at maximum annual reductions in 2025 of **840 MMT**, leaving the U.S. **349 MMT short (about 29%) of even the lower end of our Paris commitment and 478 MMT short of the upper end of that commitment.**

Because the INDC states that, "The target reflects a planning process that examined opportunities under existing regulatory authorities to reduce emissions in 2025 of all greenhouse gases from all sources in every economic sector", it appears that the 26-28% target was based on emissions reductions attributable to regulatory measures other than the ones listed in the INDC. In order for the American people and their representatives to fully understand the basis for the INDC commitment, I have asked, and continue to ask, that the Administration share the results of that planning process.

Thank you again for this opportunity.