

SUCCESS OF U.S. CLIMATE PLEDGE DEPENDS ON FUTURE GHG REGULATION OF U.S. INDUSTRY, OTHER SECTORS

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According to several independent studies and analyses, a large gap exists in the U.S. climate pledge to the United Nations. Simply put, the greenhouse gas (GHG) emissions reductions flowing from specific policies and measures listed in the U.S. pledge **fall far short** of the President's 2025 target of a 26 to 28 percent reduction, compared to 2005. What gives this conclusion greater credibility is that the work was independently conducted by a number of environmental advocacy groups as well as the U.S. Chamber of Commerce.

The Obama administration, however, does not publicly acknowledge the existence of the gap in its pledge or Intended Nationally Determined Contribution (INDC). According to *The Financial Times*, Rick Duke, White House deputy director for climate policy, told climate pledge skeptics that the United States is "on track" to meet the President's target and that the U.S. "numbers are quite clear" as opposed to the submissions of other countries.¹ It also appears that neither the White House nor the U.S. State Department has privately briefed foreign governments on the economic, legal, and political vulnerabilities of the pledge.

This lack of transparency may result from the Administration's desire not to flag the need for domestic regulation of the U.S. industrial sector to meet the emissions target, given the likelihood of

political controversy associated with the potential loss of blue collar jobs in the Midwest and other parts of the country. Also, the U.S. negotiating position to maximize concessions from other countries could be weakened if the Administration openly recognized that further regulation is needed by future Presidents in order to meet the target. The fact that the Administration plans to circumvent the U.S. Congress in concluding any agreement in Paris probably adds to the incentive not to be open about the gap.

In any case, the United States would need to regulate new sources and sectors of the American economy, particularly U.S. manufacturing, if the President's target is to be met, even if often presumed economic, legal, and political obstacles to the pledge fail to materialize.

¹ Jopson, Barney. "U.S. risks missing emissions goals, study says," *The Financial Times*, May 27, 2015 at <http://www.ft.com/intl/cms/s/0/f972a2be-0415-11e5-8585-00144feabdc0.html#axzz3oxG8zFqK>.

Q1: What is the Climate Pledge or INDC?

The 194 Parties to the United Nations Framework Convention on Climate Change (UNFCCC) plan to reach an agreement in Paris at the end of 2015, although disagreements over sensitive issues, including financial assistance to developing countries, could result in a delay. Based on a bottom-up approach to global climate mitigation, the agreement aims to include INDCs from all major economies – including China and India, as well as smaller developing countries.

INDCs are pledges – not commitments that are legally binding. They reflect the steps countries are willing to take to reduce GHG emissions, for example, in absolute terms, compared to a business-as-usual (BAU) scenario, or with conditions like adequate funding and technology transfer. The United States submitted its pledge to the UNFCCC in March of this year, intending to achieve an unconditional 26 to 28 percent reduction in its net GHG emissions by 2025. The U.S. INDC would result in substantial cuts; current federal government forecasts estimate that U.S. emissions would be about 1 percent lower in 2025 without the Obama administration’s climate policies, compared to 2005.²

Though most party-specific pledges will **not** result in absolute emissions reductions, compared to a past or current baseline, the Paris Agreement would be a notable departure from previous international climate

agreements – including the Kyoto Protocol³ – that place the entire mitigation burden on developed economies, a goal that has been a top priority cutting across Republican and Democratic administrations.⁴

Q2: What did President Obama actually promise in the U.S. INDC?

According to the U.S. INDC submission, the pledge is based on GHG reduction actions that depend exclusively on existing U.S. regulatory authorities impacting “all greenhouse gases from all sources in every economic sector.” Moreover, the U.S. target “covers all IPCC sectors”.⁵

Consequently, the U.S. pledge relies solely on existing domestic law, especially the Clean Air Act, and more importantly, an aggressive implementation of Obama-era regulations and pursuit of regulation of other GHG sources by future Administrations, regardless of political affiliation.

While the U.S. INDC fails to provide specific details on all IPCC sectors (e.g., cement and steel), it does include several policies and measures that focus on reducing emission levels in power generation, transportation, and from other smaller sources. Those policies identified in the INDC produce likely emissions reductions of 11 to 17 percent, judging from a number of independent analyses of the U.S. pledge. Thus, there is a notable gap of 9 to 15 percent, considering the 26-percent INDC target.

2 Energy Information Administration, Annual Energy Outlook 2015 (<http://www.eia.gov/forecasts/aeo/>).

3 See http://unfccc.int/kyoto_protocol/items/2830.php.

4 It is worth noting that this U.S. diplomatic objective, which has its beginnings in the Bush 43 Administration and the Major Economies Process, was successfully achieved by the Obama climate negotiating team.

5 “The United States intends to account for 100 percent of U.S. greenhouse gas emissions and removals for the base year 2005 as published in the Inventory of United States Greenhouse Gas Emissions and Sinks, on a net-net basis.” See <http://www.unfccc.int/submissions/INDC/Published%20Documents/United%20States%20of%20America/1/U.S.%20Cover%20Note%20INDC%20and%20Accompanying%20Information.pdf>. Also see Table 1.1 at http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/3_Volume3/V3_1_Ch1_Introduction.pdf for a list of IPCC sectors.

Table 1: Selected Analyses of the U.S. Climate Pledge

A	B	C	D	E	F	G	H	I
Organization/Author	2005 Baseline (MMT) ¹	2025 BAU ² (MMT)	The Pledge: 26% Cut (MMT) ³ B x .26	2025 Target for U.S. Emissions (MMT) B - D	Cuts (MMT) Needed to Reach 26% C - E	INDC MMT ⁴	Gap MMT F - G	% Below 2005 Baseline w. INDC
Climate Advisers/ Maria Belenky ⁵	6,319	6,142	1,643	4,676	1,466	851	614	17%
Element Consulting/ David Bookbinder ⁶	6,455	5,966	1,678	4,777	1,189	840	349	14%
U.S. Chamber/ Stephen Eule ⁷	6,390	6,100	1,661	4,729	1,371	700	671	11%

1 MMT – million metric tons.

2 Business As Usual (BAU) without government intervention, accounting for growth in U.S. emissions between now and 2025.

3 The U.S. pledge in MMT reductions, 2005 Baseline.

4 Programs reflected in the U.S. INDC. See U.S. submission at <http://www4.unfccc.int/submissions/INDC/Published%20Documents/United%20States%20of%20America/1/U.S.%20Cover%20Note%20INDC%20and%20Accompanying%20Information.pdf>.

5 Low abatement scenario – minimum emissions reductions from Clean Power Plan (CPP) and HFCs, based on EPA's estimate. Climate Advisers also includes a high abatement scenario, based on the NRDC analysis of CPP. Importantly, the high abatement scenario, which is very unlikely in this author's opinion, also results in a gap. Both scenarios are based on EPA's CPP proposed rule. See <http://www.climateadvisers.com/wp-content/uploads/2013/12/US-Achieving-2025-Target-May-20151.pdf>.

6 Based on the CPP proposed rule. David Bookbinder was Sierra Club's chief legal counsel and managed the monumental case, Massachusetts vs. EPA. Bookbinder is now a consultant on environmental and energy matters and adjunct scholar at the Niskanen Center. See http://www.epw.senate.gov/public/_cache/files/96e1aded-05af-485a-9e23-544f82e0f4bc/bookbinder.pdf.

7 Stephen Eule is Vice President of Climate and Technology at the U.S. Chamber, Institute for 21st Century Energy. Eule's estimate is based on the CPP final rule and other proposed or final rules covering other sources and gases. See <http://www.energyxxi.org/mind-gap-obama-administrations-international-climate-pledge-doesnt-add>.

As Table 1 indicates, emissions reductions flowing from explicit policies listed in the U.S. INDC fall far short of the U.S. overall target of a 26-28 percent cut. In addition to the above studies, the World Resources Institute (WRI) determined that “[A]ctions taken to implement the [Climate Action Plan] are not enough to get the United States to its 2020 or 2025 climate goals. To meet these goals, the country will need to strengthen and expand some of the actions already taken or proposed, and take action on additional sectors not yet addressed.”⁶

6 Hausker, Karl, Kristin Meek, Rebecca Gasper, Nate Aden, and Michael Obeiter. “Delivering on the U.S. Climate Commitment: A 10-Point Plan Toward a Low-Carbon Future,” World Resources Institute, June 2015 at <http://www.wri.org/publication/delivering-us-climate-commitment-10-point-plan-toward-low-carbon-future>.

WRI believes that existing laws could be used to achieve the President's target, but only if the federal government and the states pursue an aggressive, focused mitigation strategy for each major emitting sector and source. Importantly, EPA's final Clean Power Plan (CPP), which is responsible for roughly one-third of the emissions reductions in the U.S. INDC, does not meet WRI's pathway requirements.⁷ *Without new federal legislation, this shortfall would thus require a future White House to take a more aggressive mitigation approach to other sectors and sources – steps that may not even be technically or politically possible.*

Consequently, there is a substantial probability that the Congress would need to pass new climate change-related legislation to achieve the reductions envisioned in the U.S. INDC – and certainly for any post-Paris agreement pledges past 2025.

The U.S. pledge does not include any actions to assist poor countries, despite the fact that many foreign governments have insisted that the scope of INDCs should include measures addressing adaptation, finance, technology transfer, and capacity building in the developing world.⁸ From a U.S. perspective, this omission is not a surprise, given the fact that the U.S. Congress is highly unlikely to appropriate any funds for such actions, particularly as long as it is excluded from the international negotiating process.

Q3: What Other Factors Could Impact the Size of the Gap?

Higher-than-expected economic growth would obviously increase the projected gap of 9 to 15

percent. Moreover, it is widely understood that there is a political factor. According to Climate Advisers, "the next U.S. President would need to vigorously implement these Obama administration policies as well as propose new emissions reduction measures – something that is far from assured given political differences on climate change in the United States currently (emphasis added)."⁹

More controversial is the legal vulnerability of the CPP. While some environmental law attorneys believe that EPA "has shored up its legal vulnerabilities" in its final rule,¹⁰ other respected attorneys claim otherwise.¹¹ Accordingly, this assessment of the U.S. INDC will not address this matter in any detail. The fact remains, however, that a rejection by the courts of the CPP – even perhaps only a partial dismissal of the rule – would derail the U.S. effort to meet President Obama's 2025 target.

Lesser known are the more narrow technical issues that could have a significant impact on the success or failure of the U.S. climate pledge. Importantly, these challenges – some of which are listed below – are largely out of the hands of the state regulators who are responsible for complying with the Clean Power Plan and other federal rules:

Reduced Carbon Sequestration: According to Maria Belenky, a Senior Associate at Climate Advisers and former researcher for the Natural Resources Defense Council (NRDC) and Rainforest Action Network,

"The volume of CO₂ removals by U.S. land sinks, particularly forests, is the largest source of uncertainty in future GHG emissions. Historically, this figure has been significant – for example, land sinks offset approximately 15 percent of total

7 Judging by WRI's analysis of required low-carbon pathways, Figure 2-2, pp. 38.

8 See http://www.southcentre.int/wp-content/uploads/2015/05/Note-on-INDCs-template-for-developing-countries_EN.pdf.

9 Belenky, Maria. "Achieving the U.S. 2025 Emissions Mitigation Target." Climate Advisers, pg. 2 at http://www.climateadvisers.com/wp-content/uploads/2013/12/US-Achieving-2025-Target_May-20151.pdf.

10 Freeman, Jody. "How Obama plans to beat his climate critics." Politico, The Agenda at <http://www.politico.com/agenda/story/2015/08/how-obama-plans-to-beat-his-climate-critics-000186>.

11 Martella, Roger. "The Legal Scrutiny Surrounding 111d: Will it Survive or Stumble?" Environmental Law Institute, 2014 at http://www.ieca-us.com/wp-content/uploads/The-Legal-Scrutiny-Surrounding-111d-Will-it-Survive-or-Stumble_Martella_12.2014.pdf. While Martella's legal analysis focuses on the proposed rule, his concerns regarding "outside-the-fence" approaches to regulating existing power plants remain valid.

emissions in each of the past five years. Although it is possible that U.S. forests will continue this high rate of carbon sequestration through 2025 and beyond, some studies now indicate that the CO₂ absorption rate may begin to decline due to increased forest disturbances (e.g., drought, wildfires and the spread of diseases, slower forest growth, and other factors).¹²

The absence of forests and land use policies as a form of compliance under the Clean Power Plan undeniably increases the risks of poor management of U.S. land sinks, probably reducing their effectiveness in climate mitigation.

Premature Shutdown of U.S. Nuclear Capacity:

Many nuclear reactors in merchant markets are already struggling to compete in a low-price environment against cheap shale gas and subsidized renewables – putting at risk the premature shutdown of roughly 7,500 megawatts of clean generation.¹³ EPA's strong support of mandated renewables and failure to provide adequate protection to these vulnerable reactors under the Clean Power Plan substantially increases that likelihood.

To the surprise of many outside observers, the design of the CPP actually allows a U.S. state – if it selects the rate-based option of the rule – to comply and at the same time actually increase its absolute CO₂ emissions.¹⁴ Under this scenario, for example, a perfectly good, efficient nuclear plant could be retired and replaced with a new natural gas plant, resulting in an increase in emissions without any penalty under the rule.

The U.S. civil nuclear fleet avoided 595 million metric tons (MMT) of CO₂ in 2014 and accounted for about 63 percent of U.S. emission-free generation.¹⁵ If nuclear capacity is reduced further by 7,500

megawatts and replaced by natural gas generation, U.S. CO₂ emissions would increase by 20 to 25 MMT per year – a figure that, when totaled over a number of years, is roughly equivalent or greater than many of the specific plans for emissions reductions reflected in the U.S. INDC.

The Lack of Natural Gas and Renewables

Infrastructure: CPP makes broad assumptions about access to renewables and the ability of utilities to fuel switch from coal to natural gas. Most retiring coal plants, however, cannot simply be replaced by natural gas plants or renewable generation. Before this switch can occur, infrastructure, necessitating state and federal reviews (e.g., National Environmental Policy Act), must be built. In fact, the construction of renewable energy systems, particularly on federal lands in Western states, might be precluded or stalled by these requirements. Certainly, the deployment of wind and solar farms could readily conflict with the Endangered Species Act.

In addition, land and environmental impacts of building the required infrastructure at the scale envisioned by CPP have received little attention at this point. As a point of reference, hundreds of thousands of acres would be required to construct enough wind turbines to generate the same amount of power as one 1,800 megawatt nuclear plant. As states move to comply with the rule, we can expect the visibility of these challenges to increase. Certainly, these types of obstacles are likely to cause difficulties in meeting CPP targets.¹⁶

Q4: How Can the United States Fill the INDC Gap?

Given the time needed to propose new EPA regulations, it is assumed that the Obama White House expects future U.S. administrations to regulate

¹² Belenky pg. 4.

¹³ About 8 percent of existing U.S. nuclear capacity. See Banks, George David. "A Rational Approach to U.S. Civil Nuclear Power," R Street, May 2014 at <http://www.rstreet.org/wp-content/uploads/2014/05/RSTREET23.pdf>.

¹⁴ See <http://www3.epa.gov/airquality/cpp/fs-cpp-overview.pdf>.

¹⁵ <http://www.nei.org/Knowledge-Center/Nuclear-Statistics/Environment-Emissions-Prevented>.

¹⁶ See <http://www.scribd.com/doc/239195664/Republican-Governors-Urge-President-Obama-to-Promote-Reliable-Affordable-Energy-Policy>.

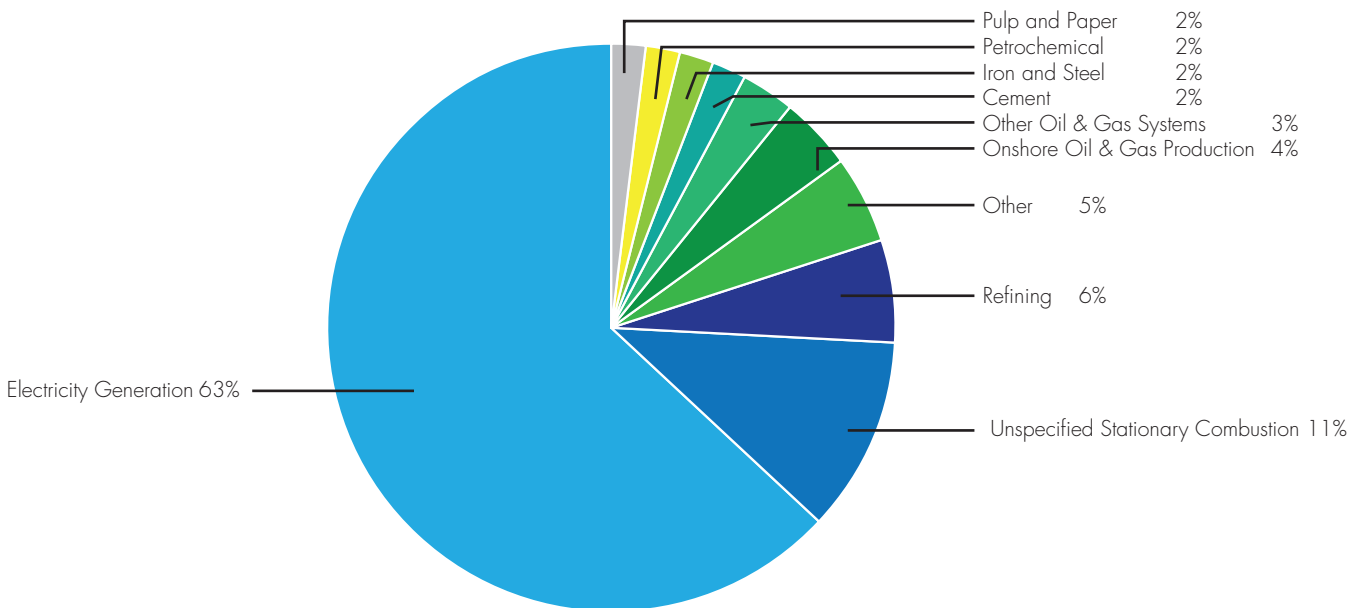
emissions in other sectors of the economy to reach the INDC target, resulting in additional reductions of at least 9 to 15 percent.

This assumption is supported by EPA’s justification of its FY2015 appropriations¹⁷:

“In response to petitions and other requests, available inventory data, and other available information the EPA has received to date, the agency expects to undertake consideration of such actions for the following sectors: petroleum refining; pulp and paper facilities; municipal solid waste landfills; iron and steel production; animal feeding operation; and Portland cement manufacturing.”

Based on EPA’s request, the agency probably envisions future, aggressive regulation of the industrial sector, which is responsible for 21 percent of total U.S. GHG emissions.¹⁸ Reducing emissions in the industrial sector, however, is expected to be more expensive than cutting emissions in the electricity sector, given the fact that a significant percentage of industrial emissions are related to process.¹⁹ Moreover, much of U.S. industry – such as refining, cement, and steel – have already reduced energy costs and become more efficient in face of global competition from China and elsewhere. Between 1990 and 2013, U.S. industry’s GHG emissions fell by more than 12 percent.

Figure 1: GHG Emissions from the U.S. Industrial Sector



Source: Regulatory Impact Analysis for the Mandatory Reporting of Greenhouse Gas Emissions Final Rule (September 2009)²⁰

17 U.S. Environmental Protection Agency, “Justification of Appropriation Estimates for the Committee on Appropriations,” Fiscal Year 2015 at http://www2.epa.gov/sites/production/files/2014-03/documents/fy2015_congressional_justification.pdf.

18 When indirect emissions are considered, the industrial sector’s share increases to 29 percent. See <http://www3.epa.gov/climatechange/ghgemissions/sources/industry.html>.

19 The production of cement, for example, releases direct and indirect GHG emissions. Heating limestone directly releases CO₂; burning fossil fuels to power equipment and heat the kiln in a cement plant indirectly produces CO₂ emissions – with each activity accounting for about half of the sector’s emissions. Although indirect emissions can be reduced sometimes at low cost by fuel switching from coal to natural gas, for instance, process-related emissions are more expensive (e.g., switching from wet to dry kilns or using material other than limestone).

20 <http://www2.epa.gov/sites/production/files/2015-07/documents/regulatoryimpactanalysisghg.pdf>.

Aggressive regulation of industry alone, however, probably could not fill the gap in the U.S. INDC. In 2013, total direct GHG emissions for the industrial sector stood at 1,392 MMT, while its CO₂ emissions associated with fossil fuel combustion was about 817 MMT.²¹ A 28-percent reduction in total direct GHG emissions across the U.S. industrial sector – less than 400 MMT – would still result in a shortfall in two of the three scenarios identified in Table 1.

Accordingly, the United States probably would also need to regulate non-industrial sectors, including land use and agriculture, to meet President Obama's target.

Q5. What related steps do we expect from the Obama administration in 2016?

Regulating GHG emissions from the industrial sector would be controversial politically, given the likelihood of job loss, particularly in battleground states like Ohio. Requiring major new capital expenditures that otherwise would not be made could lead to a crowding out of other necessary capital investments and result in an increase in production costs. Adding these new requirements to an already increasing list of regulations²² would slow the growth of industry

and decrease the sector's global competitiveness, which would result in slower GDP and job growth.

To help address these concerns and minimize domestic opposition, a future White House would need to pursue an international sectoral approach if it wishes to help create a level-playing field for U.S. industry. From a political perspective, Democratic presidential candidates, in particular, must be able to argue that GHG regulation of U.S. manufacturing would not result in a competitive disadvantage vis-à-vis China, India, and other major economies.

While it is generally assumed that the Obama EPA will not have time to issue specific GHG rulemakings impacting industrial sub-sectors before the next election, the Administration has already begun deliberations that aim to build a political foundation for GHG regulation of the U.S. industrial sector. In September of this year, for example, White House officials, joined by a team from the U.S. State Department and Department of Energy, held a meeting with representatives from industry to help lay the groundwork for such a sectoral approach. After the conclusion of any Paris agreement, we can assume that the Obama White House would focus its efforts on this objective – in preparation for a possible Democratic victory in November 2016.²³

About the Author:

George David Banks received an EPA climate award from the Obama administration in 2009 for his diplomatic work in the George W. Bush White House. From 2009-2010, Banks worked as a senior adviser to an environmental NGO on non-CO₂ mitigation strategies. The author supports a global climate agreement that includes effective adaptation and mitigation measures, including sectoral agreements between major emitters.

21 Most of the direct emissions (calculated by backing out emissions associated with electricity usage), are associated with consumption of fossil fuels for power or heat (making up two-thirds of the sectors emissions), followed by industrial process emissions and leaks. See <http://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2015-Main-Text.pdf>.

22 Overall 40,000 proposed and final regulations were issued between 1981 and 2012. See "Macroeconomic Impacts of Federal Regulation of the Manufacturing Sector," NERA Economic Consulting, August 2012, https://www.mapi.net/system/files/NERA_MAPI_FinalReport_0.pdf.

23 We can safely assume that a Republican President would reject President Obama's climate pledge.