Statement of the U.S. Chamber of Commerce

ON: Paris Climate Change Agreement

TO: U.S. House of Representatives
Committee on Science, Space, & Technology

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The U.S. Chamber of Commerce is the world's largest business federation representing the interests of more than 3 million businesses of all sizes, sectors, and regions, as well as state and local chambers and industry associations. The Chamber is dedicated to promoting, protecting, and defending America's free enterprise system.

More than 96% of Chamber member companies have fewer than 100 employees, and many of the nation's largest companies are also active members. We are therefore cognizant not only of the challenges facing smaller businesses, but also those facing the business community at large.

Besides representing a cross section of the American business community with respect to the number of employees, major classifications of American business—e.g., manufacturing, retailing, services, construction, wholesalers, and finance—are represented. The Chamber has membership in all 50 states.

The Chamber's international reach is substantial as well. We believe that global interdependence provides opportunities, not threats. In addition to the American Chambers of Commerce abroad, an increasing number of our members engage in the export and import of both goods and services and have ongoing investment activities. The Chamber favors strengthened international competitiveness and opposes artificial U.S. and foreign barriers to international business.

Thank you, Chairman Smith, Ranking Member Johnson, and members of the Committee. I am Stephen D. Eule, vice president of the Institute for 21st Century Energy, an affiliate of the U.S. Chamber of Commerce. The mission of the Institute is to unify policymakers, regulators, business leaders, and the American public behind common sense energy strategy to help keep America secure, prosperous, and clean. In that regard, we hope to be of service to this Committee, this Congress as a whole, and the administration.

Summary of Key Points

For the purposes of this testimony I will limit myself to these main points:

- The Paris Agreement fulfills the Durban Platform's goals of an outcome with legal force, as it contains many legally-binding "shall" provisions, including committing the Parties to make future, more ambitious if non-binding mitigation commitments and to provide financing and technology assistance.

- The binding aspects of the Paris Agreement would require implementing legislation and regulation potentially affecting every sector of the U.S. economy. An agreement with such far-reaching consequences, if it is to be considered binding on future administrations and Congresses, should be approved by Congress.

- As a recent State Department report demonstrates, the U.S. Paris pledge of a 26% to 28% reduction in net GHG emissions from the 2005 level by 2025 is completely unrealistic, and the administration still has no plan to achieve it. This and any future pledges should be approved by Congress.

- A review of the Paris emission pledges show that they are very uneven, with a handful of developed countries being responsible for nearly all of the actual emission reductions while others countries pursue "business as usual."

- While making emissions pledges is mandatory, the pledges themselves are not binding, so there is no guarantee any of the Paris goals will be achieved.

- Even if these goals were to be achieved, however, global emissions in 2030 would still be much higher than in 2010 (with a mid-range estimate of 18%) largely because of rapid emissions growth in economies in transition and in emerging and developing economies. Coal for power production will continue to increase throughout the world as developing economies work to reduce poverty and increase energy access to their people.

- The United States has a huge energy-price advantage over many of its competitors. The uneven nature of the emissions goals, however, could raise U.S. energy prices and lead to carbon leakage to other countries with fewer environmental controls.

- Although Parties have agreed to a non-binding aim to limit the global temperature increase to "well below 2°C" from the pre-industrial level, the Parties, as they have in past decisions, refused to identify a global emissions pathway that they believe would be needed to meet the goal. This temperature target, therefore, will remain what it always has been—a potent political symbol of little practical consequence.

- Intellectual property rights (IPR) are not mentioned in the agreement, but there is concern that other language in the Paris Agreement and COP decision could open the door to weakening IPR in future meetings. Continued diligence to protect IPR is required.

- Developed countries are on the hook for providing finance for developing countries, but many issues have been kicked down the road. Congress has a role in authorizing and appropriating the U.S. share of these funds.

Introduction and Background

The UN Framework Convention on Climate Change[1] (UNFCCC) was adopted in 1992 and entered into force in 1994. It was one of three conventions—the other two cover biodiversity and desertification--agreed to at the 1992 Earth Summit in Rio de Janeiro, Brazil.

The ultimate goal of the UNFCCC, found in Article 2, is the "stabilization of greenhouse gas concentrations in the atmosphere at a level [undefined] that would prevent dangerous anthropogenic interference with the climate system." This goal should be "achieved within a time frame that would allow ecosystems to adapt naturally top climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

More than 190 governments are Parties to the UNFCCC. The U.S. Senate gave its advice and consent to ratification of the agreement in 1992 by voice vote. This consent, however, came with the understanding that any future agreement pursuant to the UNFCCC that included emissions target and timetables would be subject to the Senate's advice and consent.[2]

Since 1995, the Conference of the Parties (COP) to the UNFCCC has met annually, and in December 2015, the 21st meeting of the COP took place in Paris, France to complete a new agreement.

From the very beginning, the structure of the UNFCCC has virtually guaranteed gridlock. Consider the notion of historical responsibility, which plays an oversized role in the dynamics

[1] UN. 1992. "United Nations Framework Convention on Climate Change." Available at: http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.
[2] U.S. Senate. 1992. *Senate Executive Report No. 102-55.* 102nd Congress, 2nd Session.

between and among developed, emerging, and developing country Parties. Developing countries assert that as developed countries bear "historical responsibility" for most of the build-up of atmospheric carbon dioxide, they bear a greater responsibility to reduce emissions and to provide finance for reductions in developing countries.

Historical responsibility buttresses the UNFCCC principle of "common but differentiated responsibilities and respective capabilities" under which, ". . . developed country Parties should take the lead in combating climate change and the adverse effects thereof." That is, developing countries are not expected to do as much as developed countries, which have greater economic and technological capabilities to curb emissions. This principle of common but differentiated responsibilities is on full display in the 1997 Kyoto Protocol,[3] which only saddles developed countries with binding obligations to reduce emissions. (Although the Clinton Administration signed the Kyoto Protocol, it never sent it to the Senate for its advice and consent.)

Over the years, however, it has become readily apparent that developed countries alone cannot reduce global emissions by themselves—all countries have to participate. Developing countries, however, have been reticent to take on any substantial obligations for the reasons cited above and because economic development remains their priority. Paris was supposed to be the first agreement that would bring developing countries into the fold as full partners.

The first cracks in this UNFCCC wall separating developed from developing countries appeared in the Bali Roadmap[4] that emerged from the UNFCCC talks in Indonesia in 2007, where developing countries agreed to consider "nationally appropriate mitigation actions" that are "measurable, reportable, and verifiable." Bali began a two-year process to strengthen the international response to climate change through the "full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012, in order to reach an agreed outcome and adopt a decision." This process was to culminate with the agreement of a new, comprehensive international treaty (or treaties) at COP-15 in Copenhagen, Denmark at the end of 2009.

In the months leading up to COP-15, it became apparent that the Parties would not be able to achieve a comprehensive treaty. With a treaty clearly out of reach, the leaders from about 30 countries negotiated a deal, the Copenhagen Accord,[5] outside the UNFCCC process. This short-circuiting of the formal UN process was received with suspicion by many developing countries, which saw it as an attempt by the "big" countries to by-pass the UN process to strike a backroom deal that would be forced on the COP for its rubber stamp. It did not work out that

[3] UNFCCC. 1998. "Kyoto Protocol to the United Nations Framework Convention on Climate Change." Available at: http://unfccc.int/resource/docs/convkp/kpeng.pdf.

[4] UNFCCC COP. 2007. "Report of the Conference of the Parties on its thirteenth session, held in Bali from 3 to 15 December 2007." FCCC/CP/2007/6/Add.1*. Available at: http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf.

[5] UNFCCC COP. 2009. "Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009." FCCC/CP/2009/11/Add.1. Available at: http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf.

way. Instead of agreeing to the Accord, the COP decided to "take note" of it, a snub that gave credence to the view that the Copenhagen meeting was a political fiasco.

Nevertheless, the Accord did break some new ground with its call on countries—developed, emerging, and developing alike—to make bottom-up, voluntary emission pledges through 2020. More than 60 countries plus the European Union eventually made commitments of widely varying quality and ambition. Major aspects of the Copenhagen Accord were brought formally into the UNFCCC in Cancún, Mexico the following year.[6]

The Durban Platform for Enhanced Action,[7] which was adopted at COP-17 in 2011, charged the Parties to adopt a "protocol, another legal instrument or an agreed outcome with legal force" at COP-21 and for it to "come into effect and be implemented from 2020." The Parties at COP-17 approved the establishment of the Ad Hoc Working Group on the Durban Platform for Enhanced Action to shepherd such an agreement to a conclusion no later than the end of 2015.

Four years later, representatives of 195 countries met at COP-21 in Paris and concluded a new post-2020 climate change deal.[8] The final text agreed to in Paris is in two parts:

(1) an agreement that includes legally binding aspects; and
(2) a decision that fills in details and focuses on implementation.

The 29 articles (12 pages) of the agreement and the 140 paragraphs (19 pages) of the decision include provisions covering broads issues areas, including but not limited to: objectives, mitigation, forests and land use, international carbon markets, adaptation, loss and damage, finance, technology development and transfer, capacity building, transparency of action and support, a global assessment of progress, and implementation and entry into force.

In many ways, the Paris Agreement could be described as a more comprehensive and robust version of the Copenhagen Accord. The Copenhagen and Cancún meetings put in place many elements of the Paris Agreement—non-binding, bottom-up national commitments, a global (if undefined) temperature goal, increased levels of finance and technology transfer, and recognition of the importance of measuring, reporting, and verifying implementation of national commitments.

[6] UNFCCC COP. 2010. "Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010." FCCC /CP/2010/7/Add.1. Available at: http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2.
[7] UNFCCC COP. 2011. "Report of the Conference of the Parties on its seventeenth session, held in Durban from 28 November to 11 December 2011." FCCC/CP/2011/9/Add.1. Available at: http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf.
[8] UNFCCC COP. 2015. "Adoption of the Paris Agreement." FCCC/CP/2015/L.9/Rev.1. Available at: https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf.

Paris Agreement: Summary of Key Provisions

Global Goal: The agreement objective is to hold the increase in the global average temperature to well below 2°C above pre-industrial levels, with an effort to limit it to 1.5 °C. To that end, it states that countries should aim to peak global emissions "as soon as possible" and to achieve net-zero GHG emissions sometime after 2050 but before 2100.

Mitigation: The Intended Nationally Determined Contributions (INDCs) countries have put forward, and expected periodic revisions to these INDCs, are the mainstays of the mitigation aspects of the agreement. Parties to the agreement are expected to submit new, more ambitious mitigation pledges beginning in 2020 and every five years thereafter. These revised pledges are supposed to be informed by a series of periodic "global stocktaking" exercises designed to measure progress, the first of which is scheduled for 2023. Although the agreement commits Parties to make emission pledges and review and report on their progress in implementing them, it does not require that they actually achieve their pledges.

Forests and Land Use Change: This part of the agreement largely reaffirms previous positions and encourages Parties to take action to implement and support activities to reduce emissions from deforestation and forest degradation and enhancing forest carbon stocks, especially in developing countries.[9]

Adaptation and Loss & Damage: Parties are urged to develop and share information to improve adaptive capability, in particular taking into account the needs of particularly vulnerable developing countries. Parties also seek to avoid or minimize climate change-related damages, but it does not rule out loss and damage compensation explicitly. The *decision* text, however, states that loss and damage "does not involve or provide a basis for liability or compensation," a much better outcome, but one that has less force than the agreement.

International Emissions Trading: Although the Paris Agreement does not mention GHG markets specifically, it does recognize "internationally transferred mitigation outcomes," a euphemism for international GHG markets, as a permissible mitigation tool.[10] The language makes clear that these activities are to be voluntary and receive the approval of participating nations. It also calls for safeguards to assure environmental integrity and prevent double counting of emissions reduction. Business was generally very supportive of this outcome.

Finance: Developed countries agreed to support mitigation and adaptation activities in developing countries (other countries may do so voluntarily). This support is to be mobilized from a wide variety of sources and be a "progression beyond previous efforts." Developed

[9] Emissions form this sector accounted for about 11% of total global emissions in 2010, and much more than that in countries like Brazil and those like Ghana in Africa. In the United States, forests act as a carbon sink, that is, they absorb more carbon dioxide from the atmosphere than they emit.

[10] The word "markets" is still too provocative for some countries, such a Bolivia and Venezuela, to countenance, and thus the linguistic somersaults n this section of the agreement.

countries are mandated to report on this climate finance every two years. The accompanying COP decision provides that developed nations should continue efforts to meet the current $100 billion goal and agree to an increased post-2025 amount before 2025.

Technology Innovation and Transfer: There is recognition of the importance of technology development and transfer and a call to "strengthen co-operative action." Developed countries are to provide financial and other support to developing countries to strengthen "cooperative action on technology development and transfer at different stages of the technology cycle." There is no direct mention of IPR in the technology section of the agreement.[11]

Compliance: The agreement creates a "mechanism to facilitate implementation of and promote compliance with the provisions of this Agreement." This mechanism will be non-punitive and will be "facilitative in nature and function." As even Secretary Kerry had to admit, there is no recourse for non-compliance other than "naming and shaming" the culprits.[12]

Entry into Force: The agreement will enter into force 30 days after accession by 55 nations accounting for at least 55% of global greenhouse gas emission. Countries will be able to sign the treaty from April 22, 2016 (Earth Day) to April 21, 2017 at the UN's New York headquarters. At any time after three years from the date the agreement enters into force, Parties may withdraw from it by giving written notification, with withdrawal officially occurring one year after.

Implementation: The agreement establishes the Ad Hoc Working Group on the Paris Agreement to prepare for entry into force and to oversee the implementation of the work program resulting from the agreement and decision.

The remainder of this testimony will assess the significance of the Paris Agreement.

Does the Paris Agreement Satisfy the Durban Platform's Call for an Outcome with Legal Force?: The "Shalls" that Bind

Parties agreed at COP-17 that the outcome of the Durban Platform would be "a protocol, another legal instrument or an agreed outcome with legal force" by the end of 2015. The Obama Administration made it quite clear before the Paris talks, however, that it had no intention of sending the Paris Agreement to the Senate for its advice and consent.

Indeed, at the 11th hour of the Paris negotiations, Secretary of State John Kerry made a point of insisting on replacing the word "shall" with "should" in the opening sentence of Article 4, Paragraph 4, which sets out the overall emissions goal of developed and developing countries:

[11] As explained later, even though IPR is not mentioned, other language in the agreement and decision could be used by some Parties to weaken IPR.

[12] NBC New. 2015. *Meet the Press*. Transcript available at: http://www.nbcnews.com/meet-the-press/meet-press-december-13-2015-n479241.

> *Developed country Parties ~~shall~~ should continue taking the lead by undertaking economy-wide absolute emission reduction targets.*[13]

If the word "shall" had remained in that sentence, the administration believed that it would have triggered unavoidably the need for Senate advice and consent of the agreement based (presumably) on the "target and timetable" language the Senate included in its report language accompanying its 1992 vote on the UNFCCC.

Nevertheless, there are other provisions in the agreement that legally commit the United States to actions that, either individually or collectively, arguably could be claimed to require Article II advice and consent.

Article 3 of the agreement, which addresses Nationally Determined Contributions, is one example. It says in its entirety:

> *As nationally determined contributions to the global response to climate change, all Parties are to undertake and communicate ambitious efforts as defined in Articles 4, 7, 9, 10, 11 and 13 with the view to achieving the purpose of this Agreement as set out in Article 2. The efforts of all Parties will represent a progression over time, while recognizing the need to support developing country Parties for the effective implementation of this Agreement* [emphasis added].

Article 4 covering Mitigation adds detail. Paragraph 2 of this section leaves no room for doubt that Parties are obligated to make future mitigation commitments and to implement domestic policies and measures:

> *Each Party shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions* [emphasis added].

The next paragraph also makes clear that each Party also is required legally to increase its level of ambition:

> *Each Party's successive nationally determined contribution will represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances* [emphasis added].

[13] The use of the world "shall" in this sentence in the penultimate agreement draft was blamed on ostensibly a clerical error by the UNFCCC Secretariat. See: J. Warrick. 2015. "How one word nearly killed the climate deal." *The Washington Post*. Available at: https://www.washingtonpost.com/politics/anatomy-of-a-deal-how-the-climate-accord-was-won--and-nearly-lost/2015/12/13/2a9b3416-a1df-11e5-b53d-972e2751f433_story.html.

Paragraph 9 states further:

> *Each Party shall communicate a nationally determined contribution every five years in accordance with decision 1/CP.21 and any relevant decisions of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement and be informed by the outcomes of the global stocktake referred to in Article 14* [emphasis added].

So while targets and timetables are not included in the agreement *per se*,[14] these provisions taken together unequivocally require future presidential administrations and Congresses to develop and put forward increasingly stringent targets and timetables according to a specific, open-ended timetable. This means, therefore, that parties have a legally binding commitment to make future commitments that, while not legally binding internationally, would necessarily have many elements that would be legally binding domestically.

If the administration's goal was to avoid Article II advice and consent, it is not entirely clear why it believes the provision that "Developed country Parties *shall* continue taking the lead by undertaking economy-wide absolute emission reduction targets," the language Secretary Kerry objected to, would have been more worthy of advice and consent than any of the similar provisions cited above (*e.g.*, "Parties shall pursue domestic mitigation measures . . .").

This is also true of the parts of the agreement obligating Parties to a ratcheting up of mitigation ambition, which if subsequent administrations and Congresses followed through on would certainly involve enacting implementing legislation with the potential to impact every energy producing or energy using sector in the United States.

The Paris Agreement's entry-into-force language certainly contemplates "ratification" or its equivalent. Article 20 of the agreement begins this way: "This Agreement shall be open for signature and subject to ratification, acceptance or approval by States and regional economic integration organizations that are Parties to the Convention."

Entry into force (Article 21) will begin 30 days after accession by 55 nations accounting for at least 55% of global greenhouse gas emissions, a threshold that should be easy to reach with or without U.S. ratification (though bear in mind that only those countries that accede to the treaty will be subject to it). Countries will be able to sign the treaty from April 22, 2016 to April 21, 2017 at the UN's New York headquarters.

Except for the specifics about thresholds, dates, and the like outlined earlier, the language on signature and entry into force is virtually the same as that appearing in the UNFCCC and the

[14] Article 4, Paragraph 12 states that, "Nationally determined contributions communicated by Parties shall be recorded in a public registry maintained by the secretariat."

Kyoto Protocol, both clearly considered treaties requiring Senate consideration. This entry into force language does not appear in any previous COP decisions.

In addition to the Article 4 provisions on mitigation, the agreement includes other provisions with "shalls" that could, and most likely would, require legislation. Article 9 covering finance states: "Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention."

The technology section (Article 10) notes that efforts to accelerate innovation "shall be, as appropriate, supported, including by the Technology Mechanism and, through financial means, by the Financial Mechanism of the Convention . . ."

Both of these provisions imply a legally-binding commitment on the part of the United States to make government funds available for these activities, funds that would require Congressional authorization and appropriation.

The Chamber contends that an agreement of such consequence to the U.S. economy and employment that essentially sets the broad outlines of U.S. climate policy for decades into the future and calls for billions of dollars in assistance should be submitted to the Congress. Without the Senate, at a minimum, consenting to the Paris Agreement—and both the House and Senate endorsing the U.S. emissions and financing pledges—it is hard to see how the agreement the president will sign in April in New York will be binding, either politically or legally, on future administrations and Congresses.

The U.S. Paris Pledge is Unrealistic . . . And the Administration has no Plan to Achieve It

The administration has set an unrealistic goal of cutting U.S. net greenhouse gas emissions 26% to 28% from the 2005 level by 2025, with a "best effort" to achieve 28%. The internationally non-binding INDC[15] submitted by the Obama Administration on behalf of the United States, however, fails to provide what it promises to deliver: "information to facilitate the clarity, transparency, and understanding of the contribution." Indeed, nowhere does it explain how the administration intends to achieve the unrealistic goals it has set out.

According to the Environmental Protection Agency's (EPA) most recent GHG emissions inventory,[16] net GHG emissions—which include sinks—in 2025 will have to be about 1.7 billion to 1.8 billion metric tons of carbon dioxide equivalent (TCO_2 eq.) lower than the 2005 level of

[15] All of the INDCs cited in this testimony are available at: http://www4.unfccc.int/submissions/INDC/Submission%20Pages/submissions.aspx.

[16] EPA. 2015. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013*. Available at: http://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2015-Main-Text.pdf.

6.4 billion TCO_2 eq. (some of these reductions have occurred already). Reducing economy-wide GHG emission by such a large amount will be no easy task.

Recently the administration deigned to issue its own assessment of its 2025 INDC target, and it largely confirms what the Energy Institute[17] and others[18] have been saying all along—there is a large gap between the administration's unrealistically ambitious pledge and its plan to reach it. The little-noticed *2016 Second Biennial Report of the United States of America*[19] was submitted to the UNFCCC amid the New Year's Eve revels, and it provides a look at where the Obama Administration believes U.S. net GHG emissions are headed in 2025 with "Current Measures" and where they might be headed with "Additional Measures."

The Current Measures scenario includes a host of policies and measures already in place, such as the administration's revisions to the Corporate Average Fuel Economy standards, EPA's Clean Power Plan (CPP), the Renewable Fuel Standard, state-level Renewable Portfolio Standards, and the like.

According to the report, these and other Current Measures will cause the mid-range estimate of net GHG emissions to be 14% lower in 2025 compared to the 2005 base year figure (Table 1 and Figure 1). This means that by the administration's own reckoning, the reductions that are expected from Current Measures will fall *49%* short of the 1.8 million TCO_2 needed to achieve the goal of a 28% cut in GHG emissions in 2025.

Foreseeing the Forests and the Trees: This 49% emissions gap would be wider still were it not for a very large adjustment in the estimates of sequestration removals from U.S. land use, land use change, and forestry—known as LULUCF. The LULUCF sector in the United States acts as a carbon dioxide "sink," meaning that on balance our forests and land *absorb* more carbon dioxide from the atmosphere than they release, thus offsetting carbon dioxide emissions from other sources.

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[17] U.S. Chamber of Commerce Institute for 21st Century Energy. 2015. "Mind the Gap: The Obama Administration's International Climate Pledge Doesn't Add Up." Available at: http://www.energyxxi.org/mind-gap-obama-administrations-international-climate-pledge-doesnt-add.

[18] For example, see:
D. Bailey and D. Bookbinder. 2015. "President Obama's Dubious Climate Promises." Niskanen Center. Available at: https://niskanencenter.org/blog/president-obamas-dubious-climate-promises/.
M.Belenky. 2015. *Achieving the U.S. 2015 Emissions Mitigation Target*. Climate Advisors. Available at: http://www.climateadvisers.com/wp-content/uploads/2013/12/US-Achieving-2025-Target_May-20151.pdf.
K. Hausker *et al*. 2015. *Delivering on the U.S. Climate Commitment: A 10-Point Plan Toward A Low-Carbon Future*. World Resources Institute. Available at: http://www.wri.org/publication/delivering-us-climate-commitment-10-point-plan-toward-low-carbon-future.
J. Miller. 2015. "Will the U.S. Comply with President Obama's Paris COP21 INDC Pledge?" The Energy Collective. Available at: http://www.theenergycollective.com/jemillerep/2291139/will-us-comply-president-obama-s-paris-cop21-indc-pledge.

[19] U.S. Department of State. 2015. *2016 Second Biennial Report of the United States of America Under the United Nations Framework Convention on Climate Change*. Available at: http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/2016_second_biennial_report_of_the_united_states_.pdf.

Table 1. Obama Administration Estimates of Net GHG Emissions in 2025: Current and Additional Measures
($MMTCO_2$ eq., Except Where Noted)

Net GHG Emissions Estimates	Sequestration Removals Scenarios		
	Mid	Low	High
2025 Forecast Under Current Measures:			
Net GHG Emissions	5,526	5,672	5,379
% Reduction from 2005 Level	14%	12%	16%
Needed Reductions from 2005 to Achieve:			
26% 2025 GHG Emissions Goal	1,674	1,674	1,674
28% 2025 GHG Emissions Goal	1,803	1,803	1,803
Forecast Reductions with Current Measures:	913	766	1,059
Estimate of Additional Reductions Needed to Meet:			
26% 2025 GHG Emissions Goal	761	908	615
28% 2025 GHG Emissions Goal	890	1,036	743
% Gap Between Forecast and Needed Reductions:			
26% 2025 GHG Emissions Goal	45%	54%	37%
28% 2025 GHG Emissions Goal	49%	57%	41%

Source: U.S. Department of State. 2015. 2016 Second Biennial Report of the United States of America Under the United Nations Framework Convention on Climate Change.

In its *2016 Second Biennial Report*, the administration estimates that sequestration removals from LULUCF will reach between 910 million to 1,055 million TCO_2 in 2025.

Just two years earlier, in its *2014 Climate Action Report*[20] (*CAR2014*) to the UNFCCC, the administration was predicting a much lower volume of sequestration removals in 2025 in the range of 575 million to 920 million TCO_2. In fact, the State Department warned in this report that there were ". . . several long-term anthropogenic and natural forces that, absent changes in policy, demographic, or economic conditions, may act to *diminish and, over time, possibly eliminate the U.S. forest carbon sink*. [emphasis added]"

The 2016 report tells a much different story: "Over the past two years, the U S government has made significant strides in improving data and modeling of emission trends in the LULUCF sector. A multiagency effort was initiated following the *First U.S. Biennial Report* in 2014. This effort resulted in a number of immediate improvements that will be included in the 2016 US GHG inventory, as well as additional improvements that are being developed and will be included in subsequent Inventories. [citation omitted]"

[20] U.S. Department of State. 2014. *United States Climate Actions Report 2014.* Available at: http://www.state.gov/documents/organization/219038.pdf.

So in two years the administration went from cautioning that ability of U.S. forests to gobble atmospheric carbon dioxide was at risk of being significantly reduced if not eliminated entirely to arguing that the trees actually will have much healthier appetite for carbon dioxide in 2025.

The result is the big bump in the estimate of sequestration removals we see in the 2016 report compared to the 2014 report. How big a bump? About 42%, or 310 million TCO_2, for the mid-range estimate. This is not a trivial amount. It represents about 17% or so of the entire 1.8 billion TCO_2 needed to meet the president's 28% goal. This is a truly fortuitous—and from the administration's point of view, an undoubtedly very welcome—LULUCF adjustment, because without it, the administration would be looking at a gap of not 49%, but 67%.[21]

Clean Power Plan: As we mentioned, the 2016 report's Current Measures scenario also includes EPA's CPP regulating emissions from exiting fossil fuel-fired electricity generating units. This is the real centerpiece of the administration's pledge. In its *Regulatory Impact Analysis for the Clean Power Plan Final Rule*, EPA estimates that CPP would reduce emissions from the power sector an additional 232 million to 264 million TCO_2 in 2025.[22]

CPP, however, has serious legal vulnerabilities (at a minimum). In its *Utility Air Regulatory Group v. EPA* ruling, the Supreme Court warned EPA that, "When an agency claims to discover in a long-extant statute an unheralded power to regulate 'a significant portion of the American economy,' we typically greet its announcement with a measure of skepticism. We expect Congress to speak clearly if it wishes to assign to an agency decisions of vast 'economic and political significance'" [citations omitted].[23]

In using a little-used 300-word provision of the Clean Air Act to redesign fundamentally the nation's electricity markets, EPA has gone far beyond the bounds of the regulatory authority granted to it by Congress. It is no wonder, then, that CPP is facing substantial legal opposition, with lawsuits filed by 27 states, 24 national trade associations (including a coalition of 16 trade groups led by the U.S. Chamber), 37 rural electric cooperatives, 10 major companies, and three labor unions.

Additional Measures: The *2016 Second Biennial Report also* provides estimates of potential emissions reductions from prospective policies and programs. The report provides no detailed proposals, but rather a list of general items, including "reductions in industrial energy demand

[21] Interestingly, in addition to an expected downward adjustment in the 2025 estimate for GHG emissions from energy in the 2016 report due to the inclusion of EPA's Clean Power Plan, there also is a very large upward adjustment to the 2005 base year estimate for net GHG emissions of about 240 million TCO_2 eq. (3.9%), with the largest adjustments coming from declining LULUCF removals and rising landfill and enteric fermentation methane emissions. Of course, an upward adjustment in the 2005 base year emissions makes any decline in 2025 seem that much steeper.

[22] [22] EPA. 2015. *Regulatory Impact Analysis for the Clean Power Plan Final Rule*. Available at: http://www2.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule-ria.pdf.

[23] Supreme Court of the United States. 2014. *Utility Air Regulatory Group v. Environmental Protection Agency et al.* Available at: http://www.supremecourt.gov/opinions/13pdf/12-1146_4g18.pdf.

in several subsectors." This is marginally more than what the administration had to say about industrial emissions in its INDC—which was nothing.

It is hard to contemplate that the administration does not envisage getting at least *some* reductions from regulation of energy-intensive industrial sectors. Indeed, EPA's fiscal year 2015 budget proposal notes the agency intends to begin considering new GHG regulations on the refining, pulp and paper, iron and steel, livestock, and cement sectors, though this activity was not included in its fiscal year 2016 request. Nevertheless, reports from the American Council for Capital Formation[24] and *Inside EPA*[25] confirm that the administration is laying the groundwork for regulating GHG emissions from the industrial sector.

Even with the many Additional Measures sketched by the administration, in almost all cases the estimated GHG emissions reductions still fall short, and often well short, of the president's 2025 goal (Table 2). The mid-range 20125 estimate, for example, still has a not inconsequential gap of 14% and 20% for the administrations 26% and 28% 2025 emissions goals, respectively.

Table 2. Obama Administration Estimates of Net GHG Emissions in 2025 Under Different Scenarios
($MMTCO_2$ eq., Except Where Noted)

Net GHG Emissions Estimates	Range of Sequestration Removals and Potential Reductions from Additional Measures		
	Mid	Low	High
2025 Forecast Under Current Measures:			
Net GHG Emissions	5,000	5,322	4,678
% Reduction from 2005 Level	22%	17%	27%
Needed Reductions from 2005 to Achieve:			
26% 2025 GHG Emissions Goal	1,674	1,674	1,674
28% 2025 GHG Emissions Goal	1,803	1,803	1,803
Forecast Reductions with Current Measures:	913	766	1,059
Range of Reductions with Additional Measures:	1,438	1,116	1,760
Reductions from Additional Measures:			
26% 2025 GHG Emissions Goal	236	558	(86)
28% 2025 GHG Emissions Goal	364	686	42
% Gap Between Forecast and Needed Reductions:			
26% 2025 GHG Emissions Goal	14%	33%	-5%
28% 2025 GHG Emissions Goal	20%	38%	2%

Source: U.S. Department of State. 2015. 2016 Second Biennial Report of the United States of America Under the United Nations Framework Convention on Climate Change.

[24] G. D. Banks. 2015. *Success of U.S. Climate Pledge Depends on Future GHG Regulations of U.S. Industry, Other Sectors*. ACCF Center for Policy Research Special Report. Available at: http://accf.org/wp-content/uploads/2015/11/ACCF-Report_US-INDC-FINAL.pdf.

[25] D. Reeves. 2015. "Manufacturers Tout GHG Cuts As White House Eyes Regulatory Roadmap." *Inside EPA*. Available at: http://accf.org/manufacturers-tout-ghg-cuts-as-white-house-eyes-regulatory-roadmap/.

When all is said and done, the administration—which has shown no reticence when it comes to regulating—still can't figure out how to reach its goal without everything breaking just right, and with a few very big and very lucky adjustments along the way, demonstrating just how unrealistic its 2025 emissions goal is. And if something unexpected happens—if, for example, the economy grows at a faster clip than the anemic 2.6% average annual growth the administration assumes—an already unfeasible goal will be that much more out of reach.

The Paris Pledges are Lopsided

Although they are not technically part of the agreement, the INDCs each country has submitted, and the revised pledges countries are supposed to submit in the future, are the primary means by which the Parties expect to achieve the objective of the Framework Convention. To date, all but a few countries have submitted INDCs, but their quality, level of ambition, and completeness varies widely.[26]

If the world were truly serious about reducing GHG emissions appreciably, developing countries would have to take on meaningful commitments because they will be by far the biggest source of future emissions. The International Energy Agency's (IEA) most recent mid-range forecast for energy-related carbon dioxide emissions, for example, suggests developing countries will account for 70% of global carbon dioxide emissions from energy in 2030 and 170% of the increase in those emissions between 2013 and 2030.[27]

Instead, the differentiation between developed and developing countries seems to have held sway in the agreement, with all but a few developing countries opting for little beyond business as usual, and even then with conditions attached (usually involving the need for financial aid and technology transfer). Old habits die hard.

Take for example the INDCs being offered up by some of the world's largest and growing emitters of GHGs:

- China—the world's #1 GHG emitter[28]—pledged to: (1) peak its carbon dioxide emissions at (an unidentified level) "around" 2030; (2) reduce its carbon dioxide emissions intensity 60% to 65% from 2005 to 2030; and (3) increase its share of non-fossil fuel energy consumption to "around" 20% of total demand by 2030. An examination of the Chinese commitment reveals it to be little better than business as usual. For example, International Energy Agency's (IEA) most recent forecast data show that carbon dioxide emissions from fossil fuel combustion in China already are expected to peak around 2030 at not quite 9.5 billion TCO_2

[26] All of the INDCs cited in this testimony are available at the UNFCCC website here: http://www4.unfccc.int/submissions/INDC/Submission%20Pages/submissions.aspx.
[27] IEA. 2015. *World Energy Outlook 2015*. Available at: http://www.worldenergyoutlook.org/.
[28] GHG emissions rankings based on estimates from the Emissions Database for Global Atmospheric Research (EDGAR). These data include biomass burning, a large source of emissions for some countries (*e.g.*, Brazil). Database available at: http://edgar.jrc.ec.europa.eu/overview.php?v=GHGts1990-2012.

and that zero-emitting energy will provide 18% of total energy demand.[29] Historical IEA data[30] also suggest that from 1980 to 2005, the previous 25-year period, China reduced its carbon dioxide emissions intensity (emissions per unit of GDP) by 67% to 70%—a rate faster than it is pledging for 2005 to 2030.[31] (N.B. Estimates of China's recent and future carbon dioxide emissions will almost certainly be revised upward since it was revealed that the country has been underestimating its coal consumption by about 17%.[32])

- India—the world's #3 GHG emitter—has committed to reducing its GHG emissions intensity 33% to 35% between 2005 and 2030s, about one third of which was reached by 2010. We estimate that if it meets this goal, its emissions will grow from about 3 billion TCO_2 in 2010 to about 5 to 6 billion TCO_2 in 2030—at jump of at least 80%.[33] Importantly, India's INDC is conditional on financial and technology assistance that it estimates could run to $2.5 trillion out to 2050. (In the meantime, India announced that it intends to double domestic coal output over the next five years to fuel economic expansion.[34])

- The Russian Federation—the world's #5 GHG emitter—has proposed a 25% to 30% reduction in net GHG emissions by 2030 from a 1990 baseline. Data submitted by Russia to the UNFCCC, however, show that in 2012, the country's net GHG emissions were 50% below their 1990 level.[35] This means Russia actually is proposing to *increase* its emissions in 2030 from 900 million to 1 billion TCO_2 eq. compared to the 2010 level.

About the only large developing country making a serious pledge is Brazil—the world's #4 GHG emitter—which intends to reduce unconditionally its net GHG emissions by 37% below 2005 levels in 2025. As impressive as this looks, Brazil is an unusual case. The vast majority of its GHG emissions come from deforestation, and the vast majority of the emission reductions will come for preventing deforestation and reforestation. Both are worthy goals, the remainder of Brazil's INDC does not portend a great energy transition, but pretty much business as usual.

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[29] IEA. 2015. *World Energy Outlook 2015*. Available at: http://www.iea.org/bookshop/700-World_Energy_Outlook_2015. ExxonMobil's 2016 forecast shows Chinese carbon dioxide emissions peaking around 2030 at about 10 billion TCO_2 and declining thereafter. See: ExxonMobil. 2016. *The Outlook for Energy: A View to 2040*. Available at: http://corporate.exxonmobil.com/en/energy/energy-outlook.

[30] IEA. 2015. *CO2 Emissions From Fuel Combustion Highlights 2015*. Data available at: http://www.iea.org/publications/freepublications/publication/co2-emissions-from-fuel-combustion-highlights-2015.html.

[31] To put the IEA's energy-related carbon dioxide emissions estimate for China into perspective, the very large 413 million TCO2 eq. reduction in U.S. power sector emissions EPA estimates CPP would deliver in 2030 would be offset by estimated 2030 Chinese carbon dioxide emissions in roughly two to three weeks.

[32] C. Buckley. 2015. "China Burns Much More Coal Than Reported, Complicating Climate Talks." New York Times. Available at: http://www.nytimes.com/2015/11/04/world/asia/china-burns-much-more-coal-than-reported-complicating-climate-talks.html?_r=0.

[33] Institute for 21st Century Energy. 2015. "India's Conditional Unconditional Climate Pledge." Available at: http://www.energyxxi.org/indias-conditional-unconditional-climate-pledge.

[34] R. Marandi and K. Sharma. 2015. "Modi looks to double coal production by 2020." *Nikkei Asia Review*. Available at: http://asia.nikkei.com/Politics-Economy/Policy-Politics/Modi-looks-to-double-coal-production-by-2020.

[35] Country-level GHG data submitted to the UNFCCCC are available at: http://unfccc.int/ghg_data/ghg_data_unfccc/time_series_annex_i/items/3814.php.

While much of the world continues to emit with abandon, the U.S. is proposing a goal of a 26% to 28% cut in net emissions by 2025 from the 2005 level and the European Union goal of a 40% reduction in emissions by 2030 from the 1990 level. Despite questions about its continued use of nuclear power after the Fukushima Daiichi incident, Japan also has a significant goal of a 26% reduction by 2030 from a 2013 baseline.

The Paris Commitments Will Not Result in a Carbon-Constrained World

A review of the INDCs makes it clear that almost all of the actual burden of reducing emissions would fall on Australia, Canada, Europe, Japan, New Zealand, and the United States, countries that accounted for just about 27% of total global GHG emissions in 2010.

We estimate that if these countries met the goals laid out in their INDCs, their emissions would drop a combined 4.1 billion TCO_2 eq. from 2010 to 2030. If the U.S. INDC goal is reached, it would account for more than half of the 4.1 million TCO_2 in reductions from this group of advanced economies.

In the meantime, we estimate, based on information provided in the UNFCCC's recent *Synthesis report on the aggregate effect of the intended nationally determined contributions*,[36] that emissions from the rest of the world would jump anywhere from 8.6 to 12.1 billion TCO_2 eq. from 2010 to 2030. This assumes the unlikely occurrence that all INDCs are fulfilled to the letter. If not, the emission increases from the rest of the world will be even greater.

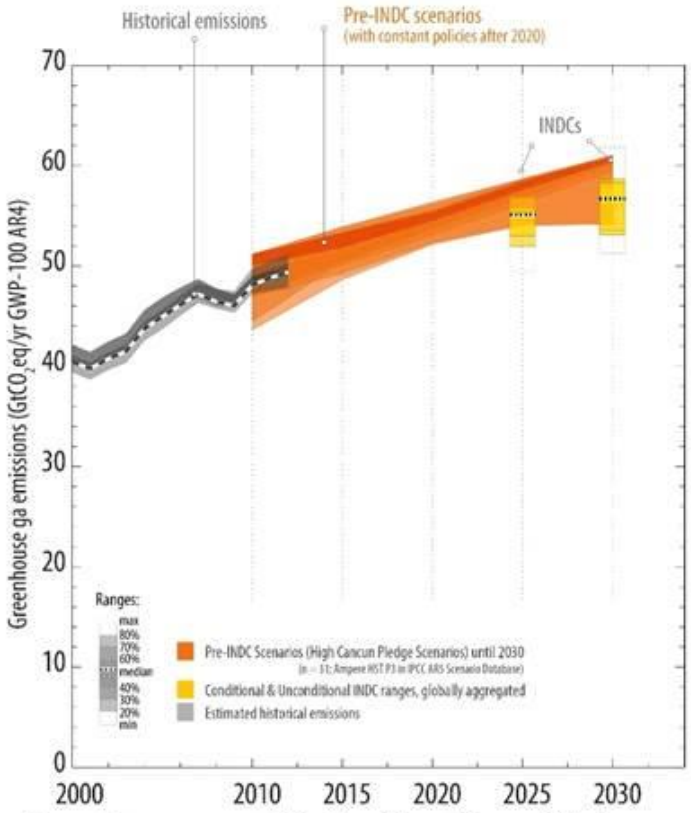
The UNFCCC *Synthesis report* also found that even in the extraordinarily unlikely occurrence that each country fulfills its INDC to the letter—including unconditional as well as conditional elements—emissions in 2030 will be considerably higher (a median of about 8.6 billion TCO_2 eq., or about 18%[37]) than they were in 2010.

Moreover, it is questionable whether the INDCs will even *slow* global emissions growth appreciably. Figure 2, taken from the UNFCCC report, shows that when taking into account the broad range of possible outcomes, it is likely that even if countries fulfill their commitments, the resulting trajectory of global GHG emissions will not be all that much different from business as usual (or the "pre-INDC" scenarios in the chart).

[36] UNFCCC. 2015. *Synthesis report on the aggregate effect of the intended nationally determined contributions.* Available at: http://unfccc.int/resource/docs/2015/cop21/eng/07.pdf.
[37] With a range of about 10% to 22% higher in 2030 versus 2010.

Figure 2.

Global emission levels resulting from the implementation of the communicated intended nationally determined contributions by 2025 and 2030 in comparison with trajectories consistent with action communicated by Parties for 2020 or earlier



Source: Intergovernmental Panel on Climate Change Fifth Assessment Report scenario database and own aggregation.

Abbreviations: AR4 = Fourth Assessment Report of the Intergovernmental Panel on Climate Change, GWP = global warming potential, INDCs = intended nationally determined contributions.

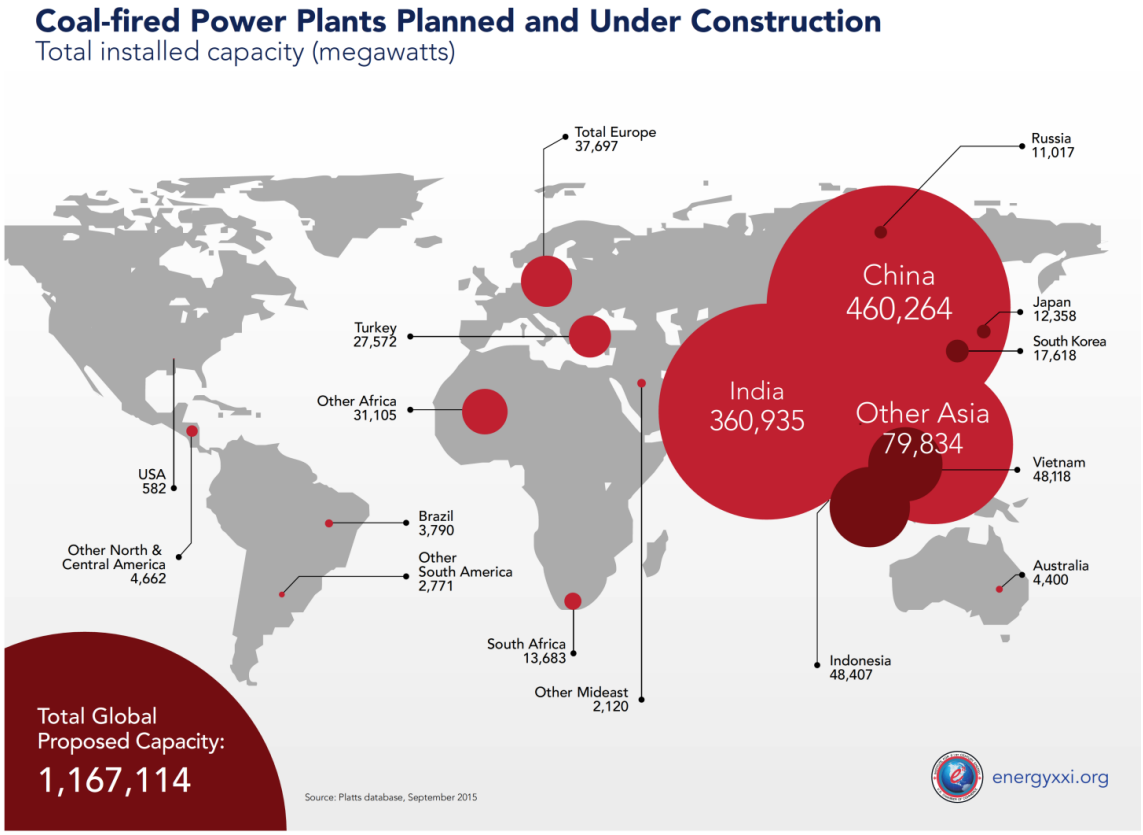
Coal Use Will Continue to Grow

The UNFCCC analysis confirms what we noted earlier and what many of the INDCs from developing countries state plainly: The priority of most countries remains economic development and poverty eradication, and that takes energy. The International Energy Agency estimates that about 1.3 billion people lack access to modern energy services, particularly electricity. For the poor to be able capture the benefits of greater energy use and escape the cycle of poverty, energy resources and technologies must be “scalable,” that is, available in large quantities when and where they are needed and at an affordable price.

As the IEA's Executive Director, Fatih Birol, recently noted, "The importance of coal in the global energy mix is now the highest since 1971. It remains the backbone of electricity generation and has been the fuel underpinning the rapid industrialization of emerging economies, helping to raise living standards and lift hundreds of millions of people out of poverty."[38] That assessment is not likely to change anytime soon.

In fact, using data from Platts, we estimate that nearly 1.2 terawatts—or trillion watts—of new coal-fired power plants are under construction or in the planning phase (Figure 3). This is about 3.5 times the size of the entire current fleet of U.S. coal plants. Such a building spree is not the kind of activity one would expect to see in a carbon constrained world—even green Europe is building coal plants (and is a growing market for U.S. coal exports).

Figure 3.



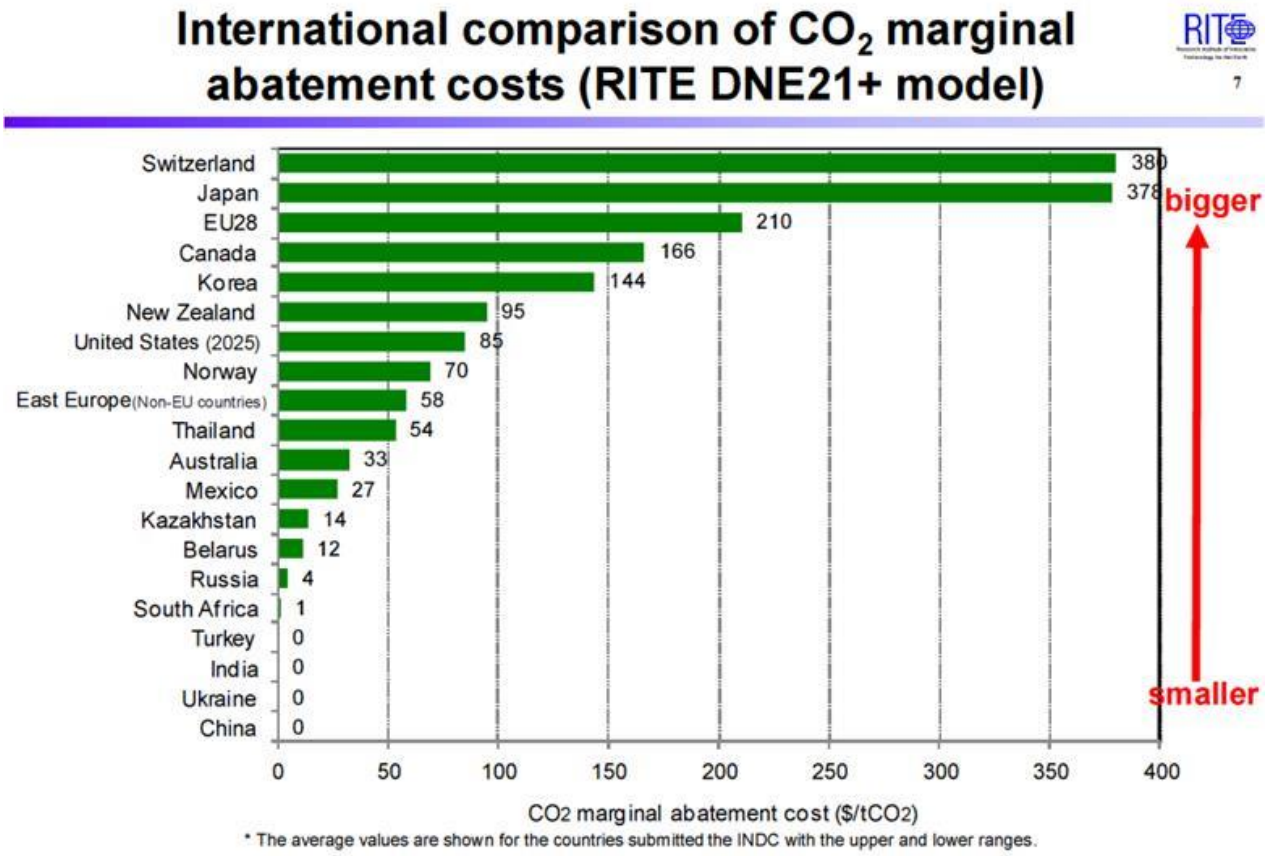
[38] Fatih Birol. 2015. "Coal's Role in the Global Energy Mix: Treading Water or Full Steam Ahead?" *Cornerstone*. Available at: http://cornerstonemag.net/coals-role-in-the-global-energy-mix-treading-water-or-full-steam-ahead/.

Uneven Emissions Goals Could Lead to Carbon Leakage from the United States to Other Countries

The very large differences in the level of ambition detailed above are reflected in the very large differences in potential economic impacts. An analysis of many INDCs by Dr. Keigo Akimoto of Japan's well-respected Research Institute of Innovative Technology for the Earth supports the idea that many large emerging economies, and some economies in transition, have committed to little more than business as usual.[39]

A slide from a recent presentation of Dr. Akimoto's results is reproduced in Figure 4. It shows that under their respective INDCs, the marginal abatement cost for a ton of carbon dioxide in China and India is $0, while for Russia it is about $4. The cost for the U.S. would be $85 per ton and for Japan a whopping $378 per ton.

Figure 4.



[39] K. Akimoto. 2015 "Measuring Emission Reduction Efforts of the INDCs and the Expected Global Emission Reductions and Economic Impacts." Presentation available at: http://www.majoreconomiesbusinessforum.org/pdfs/KeigoAkimoto_RITE.pdf.

Differences of this magnitude are sure to pose significant implications for competitiveness, investment, supply and value chains, and operations. Moreover, they can lead to "carbon leakage" from the U.S. as energy intensive industries flee to more countries with less regulation and lower energy costs.

It is well understood that America's abundance of affordable, reliable energy provides businesses a critical operating advantage in today's intensely competitive global economy. IEA data show a huge comparative energy advantage in natural gas, electricity, and coal prices for U.S. industry compared it its OECD competitors, with prices for these energy sources in the United States often two to four times less.[40]

Unfortunately, EPA's CPP and other burdensome EPA regulations threaten to throw away this national energy advantage. Because U.S. businesses compete on a global scale, the electricity and related price increases resulting from EPA's rule could severely disadvantage energy intensive, trade-exposed industries such as chemicals, manufacturing, steel, and pulp and paper. As a result, GHG emissions would not be reduced in the global sense, but simply *moved* to other countries that have not implemented similar restrictions.

Europe provides a cautionary tale. According to the Energy Information Administration, Europe's residential electricity prices have increased at a much faster rate than in the United States.[41] Regulatory structures—including the Emissions Trading System, taxes, user fees, large (and unsustainable) subsidies and mandates for renewable energy technologies, and the mix and cost of fuels—all conspire to make Europe's electricity prices among the highest in the world. More and more, we are seeing European companies fleeing sky-high energy costs and shifting production to the United States and other countries.

For the United States, then, the Paris Agreement could be "all pain, no gain."

The Long-Term Objective to Hold Temperature Rise to "Well Below 2°C" Lacks Clarity and Cannot be "Operationalized"

As noted above, the Framework Convention has as its objective the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." Attempts to define this have eluded the Parties over the years.

The 2009 Copenhagen Accord, which was "noted" at COP-15 but not adopted by the Parties, was the first agreement that set an aspirational global goal of "hold[ing] the increase in global

[40] IEA. 2015. *Key Energy Statistics*. Available at: http://www.iea.org/publications/freepublications/publication/KeyWorld_Statistics_2015.pdf.
[41] Energy Information Administration. 2014. "European residential electricity prices increasing faster than prices in United States." Today in Energy. Available at: http://www.eia.gov/todayinenergy/detail.cfm?id=18851.

temperature below 2 degrees Celsius" compared to the pre-industrial average. Subsequent COP decisions retained this formulation. Many developing countries, particularly the Least Developed Countries and the Small Island Developing States Parties, felt this objective was inadequate and pushed for many years to lower the goal to a 1.5°C average temperature rise.

Although the Paris Agreement moves in the direction of 1.5°C, it opts for some less. Article 2 sets it out the long-term goal this way:

> *This Agreement . . . aims to strengthen the global response to the threat of climate change by . . . [h]olding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.*

It is widely assumed that a 2°C target is consistent with a global GHG emissions reduction on the order of 40% to 70% by 2050 compared to 2010.[42] That is, however, just an assumption. The fact remains that despite many opportunities to do so during and since the Copenhagen meeting, the Parties have never been able to agree on what these temperature targets actually mean in terms of either a global GHG emissions trajectory or, of more relevance to the UNFCCC's original objective, an atmospheric GHG concentration.

The closest they have come is the language found in Article 4 stating that to achieve this goal, Parties "aim" to peak global GHG emissions "as soon as possible" and attain a "balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases [i.e., net-zero GHG emissions] in the second half of this century." In short, there is no agreement on how to, in the lingo of the Framework Convention, "operationalize" the less than 2°C.

It isn't hard to see why proposals for a 40% to 70% reduction in global emissions have not met with success. While GHG targets of this magnitude have been endorsed before by developed countries (by the G8, for example[43]), developing countries have never done so and are exceedingly unlikely to do so anytime soon. A quick look at the data shows why.

Consider the EU's 60-by-50 proposal. The latest Intergovernmental Panel on Climate Change Working Group III report put global greenhouse gas emissions in 2010 at about 49 billion metric tons of carbon dioxide equivalents.[44] A 60% cut would slash 2050 global emissions to 19.6 billion tons.

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[42] This is based on one common, but by no means the only, understanding of the Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report. See: IPCC Working Group III. 2014. *Climate Change 2014: Mitigation of Climate Change Summary for Policymakers*. Fifth Assessment Report. Available at: https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_summary-for-policymakers.pdf.

[43] See: G8 Leaders Statement. 2009. "Responsible Leadership for a Sustainable Future." Available at: http://www.g8italia2009.it/static/G8_Allegato/G8_Declaration_08_07_09_final%2c0.pdf.

[44] IPCC WGIII. 2014. *Climate Change 2014: Mitigation of Climate Change Summary for Policymakers*. *Op. Cit*.

Such a global goal is completely unrealistic, especially for developing countries. Consider that even if all developed countries cut their emissions to "0" by 2050—a practical impossibility—total emissions from developing countries would still have to be about one-third lower than they were in 2010 to meet such a goal (as would emissions per capita).[45] But even that would not be enough. They also would have to avoid future emissions of around 30 billion TCO_2 eq. (more than five times current U.S. GHG emissions).

Put another way, to reach a 60-by-50 goal even if developed countries' emissions collapse to zero in 2050, *more than all* of the additional economic activity in developing countries in 2050 compared to 2010—all the energy use, industrial processes, agricultural activity, *etc*.—would have to be zero-emitting or have their emissions offset in some way, and they would have to do this while adding an additional 2 billon people.

Unless developed countries agree to foot the trillions of dollars it would take to achieve this—and they will not—developing countries will never accept a global emissions goal approaching this level. Instead, they will carry on using affordable and scalable fossil fuels because they have an overriding interest in boosting growth, increasing energy access, and eradicating poverty. Cutting greenhouse gas emissions will always take a backseat to these goals.

It is more than likely, therefore, that after Paris the consequences of the "well below 2°C" goal will be little different from what the 2°C goal always has been—a potent political symbol of little practical consequence.

Intellectual Property Rights are Not Out of the Woods Yet

The Framework Convention states that Annex II Parties, a sub-set of Annex I Parties that includes the United States, "shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention."

Developing countries have used this provision as a cudgel to weaken IPR protections, ostensibly to beat down the supposed "barriers" to technology transfer posed by IPR. Compulsory licensing and a fund supported by developed countries to buy down IPR are two of many proposals that have been bruited in previous UNFCCC meetings.

The IPR discussion at Paris became very contentious, with India, speaking for many developing countries, advocating for severe restrictions on IPR for climate friendly technologies. Despite this push by India, all direct references to IPR were banished from the final agreement text.

[45] See for example: Institute for 21st Century Energy. 2015. "The European Union's 2050 Global Greenhouse Gas Emissions Goal is Unrealistic." Available at: http://www.energyxxi.org/european-unions-2050-global-greenhouse-gas-emissions-goal-unrealistic.

There are, however, a couple of instances where code words for IPR could cause difficulties in subsequent meetings.

The Technology Transfer language in Article 10 of the agreement, for instance, suggests that financial support could be used to ". . . facilitat[e] access to technology, in particular for early stages of the technology cycle, to developing country Parties." That may sound harmless, but it leaves the door open for attempts to use financial support provided by developed countries to buy down intellectual property largely produced in developed countries.

That is not all. The Technology Development and Transfer section of the COP decision calls for an assessment of the "barriers to the development and transfer of socially and environmentally sound technologies." Sad to say, but many developing countries continue to view IPR as a "barrier" to technology transfer.

Still, overall this is about as good an outcome as we could have expected given the dynamics of the Paris talks and the many other contentious issues on the table. During the COP, the U.S. Chamber joined nine other groups on a letter to the administration urging it to hold the line on IPR.[46]

These efforts, and the efforts of other business organizations in Europe, Japan, *etc*., appear to have paid off. Nevertheless, further diligence by the business community and U.S. negotiators will be needed to ensure IPR are protected in future UNFCCC meetings.

Finance: Promises, Promises

As expected, finance proved to be among the most contentious issues during the Paris talks. Many developing country INDCs, either in whole or in part, are conditioned on financial support and technology transfer (India's INDC, for example, carries a price tag of $2.5 trillion).

The Green Climate Fund (GCF) was proposed at COP-15 in Copenhagen in 2009, refined in subsequent meetings, and became operational in 2014. GCF aims to provide support to developing country efforts to reduce their GHG emissions and to adapt to climate change. President Obama pledged to GCF on behalf of the U.S. $3 billion over four years during the G-20 meeting in Australia in 2014. The administration's fiscal year 2016 budget request included $500 million for the GCF, but this was not included in the recently-enacted omnibus spending bill.

In the Copenhagen and subsequent COP decisions, developed countries said they would "mobiliz[e] jointly USD 100 billion a year by 2020 to address the needs of developing countries."

[46] U.S. Chamber of Commerce *et al*. 2015. Letter to Secretary of State John Kerry, U.S. Trade Ambassador Michael Froman, and Secretary of Commerce Penny Pritzker Re: U.S. IPR and the COP21 Climate Negotiation. Available at: http://www.energyxxi.org/sites/default/files/2015-12-07%20-%20US%20Multiassociation%20Letter%20COP21%20-%20final.pdf.

This is supposed to be "new and additional" money, not money moved from other funds. Moreover, before Paris developing countries made it be known that they viewed this $100 billion figure as "only the starting point for the post-2020 period and not the ending point."[47] In other words, more was expected.

The Paris Agreement's Article 9 states that "developed countries shall provide financial resources to assist developing countries for both adaptation and mitigation," though other countries were invited to contribute, as well. Article 9 also states that, "developed country Parties should continue to take the lead in mobilizing climate finance from a wide variety of sources, instruments and channels, noting the significant role of public funds, through a variety of actions," and further that this be a "progression beyond previous efforts." Developed countries are mandated to report on this climate finance every two years, and the review of national mitigation actions will take into account the flow of funding.

Not in the agreement, however, is any mention of the $100 billion developed countries have said they will "mobilize" in 2020. The Paris COP *decision*, however, reaffirms the $100 billion numeric goal and stipulates that developed countries will set a higher goal prior to the 2025 COP: ". . . developed countries intend to continue their existing collective mobilization goal through 2025 . . . [and] prior to 2025 . . . the Parties to the Paris Agreement shall set a new collective quantified goal from a floor of USD 100 billion per year, taking into account the needs and priorities of developing countries."

This decision text raises a series of very complicated issues that have been kicked down the road. These include: How to count public and private funds? How will the funds be raised? What institutions will these funds flow through and under whose supervision? How will these funds be generated, disbursed, and used? Any many others.

Because the provision of financing by developed countries, if not the amount, is one area of the agreement that is binding, and because at least some of that funding, if not the majority of it, will be public funds, the Congress clearly will have a continuing role to play here through its power of the purse.

Conclusion

Christiana Figueres, Executive Secretary of UNFCCC, recently had this to say about the goal of the UNFCCC: "This is the first time in the history of mankind that we are setting ourselves the task of intentionally, within a defined period of time, to change the economic development

[47] Like-Minded Developing Countries. 2014. "LMDC Views on Identification of Elements in ADP Workstream 1." Available at: http://unfccc.int/files/documentation/submissions_from_parties/adp/application/pdf/adp2-3_lmdc_workstream_1_20131118.pdf. The LMDC group consists of Algeria, Argentina, Bolivia, Cuba, China, Democratic Republic of the Congo, Dominica, Ecuador, Egypt, El Salvador, India, Iran, Iraq, Kuwait, Libya, Malaysia, Mali, Nicaragua, Pakistan, Philippines, Qatar, Saudi Arabia, Sri Lanka, Sudan, Syria, and Venezuela.

model that has been reigning for at least 150 years, since the Industrial Revolution."[48] The Paris Agreement falls short of this goal, but not for lack of trying by many Parties in the negotiations.

As more and more people are coming to realize, this agreement will do precious little to solve the problem it is intended to solve, and it is not likely to anytime soon, with a small group of developed countries responsible for almost all of the actual emissions reductions out to 2030.

Based on what we have seen, large emerging economies have shown very little interest in reducing emissions in any meaningful way, certainly nothing coming close to what the administration is proposing for the United States. The Paris Agreement just locks into place the disparities in emissions pledges, and it does nothing to ensure that even the weakest of goals actually is achieved.

As its own report to the UN shows, the Obama Administration has put forward an unrealistic emissions pledge that if met would surely jeopardize America's energy advantage, put our energy–intensive industries at a competitive disadvantage, and just send U.S. emissions overseas. Clearly, the administration anticipates that the industrial sector will have to make up for a big chunk of the gap in the U.S. pledge, but without any detail, neither domestic stakeholders nor Parties to the UNFCCC know how this gap might be filled.

We have argued before that we believe that the Paris Agreement and the U.S. INDC should be sent to the Congress for its approval, otherwise they should not be considered binding on future administrations or Congresses. The administration's insistence on not consulting with the Congress or with stakeholders ensures that U.S. political backing for the agreement will remain weak.

The Paris agreement is by no means the end of this process. There is a huge amount of work on implementation that has to be done, with lots of potential avenues for mischief targeting business. There also undoubtedly will be a great deal of Congressional oversight, and we would encourage this Committee to continue to monitor this agreement and its implementation.

[48] UN Regional Information Center. 2015. "Figueres: First time the world economy is transformed intentionally." Available at: http://www.unric.org/en/latest-un-buzz/29623-figueres-first-time-the-world-economy-is-transformed-intentionally.

Biography of
Stephen D. Eule
Vice President, Institute for 21st Century Energy
U.S. Chamber of Commerce

Stephen D. Eule is vice president at the U.S. Chamber of Commerce's Institute for 21st Century Energy (Energy Institute). Mr. Eule is an experienced voice on the nexus between energy, climate change, and technology. He travels around the world to speak with business, governments, think tanks, and the media in a variety of forums.

Mr. Eule oversees the collection and analysis of data on energy and climate and the impact of technology in the energy industry. He represents the U.S. Chamber in the UN Framework Convention on Climate Change and helped found the Major Economies Business Forum on Energy Security and Climate Change, a coalition of national cross-sector business organizations from major economies for which the Energy Institute acts as secretariat. Mr. Eule also is responsible for the Energy Institute's two annual and authoritative energy security reports—the *Index of U.S. Energy Security Risk* and the *International Index of Energy Security Risk*. These risks indices represent the first and most comprehensive efforts to quantify energy security risks over time and across a wide range of measures. They have been cited by the International Energy Agency and are used by universities and think tanks across the world.

Previously, Mr. Eule was director of the Office of Climate Change Policy & Technology at the Department of Energy (DOE). There he oversaw the development of the *U.S. Climate Change Technology Program Strategic Plan in 2006*, ran President Bush's Climate VISION program, and testified before Congress on DOE climate and energy programs. Internationally, Mr. Eule represented DOE as part of the U.S. government delegations to the Intergovernmental Panel on Climate Change, the G20, and other multilateral forums. He was lead chapter author on the *U.S. Climate Action Report—2006* and contributed to other government publications.

His prior experience includes a decade working in various public policy positions. He was a subcommittee staff director on the House Science Committee and served as legislative director for Rep. Nick Smith (R-MI). In addition, Mr. Eule was an environmental analyst in the Washington, D.C., office of New Jersey Gov. Christine Todd Whitman (R-NJ). Earlier, he worked for eight years as an Orkand Corporation consultant to the Energy Information Administration and worked at the Heritage Foundation.

Mr. Eule earned a Master of Arts degree in geography from The George Washington University and a Bachelor of Science degree in biology from Southern Connecticut State College.