The U.S. Intended Nationally Determined Contribution to the United Nations Framework Convention on Climate Change: Is there a Better Path Forward?

By
Margo Thorning, Ph.D.
Senior Vice President and Chief Economist
American Council for Capital Formation
Before the
Committee on Science, Space and Technology
U.S. House of Representatives
April 15, 2015

Executive Summary

Questions about the U.S. INDC: The U.S. submission to the UNFCCC leaves many questions unanswered. First, how likely are developing economies like China, India, and Brazil, whose emissions are growing rapidly, to implement strong measures to reduce fossil fuel use? Second, reaching the Administration's previous target of reducing CO2 emissions to 17 below 2005 levels by 2020 seems unlikely to be achieved, how will we reach the new tighter INDC target of 26-28 percent reduction below 2005 levels by 2025? Third, how will the various regulatory measures described in the INDC to reduce U.S. CO2 emissions, which are already in place or in the planning stage, be implemented and what will their impact be on our economy?

Trends in Global Energy Use: The IEA's WEO 2014 states that global energy demand will grow by 37 percent by 2040.How likely are developing countries like China and India to adopt strong measures to curb energy use and switch away from fossil fuels to more expensive renewables? Developing countries will likely continue to add natural gas and LNG to their energy portfolios along with nuclear power in an effort to reduce particulate emissions from coal and biomass but the strongest driver for these countries will be the need for energy for economic growth, not CO2 reductions.

Economic Impact of INDC Policies: A key part of the INDC is EPA's Clean Power Plan; a NERA study shows that the present values in 2014 of extra spending on energy incurred over the 2017-2031 ranges from $366 billion to $479 billion. Global CO2 emission forecasts suggest that developing countries will continue to be the major source of growth over the next 25 years and that reducing U.S. CO2 emission growth will make little difference to global GHG concentrations.

Strengthening the U.S. Economy and Slowing Growth of CO2 Emissions: Several polices could help strengthen the U.S. economy as well as slowing global CO2 emission growth. Federal tax reform which allows expensing for all new investment would stimulate economic growth and pull through cleaner less emitting technology. Encouraging the export of U.S. LNG and clean coal technology to developing countries would strengthen the economy and slow the growth of global emissions. The consistent use of cost/benefit analysis to review existing regulations and analyze proposed regulations would also strengthen the economy.

The U.S. Intended Nationally Determined Contribution to the United Nations Framework Convention on Climate Change: Is there a Better Path Forward?

By
Margo Thorning, Ph.D.
Senior Vice President and Chief Economist
American Council for Capital Formation
Before the
Committee on Science, Space and Technology
U.S. House of Representatives
April 15, 2015

Introduction

Chairman Smith, Ranking Member Johnson and members of the Committee, my name is Margo Thorning, senior vice president and chief economist, American Council for Capital Formation (ACCF),* Washington, D.C. I am pleased to present this testimony on the potential economic and environmental impacts of United States' Intended Nationally Determined Contribution (INDC) to the United Nations Framework Convention on Climate Change (UNFCCC) and to offer suggestions for cost effective policies that both encourage U.S. economic growth and help slow increases in GHG emissions.

The American Council for Capital Formation represents a broad cross-section of the American business community, including the manufacturing and financial sectors, Fortune 500 companies and smaller firms, investors, and associations from all sectors of the economy. Our distinguished board of advisors includes cabinet members of prior administrations, former members of Congress, prominent business leaders, and public finance and environmental policy experts. The ACCF is celebrating over 30 years of leadership in advocating tax, regulatory, energy, environmental, and trade policies to increase U.S. economic growth and environmental quality.

The Chairmen and Committee members are to be commended for asking how the U.S. INDC could impact overall U.S. economic activity as well as global GHG emissions.

Background

The United States' Intended Nationally Determined Contribution (INDC) which was recently submitted to the United Nations Framework Convention on Climate Change (UNFCCC) leaves many questions unanswered.[1] First, how likely are developing economies like China, India, and Brazil, whose emissions are growing rapidly, to implement strong measures to reduce fossil fuel use?

---

* *The mission of the American Council for Capital Formation is to promote economic growth through sound tax, regulatory, energy, environmental, and trade policies. For more information about the Council or for copies of this testimony, please contact the ACCF, 1001 Connecticut Ave, N.W., Suite 620, Washington, D.C. 20036; telephone: 202.293.5811; fax: 202.785.8165; e-mail: info@accf.org; website: www.accf.org*

[1] https://www.whitehouse.gov/the-press-office/2015/03/31/fact-sheet-us-reports-its-2025-emissions-target-unfccc and file:///C:/Users/mthorning/Downloads/U.S.%20Cover%20Note%20INDC%20and%20Accompanying%20Information%20(1).pdf

Second, since the latest data from the U.S. Department of Energy predict that U.S. CO2 emissions in 2015 will be only 9.5 percent below 2005 levels it seems unlikely that the Administration's previous target of reducing CO2 emissions to 17 below 2005 levels by 2020 will be achieved. Thus, reaching the new tighter INDC target of cutting U.S. emissions by 26-28 percent below 2005 levels by 2025 seems very challenging.[2]

Third, how will the various regulatory measures described in the INDC to reduce U.S. CO2 emissions, which are already in place or in the planning stage, be implemented and what will their impact be on the economy? Among these are the existing fuel economy standards for light and heavy-duty vehicles and energy conservation standards for buildings and appliances. Proposed regulations under the Clean Air Act to regulate CO2 emissions from new and existing power plants, curb methane emissions from landfills and the oil and gas sector, and reduce the use of high global warming potential HFCs through its Significant New Alternatives Policy program are also key elements of the INDC.

Policymakers need to balance environmental goals with the need to promote strong economic growth. They must consider the potential impact of regulations implementing the INDC since the U.S. economic recovery remains weak. Real GDP growth has averaged only 1.1 percent since 2008 and the number of discouraged workers who have dropped out of the work force is large. Wage growth has also fallen behind that of previous recoveries. Another important economic indicator, U.S. investment, continues to lag that of previous recoveries. As a forthcoming study prepared by MAPI and The Aspen Institute notes:

"Net private investment totaled $860 billion in 2006; by 2013 it totaled just $524 billion. The slowing pace of investment has contributed to slower productivity, economic growth and, ultimately, to a slower rate of improvement in living standards. Labor productivity increased at an average annual rate of 3.3 percent between 1947 and 1973. It declined after 1973 and then picked up in the 1990s, growing at an average annual rate of 3.2 percent between 1996 and 2004. But then, between 2006 and 2014 it grew an annual rate of 1.5 percent. Since 2011, it has increased by just 0.7 percent per year." [3]

Trends in Global Carbon Dioxide Emissions

Reducing GHG emissions usually means using less energy, increasing the energy efficiency of machines, buildings and electricity generation, switching to less carbon intensive fuel and using more renewable energy. These changes tend to make energy more expensive and have negative impacts on competitiveness and job growth. For example, the European Union's (EU) climate change policies, which include an emission trading scheme, energy efficiency requirements and renewable portfolio standards, have had a significant impact on electricity prices. German electricity prices are triple those of the U.S. and electricity prices in Italy are also quite high compared to the U.S. It seems likely that the sluggish GDP and high unemployment rate in the EU is due in part to the impact of its climate change policies on energy prices.

The International Energy Agency's 2014 World Energy Outlook states that global energy demand will grow by 37 percent by 2040. Given the example set by the slow-growing European Union, how likely are developing countries like China and India to adopt strong measures to curb energy use and switch away from fossil fuels to more expensive renewables? Developing countries will likely continue to add natural gas and LNG to their energy portfolios along with nuclear power in an effort to reduce particulate

[2] http://www.eia.gov/environment/

[3] Thomas A .Duesterberg and Donald A. Norman, "Why is Capital Investment Consistently Weak in the 21st Century U.S. Economy?", p. 1, forthcoming, MAPI and The Aspen Institute.

emissions from coal and biomass but the strongest driver for these countries will be the need for energy for economic growth, not CO2 reductions.

The most recent data from the U.S. Department of Energy suggest that under current policies, CO2 emissions in developing countries will continue to grow while remaining flat in developed countries (See Figure 1). Similarly, the International Energy Agency's latest World Energy Outlook shows that under its Current Policies Scenario, which assumes only energy policies already in place, emissions continue to grow strongly in developing countries. For example, China's CO2 emissions increase to 12,938 million tons in 2040; in contrast, the U.S. emissions are only 5,390 million tons in 2040 (see Table 1). The WEO also projects a New Policies Scenario which assumes that policies currently under discussion are implemented; even under that scenario China's emissions remain higher than those projected for 2020 (see Table 1 and Figure 2). In describing it's New Policies Scenario, the WEO states:

"As in previous *Outlooks*, we deliberately focus on the results of the New Policies Scenario to provide a clear picture of where currently planned policies would take us. Nonetheless, this scenario should not be interpreted as a forecast: even though it is likely that many governments around the world will take firm policy action to tackle energy-related problems, the policies that are actually put in place in the coming years may deviate markedly from those assumed in this scenario".

In addition to the Current and New Policies Scenarios, the WEO provides an estimate of the global CO2 reductions needed to stabilize GHG concentrations in the atmosphere at 450 ppb (see Table 1 and Figure 2). Holding concentrations at this level is considered key to keeping global temperatures from rising more than 2 degrees Celsius. To meet this target, world CO2 emissions would need to decline by 60 percent by 2040 and those of the U.S. and China by 64 and 71 percent, respectively. Given the need for increased energy supplies to improve living standards for the 1.3 billion people who have no electricity and the 2.8 billion who cook using biofuels (dung, biomass and coal) in their stoves, achieving this reduction in CO2 seems unlikely.

If the U.S. attempts to meet the targets set forth in its INDC while others continue on a "business as usual" path, we will experience leakage of jobs and carbon emissions and reduced competitiveness in international markets.[4] To meet the possible challenges from global climate change, U.S. policymakers should base regulations on careful cost/benefit calculations. They also need to support policies that promote strong economic growth and develop adaptation strategies for coastal areas, industry and agriculture.[5]

Impact of Clean Air Act Regulation of Existing Power Plants

One of the most significant components of the U.S. INDC is EPA's proposed regulation of carbon emissions from existing power plants under the Clean Air Act. As a recent analysis by NERA explains, the proposed Clean Power Plan (CPP) sets state-specific CO2 emission rate targets (in lbs/MWh) based upon EPA's calculation of the emission rates that EPA believes could be achieved in each state by implementing four types of changes, referred to as Building Blocks.[6] The Building Blocks include heat

[4] See recent ACCF Special Report on the implications of the U.S/. China announcement on climate change at http://accf.org/wp-content/uploads/2015/03/ACCF_ChinaReport_FINAL2.pdf

[5] See previous ACCF testimony on Adaptation before the U.S. Senate Committee on Environment and Public Works at http://accf.org/wp-content/uploads/2012/08/120801-Senate-EPW-Testimony_FINAL.pdf

[6] http://americaspower.org/sites/default/files/NERA_CPP%20Report_Final_Oct%202014.pdf

rate improvements at coal units (Building Block 1), increased utilization of existing natural gas combined cycle (NGCC) units (Building Block 2), increases in renewables and nuclear energy (Building Block 3), and increases in end-use energy efficiency (Building Block 4). EPA identified two options based upon alternative stringencies and compliance timeframes. Option 1, which is EPA's preferred option, is projected by EPA to reduce U.S. CO2 power plant emissions by 30% in 2030 (relative to the 2005 emission level). Option 2 would have less stringent emission rate targets and is projected by EPA to reduce U.S. CO2 power plant emissions by about 24% by 2025 (relative to the 2005 level).

The costs of the two approaches to power plant emission reductions are expressed as present values in 2014 of extra spending on energy incurred over the 2017-2031 period (see Table2). The present value the higher energy cost for the state unconstrained scenario is $366 billion, the costs under the state constrained scenario is $479 billion.

Many experts conclude that the timetables in EPA's Clean Power Plan will force the retirement of one-third of America's coal fired power plants by 2020. As Ameren's Warner Baxter notes:

"The EPA proposal calls for states to cut emissions by 30% from 2005 levels by 2030. It also imposes aggressive interim targets starting in 2020 that will test states' ability to meet these standards without disrupting service. For example, 39 states must achieve more than 50% of their final target by 2020.

Reliable power requires decades of careful planning. The appropriate amount and type of round-the-clock generation capacity, transmission and distribution lines must be finely balanced in advance to ensure the lights go on when a switch is flipped anywhere in the U.S. The EPA plan will significantly impair that planning process."[7]

Other utility experts echo Baxter's concern and suggest ways to improve the CPP proposal. In its EPA filing, the National Rural Electric Cooperative Association observes that:

"Given both the complexity of the electric generating sector and the vital importance of a reliable supply of electricity for the Nation's security and the economic wellbeing and physical safety of its citizens, any final emission guideline *must* allow the States to respond dynamically to the wide range of sometimes unpredictable conditions that affect the Nation's generating resources. If a nuclear plant must close for safety reasons, if natural gas generation cannot be dispatched at predicted levels, if necessary infrastructure is unavailable or delayed, if renewable generation proves unable to be delivered because of transmission limitations, if economic growth exceeds expectations, or if reliability and safety requires additional dispatch of higher-emitting resources, States should not be forced to choose between compliance and leaving their citizens and businesses without heat or power. Nowhere does the Clean Air Act expect or authorize such heavy-handed treatment of state authorities."[8]

Many businesses, especially those in energy and capital intensive sectors, are concerned about the impact of higher electricity prices on investment, job and GDP growth. For example, in its comments to EPA, the Independent Petroleum Association of American states that:

---

[7] http://www.wsj.com/articles/the-dirty-secret-of-obamas-carbon-plan-1428875418

[8] NRECA filing on December 1, 2014 to EPA's Air Docket.

"… as an association representing thousands of American businesses that both consume and provide American energy, IPAA is concerned that the imposition of the CPP will result in American businesses being significantly disadvantaged compared to their foreign competitors. Energy costs are a major factor in determining a business's global competitiveness. Currently, the United States is realizing a competitive advantage because of low-cost natural gas resulting from shale gas development in the United States. The natural gas renaissance in the United States will result in America having the lowest long term natural prices of any industrial nation. The United States, for example, could have natural gas at half the cost of European natural gas and at one third of the cost in Asia. As a result, the United States has a built-in price advantage, for energy costs, compared to any of its industrialized competitors. The CPP threatens to jeopardize this American success story. The manner in which the CPP is implemented, and whether EPA acquiesces to fossil fuel opponents' demands that EPA create a Section 111(d) regime to target minor, individual GHG-emitting sources, will determine whether America's competitive advantage is maintained in the future. The use of natural gas as a power generating fuel could be significantly impeded if the CPP results in the imposition burdensome compliance requirements and mandated usage of Carbon Capture and Storage or other unnecessarily costly and unproven technologies. Further extension of Section 111(d) to target methane emissions from the oil and natural gas sector will accelerate the decline of America's competitive advantage associated with low-cost natural gas.

Of additional concern is the fact that the increased costs and decreased competitiveness accruing to American consumers and business will result in few, if any, total global GHG reductions. For example, the projected CO2 emission reduction from EPA's proposed rule is, at most, 555 million metric tons (mmt) in 2030, which represents only 1.3 percent of projected global CO2 emissions in that year."[9]

Strengthening the U.S. Economy While Slowing the Growth of Global CO2 Emissions

As mentioned above, U.S. investment has been sluggish since the 2007-08 recession and GDP and job growth have lagged previous recoveries. Several polices could help strengthen the U.S. economy as well as slowing global CO2 emission growth.

- **Reform of the U.S. Federal Tax Code**

  As the House Ways and Means and the Senate Finance Committees discuss how to reform the U.S. federal tax code, they need to consider options that would reduce the cost of capital for new investment. Since over the last three decades, each $1 billion in investment in the U.S. is associated with almost 20,000 new jobs, the loss of key tax code provisions that impact the cost of capital for new investment could have profound implications for the U.S. economy. Given the slow recovery from the 2007 recession, policymakers need to understand the likely consequences for new investment of alternative tax reform plans.

  As an ACCF/E&Y analysis makes clear, replacing the income tax with a consumption tax that allows expensing (first year write off) for all new investment and taxes business profits at a 30 percent rate would reduce the cost of capital by over 20 percent and stimulate new investment in the U.S.[10] In

[9] IPAA's December 1, 2014 filing with EPA 's Air and Radiation Docket and Information Center Office

[10] See full report at http://accf.org/wp-content/uploads/2014/04/ACCF-White-Paper_d101.pdf

contrast, adopting a Bowles/Simpson approach to tax reform which lowers the income tax rate to 28 percent but repeals accelerated depreciation, the domestic production deduction (Section 199), LIFO and other deductions used by corporations and pass-throughs would raise the cost of capital by 3 percent. Academic studies suggest that a 10% increase in the cost of capital would result in a 5% to 10% decrease in investment and vice-versa.

Thus, tax reform which reduces the cost of capital for new investment could have a significant impact on GDP, job growth and also pull though cleaner new technologies which emit fewer GHGs.

- **Encourage the Export of Liquefied Natural Gas**

Numerous studies by academic and respected consulting firms have concluded that allowing the export of LNG to countries, with which the U.S. does not have a free trade agreement such as China and India or the European Union would increase U.S. investment, employment and GDP growth (see www.actonlng.org). In addition, multiple, non-partisan reports from the government and private sector suggest that exporting U.S. LNG will improve trends in global GHG emissions. The use of natural gas for power generation in the U.S. has already slowed the growth of carbon emissions, by displacing coal in the U.S. Exporting LNG could provide the same benefit around the world.

A recent report by the Department of Energy's National Energy Technology Laboratory concludes that, when comparing equal emissions scenarios, exporting U.S. LNG for power generation overseas would result in lower global greenhouse gas emissions compared to scenarios where regionally sourced coal is used for power generation. And more recent data for the natural gas liquefaction, storage, and ship loading process shows even greater environmental benefits.[11]

- **Allow the U.S. Government to Support the Export of Clean Coal Technology to Developing Countries**

A new report by ACCF Executive Vice President George D. Banks highlights the challenges in helping developing countries get access to cleaner electric generating capacity, especially if they want to burn coal.[12] Banks notes that "The role of the federal government in the international financing of coal plants has become controversial in recent years. Some policymakers as well as environmental activists oppose the use of any public funds for any overseas coal plant, including highly-efficient units, while some fiscal conservatives want an end to all government financing of exports and projects. At the same time, the developing world is seeking financial assistance from the United States and other major economies to provide basic electricity access, which is indispensable to poverty eradication and improvements in environmental quality and health care. Current U.S. policy—backed by a number of European countries—places unrealistic conditions on power generation projects in developing countries."[13] He concludes that there is a need to impose certain environmental conditions—such as the need to install highly-efficient technology to mitigate greenhouse gas emissions and traditional pollutants. These requirements should, however, take into account the circumstances of the country in question, including ambient environmental conditions and coal quality (i.e., not all coal projects should be ultra-supercritical). The determination should also consider what current feedstock a coal plant would be displacing, including solid fuels and petroleum.

[11] http://accf.org/op-ed-lng-exports-will-bring-environmental-and-other-benefits/

[12] http://accf.org/wp-content/uploads/2015/02/ACCF-CPR-Special-Report_Coal-Financing-FINAL.pdf

[13] Ibid.p.1

Furthermore, carbon capture and storage (CCS) technology should not be imposed as a standard on any part of the developing world, including India, which has roughly 300 million people without access to electricity.[14]

- **Encourage Adaptation to Climate Change**

  Climate models are still in the development stage and the various models yield significantly different predictions about future temperature and precipitation. Accordingly, for companies which rely on cost/benefit analysis to guide their investment decisions, a policy of "no regrets" will continue to shape their approach to adaptation to climate change. In addition, adapting to variations in the climate will be much easier for countries and businesses which have the resources to invest in new technology, new products and innovations across all sectors. Strong U.S. economic growth can be promoted through sound fiscal policies and a tax code that promotes economic growth with robust capital cost recovery rules. Conflicting regulations, regulatory uncertainty and permitting delays are often factors hindering U.S. companies from making investments to improve or expand their facilities in order to adapt to extreme weather events or climate variability. For example, in addition to permits to meet federal regulations there are often additional state and local permit requirements which add time and cost to a project getting underway.[15]

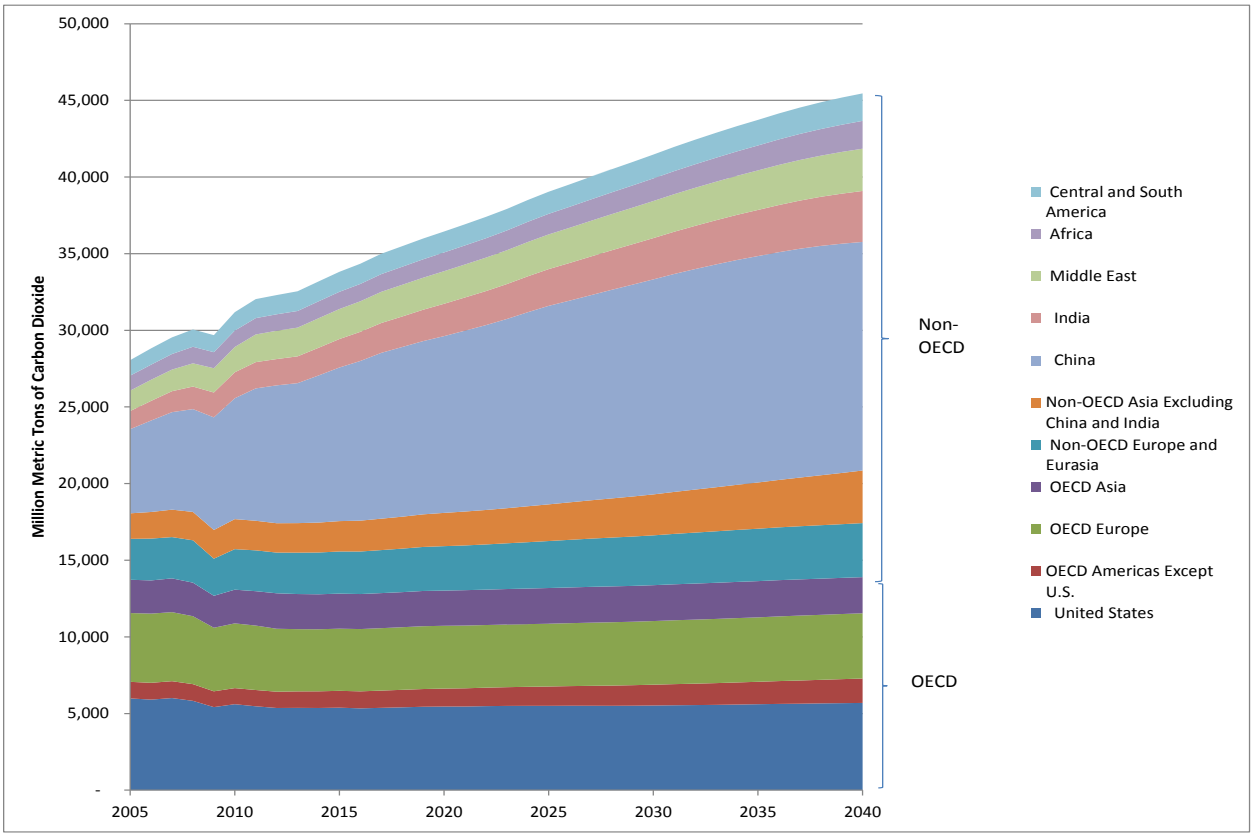
Conclusions

Global CO2 emission forecasts suggest that developing countries will continue to be the major source of growth over the next 25 years and that reducing U.S. CO2 emission growth will make little difference to global GHG concentrations. Developing countries will need to meet the expectations of their citizens for higher living standards and that will dictate their choices about energy demand and fuel sources. Accordingly, the prudent path for U.S. policymakers is to focus on strengthening the U.S. economy through tax and regulatory reforms. The consistent use of cost/benefit analysis to review existing regulations and analyze proposed regulations would also strengthen the economy. A stronger U.S. can adapt to a changing climate if necessary. In addition, the U.S. should encourage LNG exports and the transfer of clean coal technology to help other countries develop while emitting fewer GHGs.

[14] Ibid, p.3.

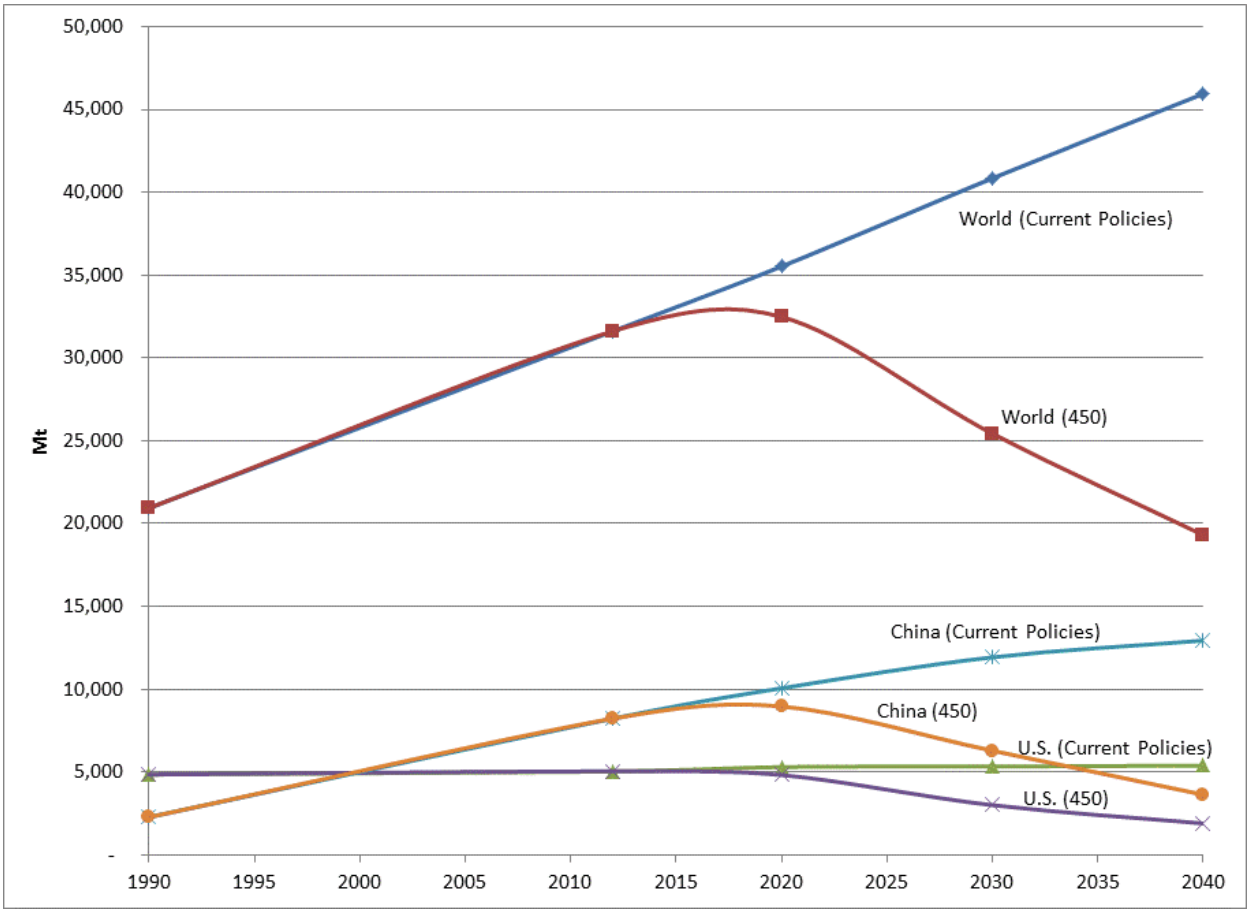
[15] See http://accf.org/wp-content/uploads/2012/08/120801-Senate-EPW-Testimony_FINAL.pdf for more on adaptation strategies.

Figure 1. World Carbon Dioxide Emissions by Region



Source: International Energy Outlook 2013, Energy Information Administration, U.S. Department of Energy.

Figure 2. CO2 Emissions under Alternative Scenarios



Source: International Energy Agency, World Energy Outlook 2014

Table 1. CO2 Emissions (Mt) Under Alternative Scenarios

			Current Policies			New Policies			450 Scenario		
	1990	**2012**	**2020**	**2030**	**2040**	**2020**	**2030**	**2040**	**2020**	**2030**	**2040**
World	20,938	31,615	35,523	40,848	45,950	34,203	36,291	38,037	32,479	25,424	19,300
U.S.	4,850	5,043	5,300	5,336	5,390	5,075	4,513	4,119	4,819	3,001	1,902
China	2,278	8,229	10,058	11,927	12,938	9,459	10,200	10,018	8,962	6,290	3,630

Source: International Energy Agency, World Energy Outlook 2014

Table 2. Energy System Costs of State Unconstrained (BB1-4) and State Constrained (BB1-2) Scenarios

	State Unconstrained (BB1-4)	State Constrained (BB1-2)
Present Value (Billion 2013$)		
Cost of Electricity, Excluding EE	-$209	$335
Cost of Energy Efficiency	$560	$0
Cost of Non-Electricity Natural Gas	$15	$144
Total Consumer Energy Costs	$366	$479

Notes: Present value is from 2017 through 2031, taken in 2014 using a 5% real discount rate

Source: NERA calculations as explained in the text

Source: Potential Energy Impacts of the EPA Proposed Clean Power Plan, NERA, October 2014, http://americaspower.org/sites/default/files/NERA_CPP%20Report_Final_Oct%202014.pdf