

July 6, 2015

China's "Intended Nationally Determined Contribution" to Addressing Climate Change in 2020 and Beyond

China's Pledge to Reduce Greenhouse Gas Emissions

On June 30, 2015, the Chinese government submitted its Intended Nationally Determined Contribution (INDC) to the current negotiations under the United Framework Convention on Climate Change (UNFCCC). China pledged that, by 2030, it would:

- peak its carbon dioxide (CO₂) emissions and make best efforts to peak earlier;
- increase the share of non-fossil-fuel energy sources to around 20% of China's primary energy supply;
- lower CO₂ emitted per unit of gross domestic product (GDP) by 60-65% compared with 2005 level; and
- expand forest stock volume by around 4.5 billion cubic meters (m³) compared with 2005 levels.

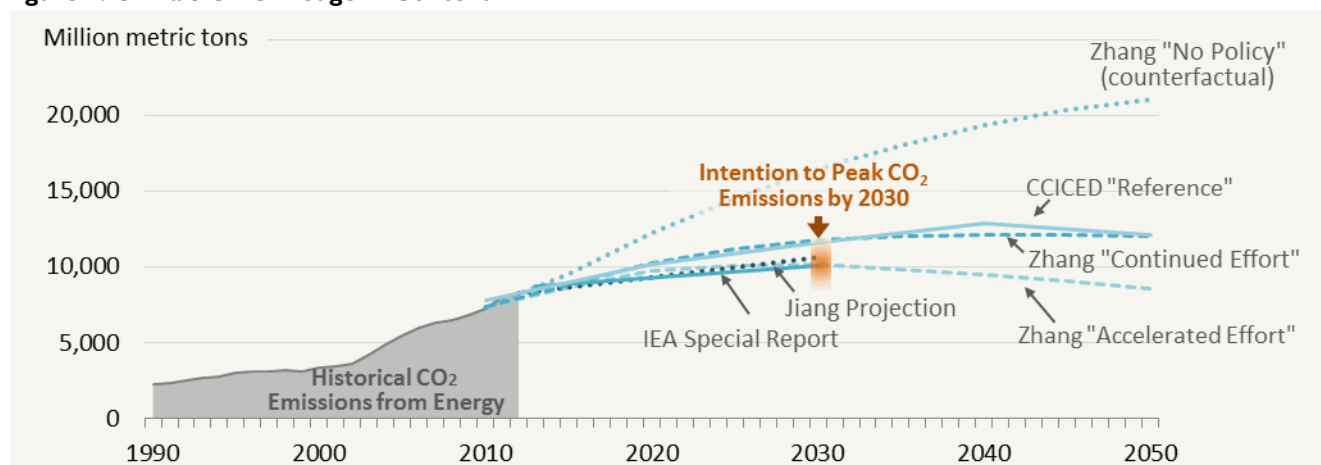
The INDC identified China's strategic policy orientation as "transforming the economic development pattern, constructing ecological civilization and holding to a green low-carbon and recycled development path." The INDC also described the government's "cardinal national policy" as, inter alia, "putting in place the necessary management and regulatory mechanisms and systems." As part of its rationale, China's INDC stated:

To act on climate change in terms of mitigating greenhouse gas emissions and enhancing climate

resilience is not only driven by China's domestic needs for sustainable development in ensuring its economic security, energy security, ecological security, food security as well as the safety of people's life and property and to achieve sustainable development, but also driven by its sense of responsibility to fully engage in global governance, to forge a community of shared destiny for humankind and to promote common development for all human beings.

China has not officially projected its future greenhouse gas (GHG) or CO₂ emissions, nor has China stated the level at which its emissions will peak and then (implicitly) decline. As context for the INDC, **Figure 1** shows China's historical CO₂ emissions from fuel combustion estimated by the International Energy Agency. (The most recent year for which China has provided official GHG emissions estimates is 2005.) **Figure 1** also roughly depicts China's intent to peak its emissions by 2030 alongside several researchers' projections of China's emissions under different policy assumptions. The highest trajectory was noted by its source as counterfactual, as China has already undertaken numerous measures to reduce its emissions. However, it may provide a sense of what China's emissions might have been without current policies. Some projections of China's CO₂ emissions suggest that China's existing policies may achieve the pledged peaking earlier than 2030. The height of any peak remains unspecified.

Figure 1. China's GHG Pledge in Context



Source: People's Republic of China, "Enhanced Actions on Climate Change," June 30, 2015; International Energy Agency, "CO₂ Emissions from Fuel Combustion Highlights 2014," November 2014; China Council for International Cooperation on Environment and Development (CCICED), "China's Pathway Towards a Low Carbon Economy," 2009; Xiliang Zhang et al., "Carbon Emissions in China: How Far Can New Efforts Bend the Curve?," MIT Joint Program on the Science and Policy of Global Change and Tsinghua-MIT, October 2014; and Kejun Jiang et al., "Technology Roadmap for Low Carbon Society in China," *Journal of Renewable and Sustainable Energy* 2, no. 3 (2010).

Notes: This chart only roughly illustrates China's pledge: The INDC did not identify the level of peak emissions or any declining trajectory from its peak.

More information on the UNFCCC, existing obligations to abate GHG emissions, and the role of INDCs in the current negotiations is in CRS Report R44092, *Greenhouse Gas Pledges by Parties to the United Nations Framework Convention on Climate Change*, and other CRS reports.

Comparing China's Pledges and Progress

As a party to the UNFCCC, China took on legally binding obligations to, among other things: (1) implement and regularly report measures to reduce GHG emissions and enhance their removal from the atmosphere, and (2) communicate emission inventories using agreed methodological guidelines and describe steps taken to implement the convention, subject to review by the Conference of the Parties.

In the 2009 Copenhagen Accord, parties submitted non-binding pledges for quantified emission reduction targets or mitigation actions. **Table 1** shows (1) China's pledges pursuant to the Copenhagen Accord, (2) China's progress toward the Copenhagen targets as reported in the INDC, and (3) China's 2015 INDC pledges to 2030.

Table 1. China's Copenhagen and INDC Pledges

2009 pledge (by 2020 compared with 2005 levels)	Progress reported in 2015 INDC	2015 INDC (by 2030 compared with 2005 levels)
No pledge for absolute or peaking emissions	n.a.	Peak CO ₂ emissions around 2030, perhaps earlier
Lower CO ₂ emissions 40-45% per unit of GDP	Lowered CO ₂ emissions 33.8% per unit of GDP	Lower CO ₂ emissions 60-65% per unit of GDP
Increase share of non-fossil energy to about 15%	Share of non-fossil energy at 11.2%	Increase share of non-fossil energy to around 20%
Increase forested area by 40 million hectares	Increased forested area by 21.6 million hectares, added 2.2 billion m ³ forest stock by volume	Add 4.5 billion m ³ forest stock by volume
No pledge on adaptation actions	n.a.	Proactively adapt to climate change

Source: People's Republic of China, "Enhanced Actions on Climate Change," June 30, 2015.

Notes: Progress, in the second column, is as reported in China's INDC. It has not been independently verified.

Relevant Law, Regulations, and Measures

China has lowered its trajectory of GHG emissions through economic restructuring toward higher value-added activity, closure of thousands of inefficient facilities, regulation and

financial incentives to improve motor vehicle efficiency, deployment of highly efficient coal-fired power plants, aggressive programs to stimulate energy efficiency improvements by manufacturers, and CO₂ emission trading pilot programs in seven provinces and cities.

China's INDC provides several pages listing policies to achieve its targets. These address economic restructuring, patterns of development, and measures to directly reduce GHG emissions. Among China's announced plans are to:

- "improve the overall administration of climate-change-related work ... by subdividing and implementing climate change targets and tasks, and improving the performance evaluation and accountability system on climate change and low-carbon development targets";
- "control total coal consumption";
- "lower coal consumption of electricity generation of newly built coal-fired power plants to around 300 grams coal equivalent per kilowatt-hour";
- increase natural gas share in consumption over 10% and reach 30 billion m³ of coal-bed methane production;
- reduce production of HCFC-22 for controlled uses by 35% from the 2010 level by 2020, and by 67.5% by 2025, along with "effective control" of emissions of HFC-23 by 2030; and
- raise the share of "green buildings" to 50% by 2020.

Table 2. China's Non-Fossil Capacity and Targets
(in gigawatts of installed capacity, unless otherwise noted)

	2005	2014	2030
Non-fossil share of primary energy mix	6.8%	11.2%	20%
Wind	1	96	200
Solar electric	n.a.	28	100
Solar thermal (tons coal equivalent)	n.a.	n.a.	50
Hydro-electric	117	300	n.s.
Nuclear	7	20	n.s.

Source: People's Republic of China, *Statistical Yearbook 2014*, Tables 9-1 and 9-15; and People's Republic of China, INDC. 2015.

Notes: n.a. is "not available." n.s. is "no target specified."

The INDC also identifies intended policies for preferential taxation, pricing mechanisms, green procurement, "green credit" for financial institutions, and a national carbon emissions trading market.

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