

# CIERP Policy Brief

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## The Carbon Consequences of China's Overseas Investments in Coal

By Kelly Sims Gallagher | May 2016

*The Chinese government demonstrated exceptional leadership when it announced new carbon dioxide (CO<sub>2</sub>) reduction targets. Though China is among the most progressive countries in the world in its domestic climate policy, its overseas investments in coal-fired power plants appear to have been relatively neglected.*

The Chinese government demonstrated exceptional leadership when it announced, together with the United States, new carbon dioxide (CO<sub>2</sub>) reduction targets in 2014. China committed to peak its CO<sub>2</sub> emissions around 2030, and to make “best efforts” to peak earlier. The government also committed to achieve at least 20% of primary energy from non-fossil sources like solar, wind, and nuclear by 2030. China was the first major developing country to commit to an emissions peak, and the significance of this pledge cannot be understated given that China now accounts for 30% of global CO<sub>2</sub> emissions — the United States comes in second at 15%.

China is taking active steps to reduce CO<sub>2</sub> emissions through domestic policy measures including a national emissions-trading system that will cover the power sector as well as at least six major industries when it starts in 2017. China also employs stringent energy efficiency standards for motor vehicles, industrial equipment, and appliances. In 2009, China established its first feed-in-tariff scheme to support the deployment of renewable energy, followed by many others in subsequent years. In 2015, central government announced a green dispatch policy to prioritize renewable energy on the grid and established a new green bond program. In April 2016, the Chinese government also announced that it was halting all new construction of coal-fired power plants domestically. China is thus arguably among the most progressive countries in the world in its domestic climate policy.

One area of climate policy that appears to have been relatively neglected by the Chinese government to date is regarding China's overseas investments in energy-related infrastructure. These investments are made primarily through the China Development Bank and China's Ex-Im Bank, and to a lesser extent ICBC, Sinosure, and others, as documented by the Global Economic Governance Initiative at Boston University.<sup>1</sup> China's investments may be demand-driven (which technologies the recipient countries want) or pushed (which technologies China offers to finance).

Of particular concern is the extent to which new coal-fired power plants are being supported in other countries because coal is the most carbon-intensive fossil fuel. This concern is now further magnified by the existence of the 2015 Paris Agreement on Climate Change, which is an international agreement that sets the goal of limiting temperature change to no more than 2° Celsius, and ideally 1.5°C. A few years ago, in 2013, the World Bank decided to limit its investments in coal-fired power plants after determining that there were many other technologies available that could increase access to electricity and ameliorate poverty.<sup>2</sup> Most of the other multilateral development banks have developed policies during the past 5-7 years to limit financing for coal, but commercial banks largely do not have similar restrictions. Of course, recipient countries can limit new coal power plant construction through domestic climate policies.

1 Gallagher, K. P., Wang, Y.Z., Kamal, R., and Y.N. Chen (2016), “Fueling Growth and Financing Risk: The benefits and risks of China's global development finance in the energy sector,” Global Economic Governance Initiative, Boston University.

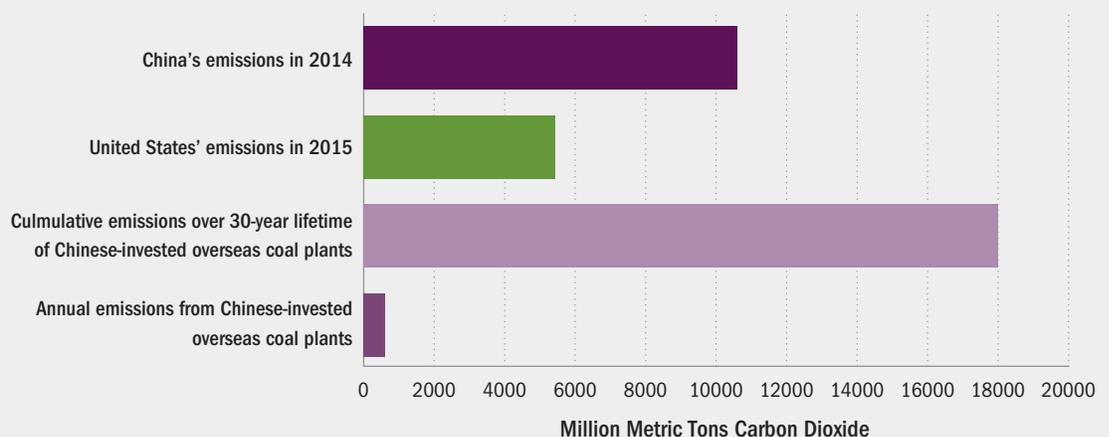
2 World Bank. 2013. *Toward a sustainable energy future for all: directions for the World Bank Groups energy sector.* Washington, DC: World Bank.

Between 2001 and 2016, Chinese financial institutions supported the construction of more than fifty coal-fired power plants abroad. A majority of these power plants (58%) used sub-critical coal technology, which is the most energy inefficient form of coal-fired power plant, and therefore the type that is most carbon intensive, and almost all of the rest were super-critical plants, which are approximately twelve percent more efficient than sub-critical plants. One plant in Egypt was an ultra-supercritical plant, which is the most energy efficient coal-fired power plant technology available. Notably, the China Ex-Im Bank also considered investing in the U.S. Texas Summit Power power plant, but so far has declined to do so. This plant will use IGCC technology with 90% of the carbon captured and sequestered, drastically cutting CO<sub>2</sub> emissions compared with a conventional coal-fired power plant.

Since 2013, only 26% of the plants receiving Chinese investment support used sub-critical technology, indicating that Chinese investors and their borrowers are shifting to more efficient coal-fired power plant technology. The leading recipient region since 2013 is Asia with three plants for Vietnam and two plants each for Indonesia and Bangladesh. Four plants have been approved for Eastern Europe, two for North Africa, and one for Malawi. While the recipient countries may genuinely desire some of these coal plants, there is evidence of opposition to them in some places, such as in Bangladesh where local police killed four people in April 2106 during a public demonstration against a coal-fired power plant planned in Chittagong.<sup>3</sup>

On an annual basis, this fleet of more than fifty coal-fired power plants is estimated to release 594 million metric tons (MMT) of CO<sub>2</sub>, which is equivalent to 11% of total U.S. emissions in 2015 and 6% of total Chinese emissions in 2014 (latest year available). If a 30-year lifetime of these plants is assumed, these plants will cumulatively emit 17,828 MMT CO<sub>2</sub>, equal to more than triple total U.S. emissions in 2015, 1.5 times Chinese emissions in 2014, or slightly more than U.S. and Chinese emissions put together on an annual basis (see figure below).<sup>4</sup>

### Carbon Dioxide Emissions from Chinese Investments in Overseas Coal-Fired Power Plants (2001-2015)



<sup>3</sup> Vidal, John 2016, "Bangladesh Coal Plant Protests Continue After Demonstrators Killed" The Guardian, April 6.

<sup>4</sup> Emission factors from MIT's Future of Coal study were used to estimate CO<sub>2</sub> emissions from sub-critical, super-critical, and CFB coal-fired power plants. For five of the plants, the technology could not be determined so they were assumed to be supercritical coal plants. All plants were assumed to use Illinois #6 coal, to have an 85% capacity factor, and a HHV of 25,350 kJ/kg. The emissions factors assume a 500 MW plant, but CO<sub>2</sub> emissions were calculated using the actual planned capacity of each plant.

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These estimates may be conservative if all of the unknown plants are, in fact, sub-critical pulverized coal plants rather than super-critical plants. In addition, there may be additional plants that received Chinese investments that were not ever publicly announced. Conversely, if all of the plants identified in the database were not actually constructed, then both annual and cumulative emissions will not be as high. It would be helpful for China to report on its overseas investments to improve the accuracy of these statistics.

The Chinese government does not have comprehensive, overarching governing policies regarding finance for overseas energy investments, although a fragmented and inconsistent set of policies and guidelines exists for individual banks and some companies. There are no climate-specific guidelines for overseas investments. In 2012, the China Banking Regulatory Commission issued general green credit guidelines that stated that financial institutions must require environmental impact assessments and should increase their support to the green, low-carbon, and circular economy, but clear definitions and standards are still lacking for these guidelines.<sup>5</sup> Development of such overarching governing policies would help ensure that China is contributing to sustainable, climate-friendly development around the world. While this policy brief has focused mainly on how coal-fired power plants contribute to climate change, ultimately any such guidelines should focus not only on mainstreaming climate mitigation but also adaptation and resilience into development finance.

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5 IISD and DRC 2015, "Greening China's Financial System," International Institute for Sustainable Development.

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