During this Earth Week, it is encouraging to see glimmers of environmental ambition in various jurisdictions around the world. The EU is rolling out a European Green Deal with the goal of "striving to be the first climate-neutral continent." South Korea, the world's 7th largest greenhouse gas (GHG) emitter, recently announced a 2050 net zero emissions goal. More than 60 countries around the world have said they will attempt to meet 2050 carbon neutrality targets. At the sub-national level, California (the world's 5th largest economy), New York, and Hawaii have economy-wide carbon neutrality goals (by 2045 or 2050) and a number of other states have requirements to achieve 100 percent carbon free electricity.

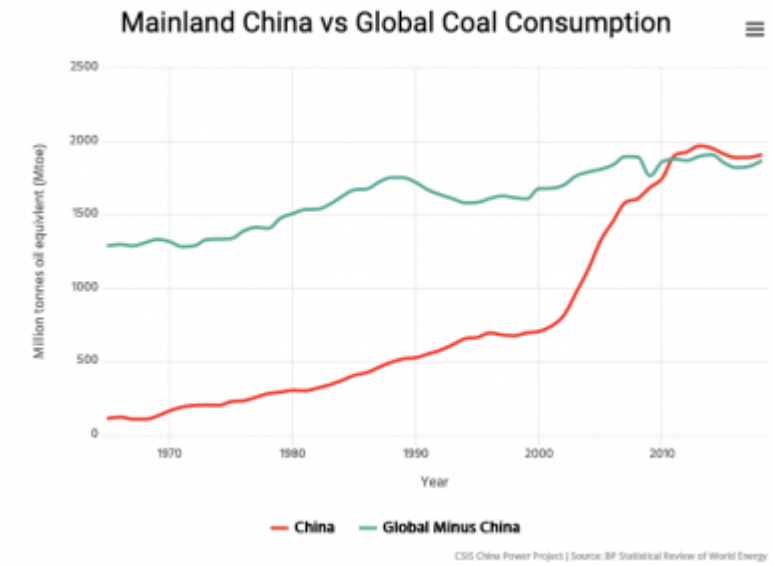
Missing from this list are the world's two largest emitters, China and the US (at the federal level). In the US, the Trump administration is simply against climate change action, but important discussions about a Green New Deal have begun to generate some momentum. I have just signed on to an open letter laying out a detailed proposal for a Green Stimulus in the US and sincerely hope that we can make progress on some version of this, despite our political divisions. As we think about how to reboot the economy after COVID-19, green stimulus that takes seriously just transition and equity concerns is essential.

China's Coal Challenge

China has been a source of hope and concern (if not despair) on the issue of climate change. On one hand, China's senior leadership has committed to a particular vision of greener development known as "ecological civilization." One of the signature achievements commonly associated with this eco-civilization push is China's contribution to the growth of global renewable energy stocks. China has made a difference both in rapid installation of renewable capacity at home and in dramatically reducing the cost of wind and solar energy overall. China's promotion of renewable energy industries has dramatically increased global prospects for a green energy transformation in coming decades.

But dynamics in China are also a continued source of concern. We can examine this along a number of metrics, but let's just drill down on one: the persistence of coal.

China's continued reliance on coal is simply incompatible with global climate change goals. It is well-known that China consumes more coal than the rest of the world combined (1907 MToe – China vs. 1805 MToe – World in 2018). China's installed capacity of coal-fired power far exceeds that in the next two closest nations (1,005 GW in China vs. 245 GW in the US & 229 GW in India). Although the percentage of coal in China's energy mix has fallen below 60%, 80.6% of China's CO_2 overall emissions come from coal. 97% of China's CO_2 emissions from electricity and heat derive from coal.



(Chart courtesy of CSIS China Power Project)

These concerns about Chinese coal consumption are, as I say, well-known, so why raise them again now? One of the essential elements of any effective climate change strategy will be the rapid decarbonization of the electricity sector – elimination of coal and gas and replacement by non-fossil energy. According to one estimate, China will have to reduce its coal fleet by 40% (to 600 GW or less) if the world is to have any chance of keeping global temperature increases below 2 degrees C.

Decisions being made this year by Chinese leadership will set the direction of China's economic, energy, and environmental policy for the next five years or more. These choices will have an enormous impact on the rate at which China can wean itself off of coal and determine our overall chances of combating climate change.

Chinese leaders and experts are in the midst of preparing China's 14th five-year plan (2021-2025), which is expected to be launched in March 2021. A draft PRC Energy Law is currently in the public comment period (until May 9, 2020). The 14th FYP will be followed in 2021-22 by sub-plans on energy development, power sector development, coal, GHG emissions control, hydropower, renewable energy, wind, solar, etc. Strong regulatory reforms in all of these will be needed to eliminate continued investment in new coal-fired power plants in China.

Current trends are worrisome. A stunning 206 GW of new capacity is currently under active development in China, an amount roughly equal to the entire installed capacity of Germany.

In 2019, China added a net 36.8 GW of coal-fired power capacity, according to Global Energy Monitor. Outside of China, total coal power capacity fell. Even more worrisome, Chinese authorities approved permitting for more coal-fired power capacity in the first 18 days of March 2020 than in all of 2019, suggesting that carbon heavy development will be part of post-coronavirus efforts to revive the economy. China's National Energy Administration (NEA) has also lowered the risk ratings for coal-power overcapacity three years in a row. Such improved risk ratings eliminate regulatory barriers that could otherwise slow the development of coal plants.

All of this new coal construction does not make much sense, economic or otherwise. It comes at a time when China's existing coal fleet boasts a less than 50% utilization rate on average, and some 40% of newly commissioned coal power in 2019 has been relegated to emergency back-up status. Nearly half of thermal power companies are losing money. Moreover, by one estimate, it is already cheaper in China to provide power through new build renewable energy facilities than to build new coal power plants. Within the next three years it will be cheaper to build renewables than to use *existing* coal capacity. Despite all this, the China Electricity Council – the industry group for the power sector – has pushed for an increase in nationwide coal power capacity limits from 1,100 to 1,300 GW. And, most critically, these capacity expansions (past and proposed) are coming at a time when climate change reform demands dramatic and rapid reductions in coal fired power.

A *Chinadialogue* assessment of recent coal expansions suggests that coal power investment is driven by local desire for short-term economic stimulus, industry lobbying, and outdated attitudes about renewable energy and the belief that more coal power is needed for grid stability. Resistance to potential losses of coal-related jobs is surely part of the dynamic as well.

The current draft of the PRC Energy Law contains a number of provisions on clean energy, climate change, and environmental protection. A key provision of the draft "encourages" (□□) "efficient, clean development and use of energy resources, supports priority development of renewable energy, rational development of fossil energy resources, development of distributed energy suited to local conditions, promotes the replacement of fossil energy with non-fossil energy, low-carbon energy taking the place of high carbon energy, and supports the development and use of oil replacements and natural gas as new fuels and industrial raw material" (art. 32). These principles are all to the good, but will such hortatory law be enough to overcome the forces sustaining coal? Is the promotion of the "rational development" of fossil fuels a green light for continued coal power development?

I have recently been working with a team at UCLA and NRDC to draft recommendations for

Chinese regulators on ways to better coordinate air pollution control and climate change. A key lesson from the California context is to avoid short term air pollution measures (such as building out an infrastructure for natural gas trucks) that would make it more difficult in the long-term to achieve climate change goals. But this news of Chinese coal expansion presents an even more fundamental challenge. Perhaps the immediate recommendation should be for China to halt the development of new coal-fired power capacity altogether. This is power infrastructure that will lock-in long-term air pollution *and* GHG emissions, while also generating financial instability. A negative triple bottom line if you will.

In other words, if the Chinese concept of ecological civilization is to have any real heft, it must mean the cessation of coal power. Let’s hope Chinese leaders do what it takes to respond to these worrisome trends.