People s republic of china renewable energy growth

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China has achieved stunning growth in its installed renewable capacity over the last two decades, far outpacing the rest of the world. But to end its continued dependence on fossil fuels, it must now move ahead with planned reforms to its national electricity system.

Last November, Chinese climate envoy Xie Zhenhua and U.S. climate envoy John Kerry shook hands on a pledge to triple renewable energy globally by 2030. It was hailed as a welcome revival of climate cooperation between the world"s biggest and second-biggest emitters of greenhouse gases and offered hope that the two veteran climate negotiators had found a way through a blizzard of negative diplomatic exchanges to keep alive the prospects for greater global ambition on tackling climate change.

In one key sector essential to that ambition, however, the Chinese government can argue, with some justification, that it is China, not the United States, that is in the lead. In a world in which national climate targets are being missed, the speed and scale of expansion in China"s installed renewable capacity is unmatched.

In 2020, for example, China pledged to reach 1,200 gigawatts of renewables capacity by 2030, more than double its capacity at that time. At its present pace, it will meet that target by 2025, and could boast as much as 1,000 gigawatts of solar power alone by the end of 2026, an achievement that would make a substantial contribution to the 11,000 gigawatts of installed renewable capacity that the world needs to meet the 2030 targets of the Paris Agreement. Fossil fuels now make up less than half of China’s total installed generation capacity, a dramatic reduction from a decade ago when fossil fuels accounted for two-thirds of its power capacity.

When the International Energy Authority issued its assessment of the pledge to triple renewables globally by 2030, it pointed out that the 50 percent increase in global renewable installations in 2023 was largely driven by China. In 2022, China installed roughly as much solar photovoltaic capacity as the rest of the world combined, then went on in 2023 to double new solar installations, increase new wind capacity by 66 percent, and almost quadruple additions of energy storage.

For the past two decades, China has been notorious as the world"s biggest emitter of greenhouse gases, a country that also uses as much heavily polluting coal as the rest of the world combined. How did it also become the world"s renewable powerhouse?

Part of the answer goes back to investment decisions made in the mid-2000s when China"s decades-long phase

of rapid GDP growth was coming to an end. Labor costs were rising, and China"s development model, with its overwhelming dependence on coal, had plunged China into multiple crises of air, soil, and water pollution. In the first decade of this century, China"s emissions more than doubled, and by 2006 it had overtaken the U.S. to earn the unwelcome title of the world"s biggest emitter of greenhouse gases by volume.

China"s leadership was alert to the negative diplomatic impacts of being the world"s worst polluter, especially in those countries most vulnerable to climate impacts. At the same time, China"s own exposure to climate change effects, on top of its escalating pollution crisis and the public unrest it was generating, was becoming a significant topic in Beijing"s top-level policy discussions. China"s planners were looking for investments that would create an opportunity for a more advanced technological future, and this coincided with the need to clean up China"s environment and the global effort to cut emissions. All this pointed to supporting the development of the renewable technologies the world would need if it was to avoid climate catastrophe.

In the next and every subsequent five-year plan, China made strategic investments in all aspects of renewable technologies, from solar and wind capacity, green hydrogen, and geothermal projects to research and investment in battery storage and its supply chains. In the first phase of its rapid industrial development starting in the 1990s, China had been obliged to license technologies owned by others. Now the strategic ambition was to dominate the field, positioning China as the global supplier of goods to an increasingly carbon-constrained world.

But if China has been clear about the opportunity side of climate change, it has been less enthusiastic about cutting its own emissions: In the first two decades of the century, the economy remained overwhelmingly dependent on coal, and China argued that committing to major cuts in emissions would be an unfair constraint on its right to develop. That began to change with President Xi Jinping"s surprise announcement at the 2020 U.N. General Assembly that China would peak its emissions "well before" 2030, as it had promised in Paris in 2015, and in an important new offer, that it would aim for carbon neutrality by 2060. A radical renewables program would be essential to meeting those goals.

Xi Jinping"s announcement attracted global attention, but its most galvanizing effect was at home. It sent a powerful political signal in favor of renewable investments across China, and the nation"s giant state-owned enterprises, including its traditional energy companies, were compelled to take notice, both of Xi"s unequivocal message and the policy initiatives it triggered. The National Energy Administration (NEA), the body that regulates China"s energy sector, also recognized that new policies and mechanisms would be needed if China was to implement Xi"s targets.

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