

The East Is Green: China's Global Leadership in Renewable Energy

Dominic Chiu

Introduction

PRESIDENT XI JINPING'S SPEECH

at the World Economic Forum's meeting in Davos argued for globalization and the international community's need to proactively manage globalization while mitigating its negative effects.¹ He highlighted how China's past decades of reforms are in line with the trend of globalization, and that China is not only its beneficiary but also its benefactor. Most importantly, Xi stated that China is committed to "a fundamental policy of opening-up," pledging explicitly to keep China's doors open to foreign investment and greater economic integration with the world. Although he did not openly advocate for a Chinese role in global leadership, Xi's desire for China to be at the helm of the push toward globalization is implicit throughout his speech.² His host, Klaus Schwab, echoed this open secret by remarking that "in a world marked by great uncertainty and volatility the world is looking to China."³

Countries, however, are skeptical of Xi's claim that China can become an active global economic leader through open trade and investment. China is increasingly willing to use

economic coercion in conventional sectors such as retail, tourism, and manufacturing to promote its own national objectives.⁴ Critics have also pointed to the country's protectionist policies that speak against its claim to continued openness.⁵ China has used a "negative list" to bar foreign investment in various sectors for many years⁶ and abused ill-enforced trademark laws to discriminate against foreign firms.⁷

Nevertheless, the international community should be assured that China is genuinely interested in leading the world in one particular sector: deployment and investment in renewable energy.⁸ China is already leading in renewable energy production figures. It is currently the world's largest producer of wind and solar energy,⁹ and the largest domestic and outbound investor in renewable energy.¹⁰ Four of the world's five biggest renewable energy deals were made by Chinese companies in 2016. As of early 2017, China owns five of the world's six largest solar-module manufacturing companies and the world's largest wind turbine manufacturer.¹¹

This article will argue for the case of China's future leadership in the sector by examining domestic incentives

for the Chinese government to reduce carbon emissions and pollution, China's ambitious targets in renewable energy investment, the international community's consensus on climate change, geopolitical implications of transitioning to renewable energy, and current government policy toward inbound investment in the sector. In contrast to the United States government's retreating commitment to the industry under President Donald Trump,¹² China has the political incentive, economic capability, and moral consensus needed to lead the global renewable energy sector.

China has an urgent domestic incentive to invest in renewable energy

The Chinese government places a priority on investing in renewable energy primarily because it enables the country to tackle problems of air and water pollution, and mitigate risks of socioeconomic instability. Reducing air pollution is a direct reason why the Chinese government promotes renewable energy. The 2005 National People's Congress's (NPC) Environmental Committee observed that fossil fuel energy production and consumption is the cause of 90 percent of the country's sulfur dioxide emissions.¹³ In 2013 Tsinghua University and the Asian Development Bank reported that 7 out of the 10 most polluted cities in the world are in China.¹⁴ Studies also point to climate change being a contributor to China's aggravating smog crises.¹⁵

The economic and health consequences of air pollution are also well researched. RAND Corporation estimated that air pollution in 2012 cost China \$535 billion, or 6.5 percent of its gross domestic product, due to losses in labor productivity.¹⁶ A UC Berkeley study concluded that air pollution led to an estimated 1.6 million deaths a year, roughly 17 percent of all deaths in the country.¹⁷ A University of Chicago report found that suspended particulates air pollution is causing half a billion residents in northern China to lose an average of 5 years of life expectancy.¹⁸

It is hardly a surprise, therefore, to see air pollution ranked as a top concern for residents in China. A 2015 Pew poll found that air pollution is considered the second-largest problem for residents in China, second only to the issue of government corruption.¹⁹ However, respondents are much more pessimistic about the prospects for air quality improvement: 34 percent of respondents believe that air pollution will worsen in the next five years, while only 18 percent of respondents believed that corruption would worsen.

Dissatisfaction engenders unrest. Chen Jiping, a former leading member of the Communist Party's Committee of Political and Legislative Affairs, said in 2013 that environmental issues are a major reason for mass protests.²⁰ As maintaining domestic stability is the Communist Party's top priority,²¹ Premier Li Keqiang highlighted the need to combat air pollution by developing cleaner sources of energy in multiple State Council and NPC work reports over the years.^{22 23}

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China has ambitious goals in promoting renewable energy

China's commitment to invest in renewables is borne out by its large potential for further production and consumption increases. Its *13th Five Year Plan for Electricity* (2016–2020) aims to raise non-fossil fuel's share of total electricity production from 35 to 39 percent by 2020.²⁴ By 2030,

one-fifth of the country's electricity consumption is forecasted to come from non-fossil fuel sources.²⁵ According to the International Energy Agency, 36 percent and 40 percent of the world's growth in solar and wind energy in the next five years will come from China.²⁶ Renewable energy deployment is also a part of a larger effort within China to develop an "ecological civilization,"²⁷ a cross-industrial approach to lower pollution level and fossil fuel use, mitigate climate change, and improve energy efficiency.²⁸

China's National Energy Administration (NEA) and the National Development and Reform Commission (NDRC) also plan to spend more than \$360 billion developing renewable energy and creating 13 million jobs in the sector by 2020.²⁹ The country's renewable energy workforce far outstrips that of the United States, which in 2016 employed fewer than 800,000 workers in the renewable energy sector.³⁰ China also leads by investing in a growing number of international renewable energy projects through increasing contributions to multilateral organizations. For example, the BRICS [Brazil, Russia, India, China, South Africa] New Development Bank, of which China is a participant, gave its first round of long-term green loans worth \$811 million last April to fund clean energy projects to its members.³¹

There are ecological and geopolitical reasons for China's leadership in renewable energy

Aside from domestic considerations, there are two other reasons why the international community should respond positively to China's leadership in the sector. The first is ecological: China's stated ecological objectives of developing renewable energy are relatively uncontroversial and widely supported for the positive externality its investments in technology and deployment will bring.

This is because there is largely a global consensus on the need to reduce greenhouse gas emissions in order to mitigate the effects of climate change.

Pew polls done in 2015 across 40 nations identify climate change as the top global threat,³² with 79 percent of respondents of one survey saying that their countries should limit greenhouse gas emissions as part of an international agreement.³³ A unanimous decision to sign the Paris Agreement in 2015 is a formal indication of the international community's commitment to resolving the challenge of climate change. As the world's leading emitter of greenhouse gases,³⁴ China's transition to renewable electricity production and consumption is crucial to its international commitment to peak carbon dioxide emissions by 2030.³⁵

The second reason is strategic: by increasing the proportion of renewable sources in its energy mix for electricity consumption, China can mitigate geopolitical tensions by making the country less reliant on unstable regions for energy security. An energy market dependent on fossil fuels relies on securing oil and gas transportation routes to and from fossil fuel-rich countries, which in turn requires extended military protection. The protection of oil transit choke points was one of the reasons why China constructed its first overseas naval base in Djibouti last year.³⁶ In contrast, the availability of resources such as wind and sunlight for renewable energy far outstrips that of fossil fuels and is much more evenly spread across different countries.³⁷

China's leadership in renewable energy growth will benefit global geopolitics in two ways. First, China will have one less excuse to expand its regional military presence for the sake of energy security as it raises the share of domestically produced renewable energy in its energy mix. Second, as renewable energy usage diffuses globally as an externality from China's development of the sector, more countries will have the potential to become energy producers and hence be less dependent on unstable regions such as Middle Ease-North Africa (MENA) and Russia for conventional fossil fuels.

This is not to say that there would be no more geopolitical concerns as a result of a renewable-led world electricity market: questions on who controls power lines, intellectual property rights for technologies such as energy storage capacity and grid connectivity, and the availability of raw materials for constructing renewable equipment will still remain.³⁸ China will also most likely find alternative justifications for expanding its military presence along maritime trade routes. Nevertheless, China's leadership in developing renewable technology should be seen and supported by the international community in the broader context of mitigating both the effects of climate change and of energy security concerns.

China's foreign investment environment for renewable energy is evolving

While China has been a leader in market expansion of renewable energy, its openness to foreign investments in importing foreign renewable technology is

more ambiguous. On paper, China welcomes foreign direct investment into the sector. The Chinese Ministry of Commerce's 2017 *Industry Catalogue Guiding Foreign Investment* lists renewable energy an encouraged area for investment, which would allow foreign investors to establish wholly foreign-owned enterprises in the country.³⁹ A separate 2016 *Catalogue of Encouraged Imported Technology and Products*⁴⁰ published by the State Council also grants Chinese companies import purchase discounts⁴¹ for a variety of wind, hydroelectric, geothermal, and solar-related technologies and equipment. Ernst & Young consultants last year ranked China as the world's second-most attractive country for renewable energy investments, behind the United States.⁴²

In reality however, it is difficult to assess China's openness to foreign investment into the industry. U.S. renewable energy companies investing in China worry about intellectual property being appropriated without fair compensation, the loss of financial control, and national security.⁴³ These are valid risks to consider when investing in China, but at the same time evidence is anecdotal and hence difficult to substantiate or to disprove.

What is more certain is that China's technological advances in the sector are changing the incentives for foreign companies to invest in the country. The change takes place in two ways: the first is that other countries could be left behind technologically if they do not partner with China in developing renewable technology. Take solar energy as an example: China has been narrowing the gap with Western countries in developing key components of solar panels in recent years.⁴⁴ Trina, a Chinese company and the largest solar panel manufacturer in the world, broke the world record on the efficiency of multicrystalline-silicon solar cells in 2014 and 2015.⁴⁵ As China becomes one of the world's foremost developers of renewable technology, the strategic benefits of investing in China and cooperating with the Chinese in research and development might outweigh the costs and risks of potential technology thefts.

China's advances in renewable energy are also changing the nature of foreign investment entering the sector. The country currently relies mainly on bank loans and corporate bonds for financing renewable energy projects, which does not necessarily lead to high-quality results. This is because these traditional methods of financing are more accessible to state-owned enterprises (SOE), and put private companies—usually more capital efficient⁴⁶ than their public counterparts—at a disadvantage. Private Chinese companies hence not only need more capital but also need access to more financing channels.

Innovative financing models such as utilizing pension funds, crowd-funding, and direct leasing have already been successfully implemented by renewable energy companies and financiers in the United States.⁴⁷ China needs these financing

alternatives that were pioneered and applied in the West,⁴⁸ which is why the Chinese government has been attempting to attract foreign financiers to employ these renewable energy investment techniques in the country through bilateral platforms such as the U.S.-China Renewable Energy Partnership.⁴⁹ Both the U.S. Department of Energy and China's NEA are participants in the partnership to facilitate cross-border dialogue between companies. Another prominent group involved in the partnership is the American Council on Renewable Energy, a trade association comprising various multinationals and investment banks that possess not only the necessary capital but innovative funding techniques to invest in high-quality renewable energy projects.⁵⁰ The evolution of China's renewable technology and foreign investment needs thus presents a significant opportunity for the country to lead the industry by cooperating with foreign investors with more innovating financing methods to implement in its increasingly sophisticated market.

Conclusion

China's commitment to support the development of renewable energy comes at a time when the U.S. administration is proposing to reduce federal funding for environmental research.⁵¹ Government funding is crucial for fundamental research in renewable technology, and President Donald Trump's proposal to cut \$516 million from the Office of Energy Efficiency and Renewable Energy for the rest of the 2017 fiscal year⁵² has been chastised by China's *Global Times* as a shirking of the United States' responsibility on climate change.⁵³

President Trump's decision to withdraw the United States from the Paris Climate Change Agreement this June was also criticized by China,⁵⁴ which restated its commitment to meet its pledged emissions reduction objectives. The U.S. government's retreat from clean energy commitments leaves a global leadership vacuum, engendering further economic and political support from the international community for China's leadership in the sector.⁵⁵ The European Union, for example, is already forging an alliance with China to implement the agreement by speeding up the world's transition to clean energy. As renewable energy deployment continues to rise around the world,⁵⁷ the alignment of China's capabilities and incentives to invest in the sector positions the country in an even greater leading role for the sector's future.

Dominic Chiu was a research intern with the William E. Simon Chair in Political Economy at CSIS.

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