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China's carbon-neutrality goal increases the urgency of meeting 100 percent of the nation's new electricity demand growth with zero-carbon sources

Rocky Mountain Institute (RMI) and Energy Transitions Commission's (ETC) latest report focuses on analyzing the fundamental challenges to making China's power system well-prepared for a surge of zero-carbon sources to achieve its new climate pledge.

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Today, Rocky Mountain Institute (RMI) and Energy Transitions Commission (ETC) released the [China's Zero-Carbon Electricity Growth in the 2020s: A Vital Step Toward Carbon Neutrality](#) report, which highlights both the opportunity and urgency of meeting electricity demand growth in China almost entirely from zero-carbon generation sources. The report outlines a scenario for 2030 that demonstrates that zero-carbon generation is economically and technologically feasible in China. It further outlines recommendations for policies and a plan to deliver them during the 14th Five-Year Plan.

On September 22, 2020, President Xi Jinping announced that China will strive to peak emissions before 2030 and achieve carbon neutrality before 2060. This new climate pledge is a critical step forward in the global fight against climate change and reflects China's determination to provide responsible global leadership. The key to achieving this goal is to electrify as much of the economy as possible and to ensure that almost all electricity is generated from zero-carbon resources well before 2060. The appropriate strategy compatible with China's long-term carbon-neutrality target should be to ensure that almost all growth in China's electricity generating capacity is zero carbon, with no new coal investment.

"The only route to a zero-carbon economy, in China as across the world, is through massive green electrification. China's hugely important commitments to reach carbon neutrality before 2060 and to peak emissions by 2030 should therefore be matched by a key strategy for the 2020s—with all electricity system growth coming from zero-carbon sources, and no new coal investments in the 14th Five-Year Plan. This report shows that such a strategy is easily technically possible and economically desirable," said Lord Adair Turner, chairman of the Energy Transitions Commission.

The report assesses a zero-carbon investment scenario for 2030 aligned with what is needed to decarbonize China's power sector by 2050, and assumes:

- Electricity supply reaches 11,000 TWh by 2030, an increase of 54 percent above current levels;
- No new coal capacity is added beyond the 1,041 GW in place in 2019, but there is a slight increase in coal generation as existing assets are used more intensely;
- Considering the increasingly competitive economics of renewables, wind and solar capacity reach 1,650 GW in 2030, contributing 28 percent to total generation in that year; and
- Total non-fossil fuel generation reaches 53 percent of the total, slightly above the target of 50 percent proposed by China's government in 2016.

According to the RMI and ETC analysis, the zero-carbon investment scenario for 2030 is economically and technologically feasible. In China, renewables and other zero-carbon generation resources are or will soon be the most cost-effective way to meet growing electricity demand, enabling the shift away from new coal investments.

China's power system can also continue to operate effectively with the higher levels of renewables outlined in the 2030 scenario. The power system can manage the increased variability associated with a greater share of wind and solar by increasing

interconnections between provinces and increasing grid flexibility by retrofitting existing coal and hydro generation. Market and grid reforms will also play an important role.

As it is economically and technically possible for China to meet all future growth in its power supply from zero-carbon sources, it is essential that policies, particularly the 14th Five-year Plan, are aligned with a zero-carbon growth objective. A clear quantitative target will enable China's wind and solar development and supply industries to achieve the economies of scale and learning curve effects which make cost reductions possible. The targets would also require policy changes from four pillars: mechanisms to incentivize investment in renewables, market and grid reforms to support flexible power, upgraded planning processes to align with renewable growth, and improved technical regulation to enhance system reliability.

“Increasing the share of renewables in China's power system has been a prolonged topic, but will be further accelerated by the commitment to carbon neutrality before 2060. Achieving the zero-carbon investment scenario proposed in this report will help make the ‘peaking before 2030’ objective attainable and put China on a path compatible with its 2060 carbon-neutrality goal,” said Ting Li, regional managing director and chief representative of RMI.

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About Rocky Mountain Institute

Rocky Mountain Institute (RMI)—an independent nonprofit founded in 1982—transforms global energy use to create a clean, prosperous, and secure low-carbon future. It engages businesses, communities, institutions, and entrepreneurs to accelerate the adoption of market-based solutions that cost-effectively shift from fossil fuels to efficiency and renewables. RMI has offices in Basalt and Boulder, Colorado; New York City; Oakland, California; Washington, D.C.; and in Beijing, People's Republic of China.

About Energy Transitions Commission

The Energy Transitions Commission (ETC) is a coalition of global leaders from across the energy landscape: energy producers, energy-intensive industries, equipment providers, finance players and environmental NGOs. Our mission is to work out how to build a global economy which can both enable developing countries to attain developed world standards of living and ensure that the world limits global warming to well below 2°C and as close as possible to 1.5°C. For this objective to be reached, the world needs to achieve net-zero GHG emissions by around mid-century.