

FACT SHEET:

INVESTMENTS IN TRANSMISSION ENABLE GROWTH IN RENEWABLES

The electric grid in the United States was created to provide reliable electricity to consumers. In the past, most U.S. consumers relied on centrally-located fossil fuel-powered plants to provide for their electricity needs, with power carried from these stations by electric transmission infrastructure. However, our transmission system has not kept up to date with the way electricity is generated—decreased costs and improved technology have made wind and solar competitive with existing fossil fuel-powered generation. While we develop more renewable generation, the necessary infrastructure must exist to connect the clean energy to consumers.

Transmission plays a key role in meeting demand

Transmission is an integral part of the electric system, allowing for reliable access to electricity. As the way power is generated changes and more renewables are developed across a wider geographic area, transmission infrastructure must adapt to maintain reliable connections and meet anticipated growth in demand.

- Increased demand for electricity may require 70 gigawatts (GW) to 220 GW of new generation by 2030.
- An estimated \$3 billion to \$7 billion worth of annual infrastructure development would be required to create the necessary transmission capacity to serve this growth.¹

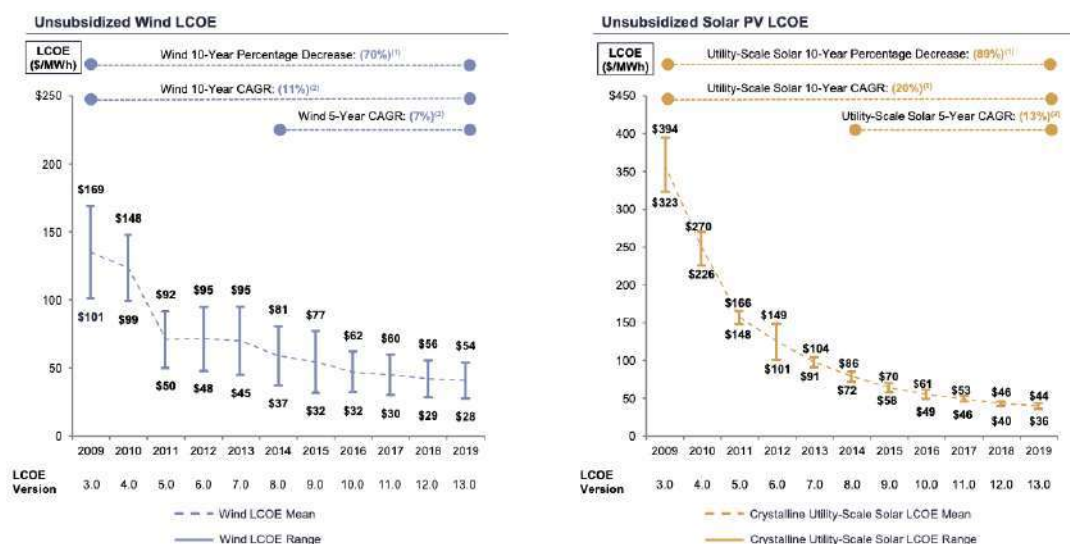


Renewable energy is expected to continue rapid growth

Improvements in technology and supportive public policies have led to a continued reduction in cost for renewable energy.

- Levelized cost of unsubsidized energy for wind has decreased by 70 percent since 2009.
- Levelized cost of unsubsidized energy for solar has decreased by 89 percent since 2009.²

FIGURE 1. LEVELIZED COST OF ENERGY COMPARISON—HISTORICAL RENEWABLE ENERGY LCOE DECLINES



Sources

¹ Weiss, Jurgen, et al. "The Coming Electrification of the North American Economy." WIREs, March 2019, wiresgroup.com/new/wp-content/uploads/2019/03/Electrification_BrattleReport_WIRES_FINAL_03062019.pdf. Accessed April 2020.

² "Lazard's Levelized Cost of Energy Analysis - Version 13.0." Lazard, 2019, lazard.com/media/451086/lazards-levelized-cost-of-energy-version-130-vf.pdf. Accessed April 2020.



Renewable energy is expected to continue rapid growth, continued

Wind energy has continued to expand in the U.S., with a substantial amount of new generation either proposed or in development.

- By the end of 2019, there were more than 105 GW of wind energy capacity in operation across the U.S.
- An additional 44 GW of wind capacity were either under construction or in the advanced stages of development.³

Solar has experienced similar growth to wind energy.

- In 2019, 2.6 GW of solar were installed in the U.S., an increase of 45 percent from 2018.
- That same year, 700 megawatts (MW) of residential solar were installed, setting a new record for the industry.
- 21.3 GW of solar projects have been announced from the beginning of 2019 to the end of the year, bringing the total amount of contracted projects to 45.5 GW.⁴

Demand for clean energy

Counties and cities across the nation have also made clean energy commitments, driving demand for more renewable energy.

- Seven states, along with Puerto Rico and Washington, D.C., have adopted 100 percent clean energy legislation, and four have set 100 percent clean energy goals through executive orders.
- Through a variety of policies and partnerships, 204 counties and cities in 37 states have either made commitments to pursue 100 percent clean energy goals or have achieved those goals.⁵

Sources

3 “U.S. Wind Industry Quarterly Market Report, Fourth Quarter 2019.” American Wind Energy Association, 2019, [awea.org/Awea/media/Resources/Publications%20and%20Reports/Market%20Reports/4Q-2019-AWEA-Market-Report-Public-Version.pdf](https://www.awea.org/Awea/media/Resources/Publications%20and%20Reports/Market%20Reports/4Q-2019-AWEA-Market-Report-Public-Version.pdf). Accessed April 2020.

4 Perea, Austin, et al. “Solar Market Insight Report 2019 Q4.” Wood Mackenzie Power & Renewables, Solar Energy Industries Association, [seia.org/research-resources/solar-market-insight-report-2019-q4](https://www.seia.org/research-resources/solar-market-insight-report-2019-q4). Accessed April 2020.

5 Trumbull, Kelly, et al. “Progress Toward 100 percent Clean Energy in Cities and States Across the U.S.” UCLA Luskin Center for Innovation, November 2019, innovation.luskin.ucla.edu/wp-content/uploads/2019/11/100-Clean-Energy-Progress-Report-UCLA-2.pdf. Accessed April 2020.

6 Ibid.

7 Gimon, Eric, et al. “The Coal Cost Crossover: Economic Viability of Existing Coal Compared to New Local Wind and Solar Resources.” Vibrant Clean Energy, Energy Innovation Policy & Technology, LLC, March 2019, energyinnovation.org/wp-content/uploads/2019/04/Coal-Cost-Crossover_Energy-Innovation_VCE_FINAL2.pdf. Accessed April 2020.

8 Gearino, Dan. “Inside Clean Energy: An Energy Snapshot in 5 Charts.” Inside Climate News, March 5, 2020, insideclimatenews.org/news/04032020/inside-clean-energy-charts-2019-electricity-solar-wind-coal-use. Accessed April 2020.

Shift in generation requires adaptation

After a peak in 2011, coal-fired generating capacity has dropped due to retirements.

- A total of 23.5 percent of coal capacity was retired across the country between 2011 and 2018, amounting to 75 GW of generation taken offline.

A contributing factor to these retirements was the availability of lower-cost renewables.

- Wind and solar were comparatively lower in price than 211 GW of nearby existing coal-fired capacity in 2018—the equivalent of nearly 74 percent of the country’s entire coal fleet.
- 94 GW of the total coal-fired capacity have been deemed to be at “substantial risk” due to nearby alternative generation being able to produce electricity at least 25 percent below the cost of coal resources.⁷

FIGURE 2. U.S. COAL AND RENEWABLE GENERATION⁸

