

Growth of utility-scale solar resources in the ERCOT region

While utility-scale solar development has been less compared to wind development in the ERCOT region, it is beginning to gain traction. Today there is nearly 1,900 MW of installed utility-scale solar capacity in ERCOT, out of nearly 80,000 MW of installed capacity.

As of June 2019, nearly 60,000 MW of utility-scale solar capacity was under study in the ERCOT region based on the latest information from resource owners. This is significantly higher than the amount of wind capacity under study during the same time period. Nearly 5,900 MW of this total reflects signed Interconnection Agreements and may be in-service by the end of 2020.

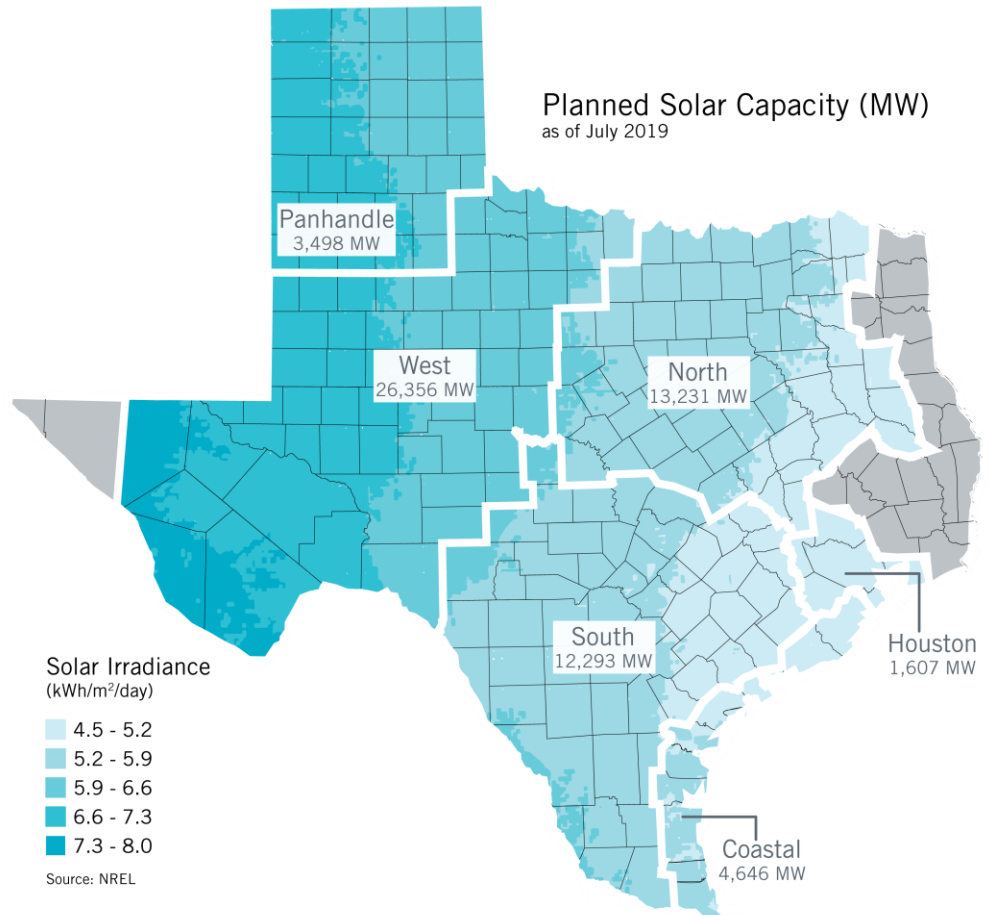
While it is unlikely all of these projects will get built, the recent uptick in solar interconnection requests may be due to declining technology costs and significant solar opportunities in West Texas.

Utility-scale solar is becoming more widespread in Texas

While there is plenty of sunshine in Texas, certain areas consistently have less cloud cover, which impacts how much solar power can be produced.

The grid operator is seeing increasing geographic diversity based on the projects in the interconnection queue. Nearly 21,000 MW of the capacity under study is in West Texas, where fewer clouds tend to result in better solar availability. However, the other half of the potential projects are dispersed throughout the state.

This geographic diversity will become increasingly important as utility-scale solar becomes a more prominent resource type in ERCOT. Large-scale weather patterns are easier to forecast than localized cloud systems passing over individual solar arrays, so the accuracy of ERCOT's solar generation forecast will continue to improve as solar resources become more widespread across the region.



Solar and wind may be complementary resources

With wind and solar variability, the two resource types may be able to assist one another during the course of a day. In general, wind tends to blow more during the late afternoon to mid-morning hours during the summer, while the solar potential occurs during the day. In the future, solar power may be able to help meet load demands when wind is lower during the middle of the day; likewise, wind power can ramp up to meet decreasing solar output in the evening and overnight hours.

Solar forecasting

ERCOT devotes considerable time and resources to continually improve the performance of both solar and wind power forecasting. Improved forecasting, in general, has the potential to reduce the amount of operational reserves needed to ensure a reliable electric system.

Being able to accurately forecast changes in weather patterns that can directly impact intermittent resources is critical for grid operators who must balance generation and load at all times. Forecasting accuracy is especially important for solar resources because it helps ERCOT grid operators anticipate potential cloud cover that can reduce solar output during the day.

ERCOT began using a solar forecasting vendor in 2017 and is currently working on a Department of Energy project to implement intra-hour forecasting for solar.