

Growth of utility-scale solar resources in the ERCOT region

Utility-scale solar is growing in the ERCOT region. Today there is nearly 2,700 MW of installed utility-scale solar capacity in ERCOT, out of nearly 82,000+ MW of installed capacity.

As of May 2020, more than 72,000 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.

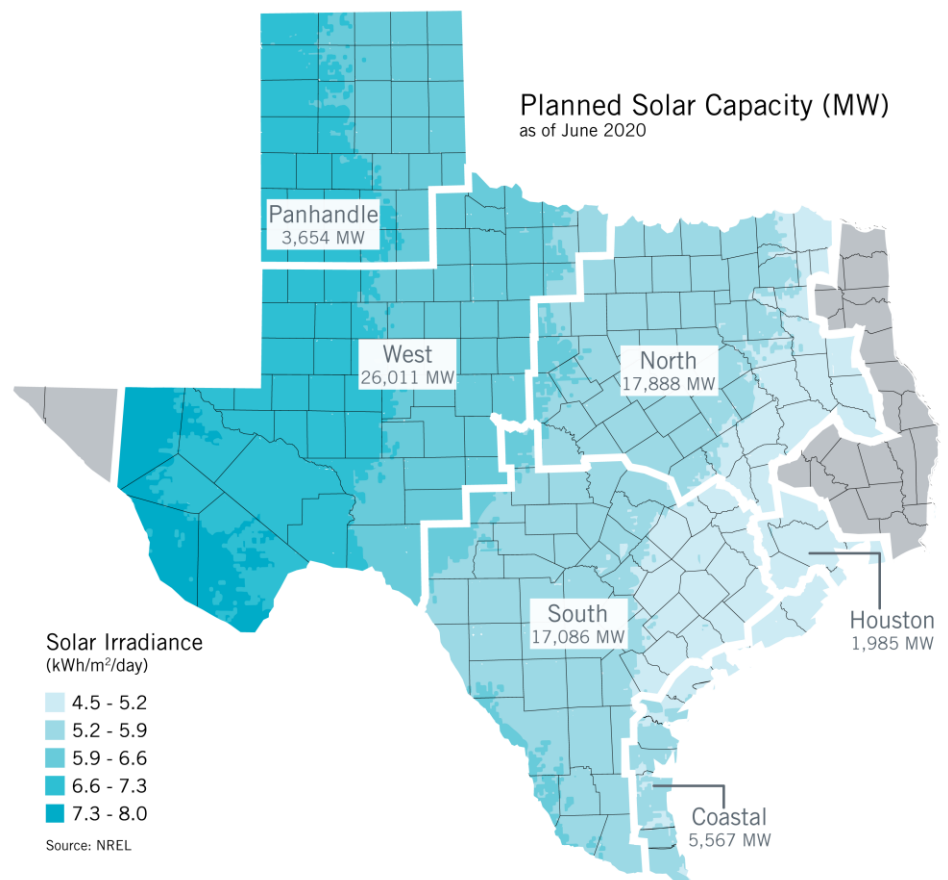
While it is unlikely all of these projects will get built, the recent uptick in solar interconnection requests may be due to declining technology costs and significant solar opportunities in West Texas.

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. More than 26,000 MW of the capacity under study is in West Texas, where fewer clouds tend to result in better solar availability. The other 46,000 MW of 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.