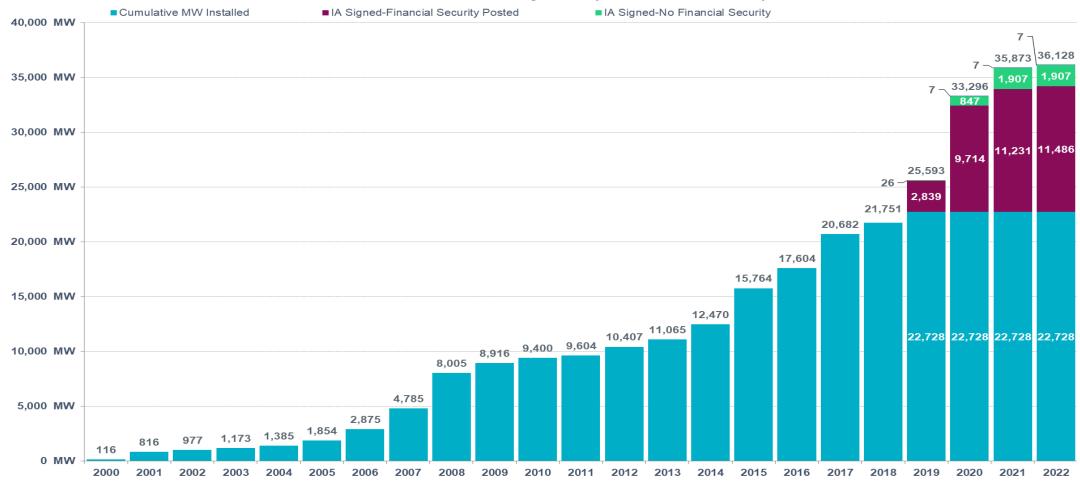
FORMING EXPECTATIONS FOR PRICE FORMATION

HEPG 97th Plenary Session December 12, 2019

INTERMITTENT RESOURCES AND THE SECRECT SPICE THAT MAKES THE ERCOT SYSTEM WORK – IS IT RELEVANT TO OTHER POWER MARKETS?

Moderator's Introduction

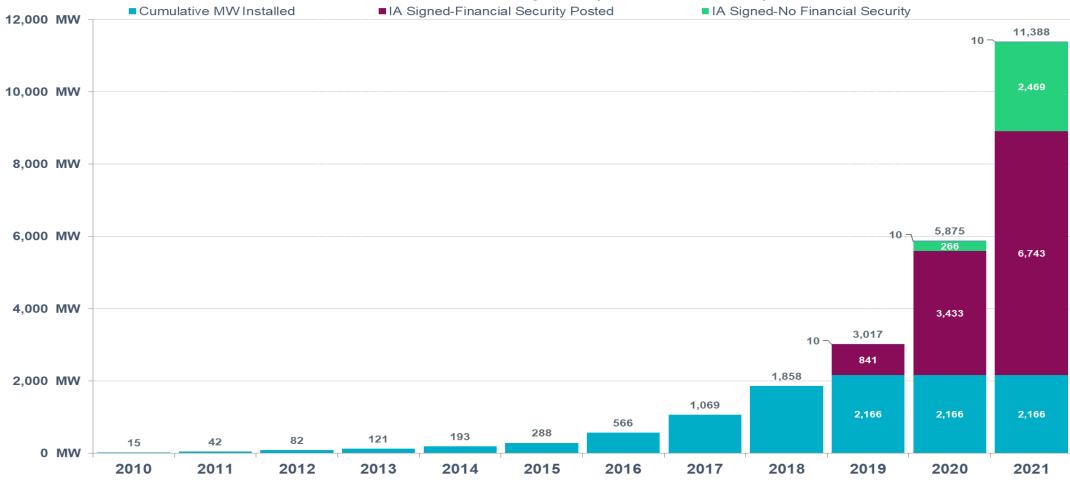
ERCOT Wind Additions by Year (as of Nov 30, 2019)



Notes:

- The data presented here is based upon the latest information provided to ERCOT by resource owners and developers and can change without notice.
- Installed capacities are the original nameplate rating of the generation facilities, and do not reflect retirements or rating changes over time due to facility expansions or repowering.
- Installed capacities include only wind facilities that have registered with ERCOT (Those larger than one megawatt and supply power to the ERCOT system.)
- Other Planned capacity reflects registered projects under 10 MW in size that are not included in the Resource Integration and Ongoing Operations Interconnection Services (RIOO-IS) System.
- This chart reports annual planned units with projected Commercial Operations Dates throughout the calendar year. In contrast, ERCOT's Capacity, Demand and Reserves (CDR) report shows planned capacity projected to be commercially available on or before the start of the Summer and Winter Peak Load seasons.
- Financial security posted for funding interconnection facilities does not include CREZ security deposits, which are refunded to the Interconnecting Entity when an IA is signed.

ERCOT Solar Additions by Year (as of Nov 30, 2019)



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- Projects that have prior-year Projected CODs that have not been met, and for which ERCOT has not received COD updates, appear as planned projects for the subsequent year.

The idea that there's something strange about Texas' main grid was broached [last summer] by Jim Robb, chief executive of the North American Electric Reliability Corp...., the grid's security overseer. Robb told a regulatory conference that based on the state's low percentage of power reserves, "there's no way in hell they can keep the lights on." Then he added, "And yet they do," concluding "there's something in the soup" (**Energywire**, July 8, 2019)

....Listening to the discussion, **Mike Wise, Golden Spread's senior vice president of regulatory and market strategy, stood and delivered an impassioned speech on the value of scarcity pricing.** It's a mechanism he is very familiar with, as Golden Spread also operates in ERCOT.

"I'm going to use the s-word that is not popular with many of you sitting here today," Wise said. "Scarcity pricing works. Although several here will disagree, I believe we need to consider moving towards this strategy for our pool."

While scarcity pricing may be sacrilegious to some in SPP, Wise pointed to ERCOT's ability to meet record demand this summerHe said the lack of price-responsive load in the SPP market could be because of "market prices not reflecting the actual scarcity."

The ERCOT "market is seeing price-responsive loads taking the price signals and curtailing themselves," he said. "This summer ... saw over 3,000 MW of price-responsive load get off across their peak as the reserves were getting low and the price adders for the lack of reserves made the market price go very high. (*Emphasis Added*)

(SPP Shortfall Leads to Scarcity Pricing Calls, Tom Kleckner, RTO Insider, October 28, 2019)