

AWEA: The Clean Power Decade

27 May 2020

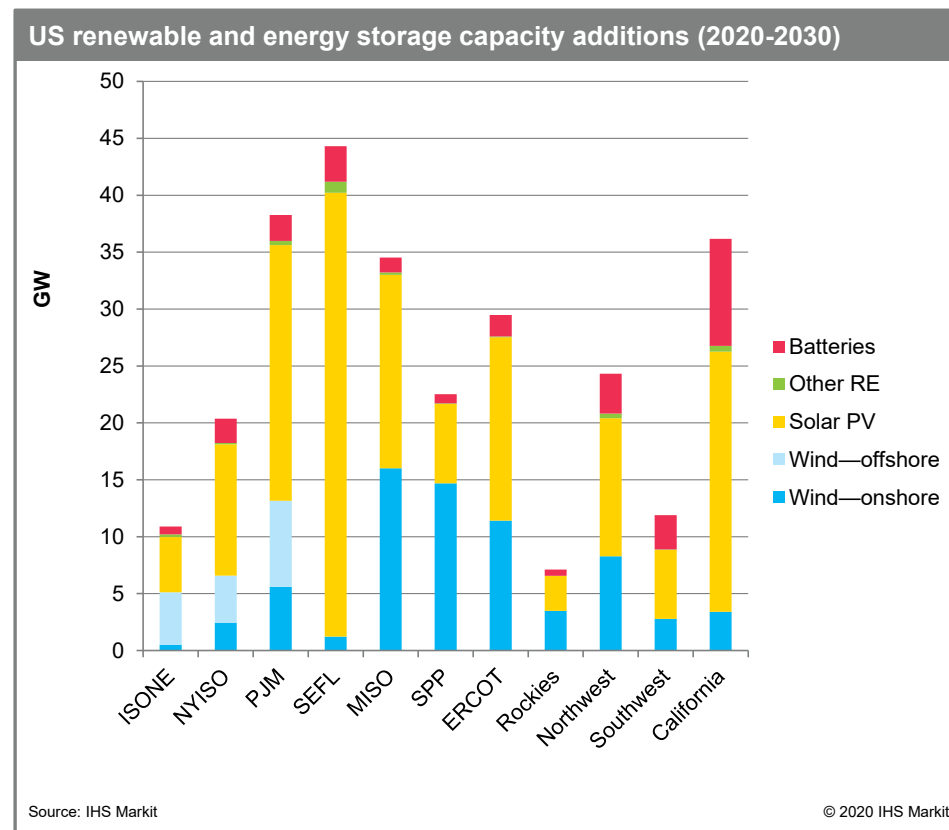
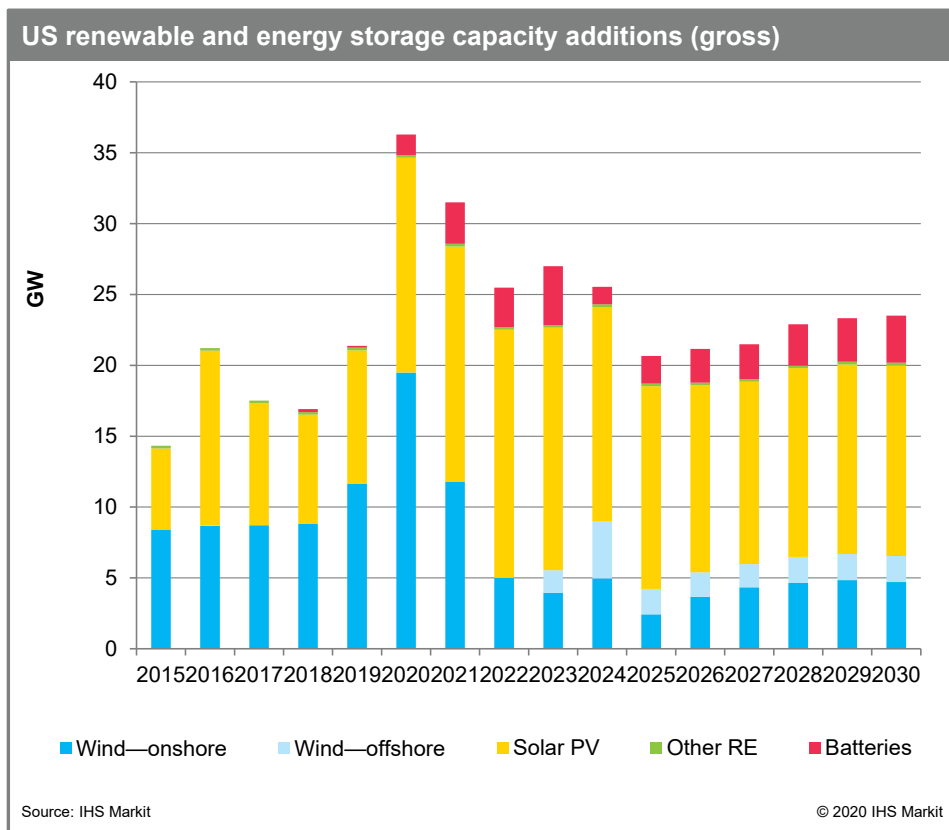
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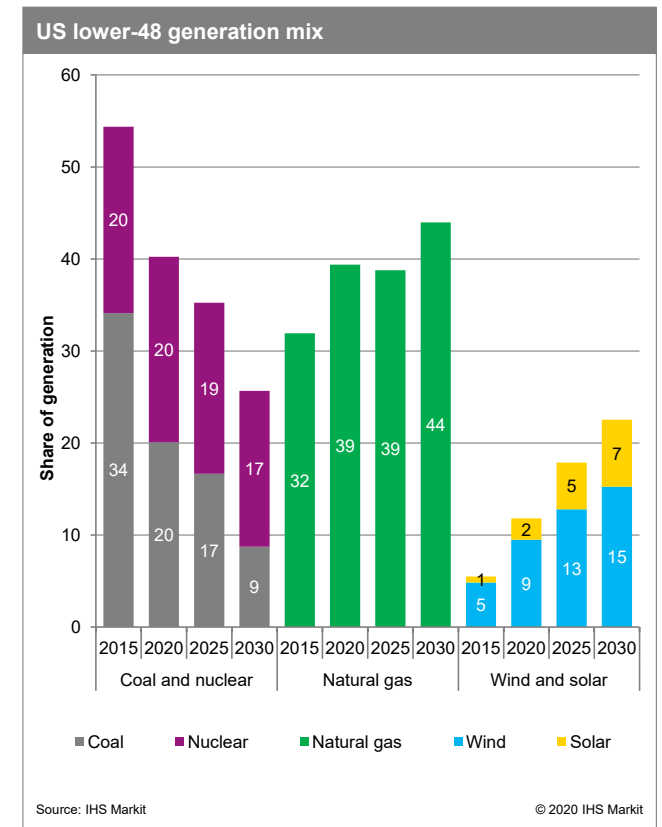
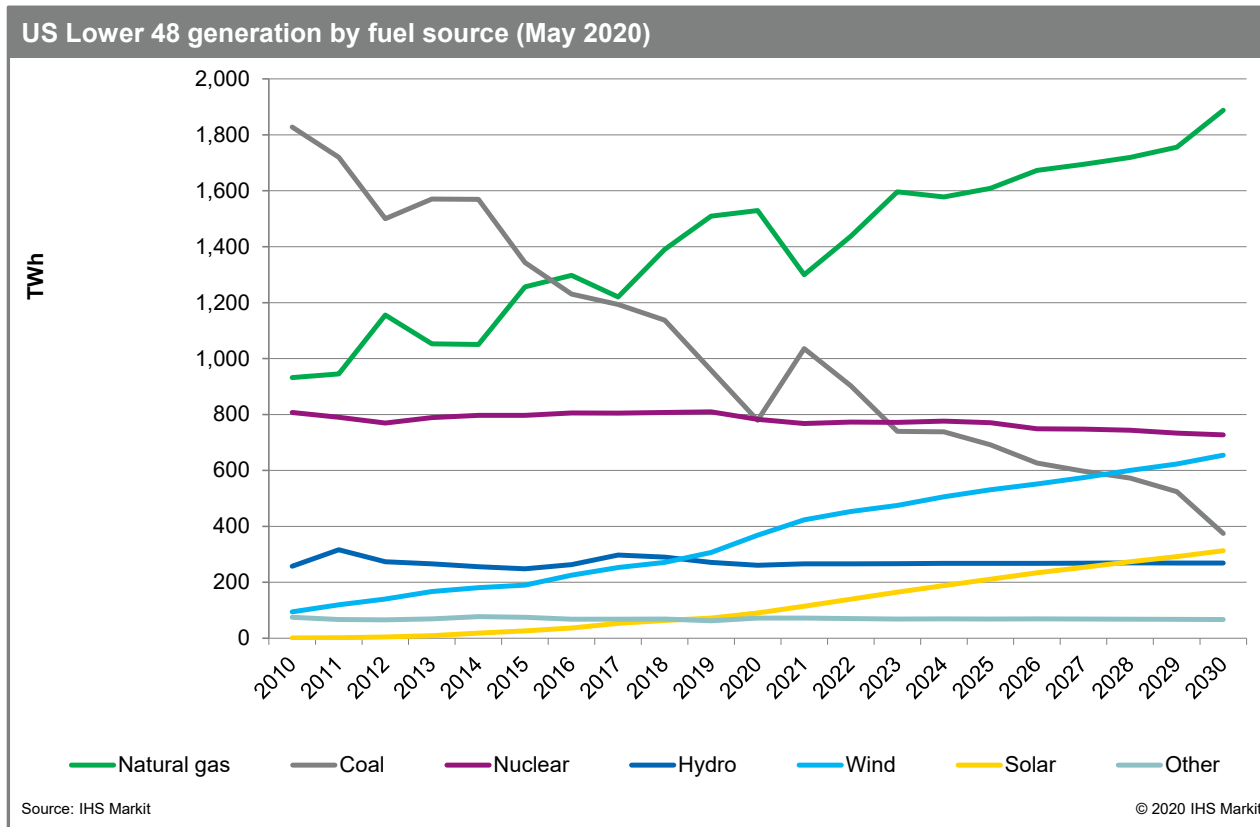
The decade ahead: What to expect

- The “decade” ahead will bring
 - A “greener” grid, where gas “does more”
 - Solar saturation in some markets
- The “decades” ahead will also bring
 - Declining energy revenues...
 - requiring market evolutions

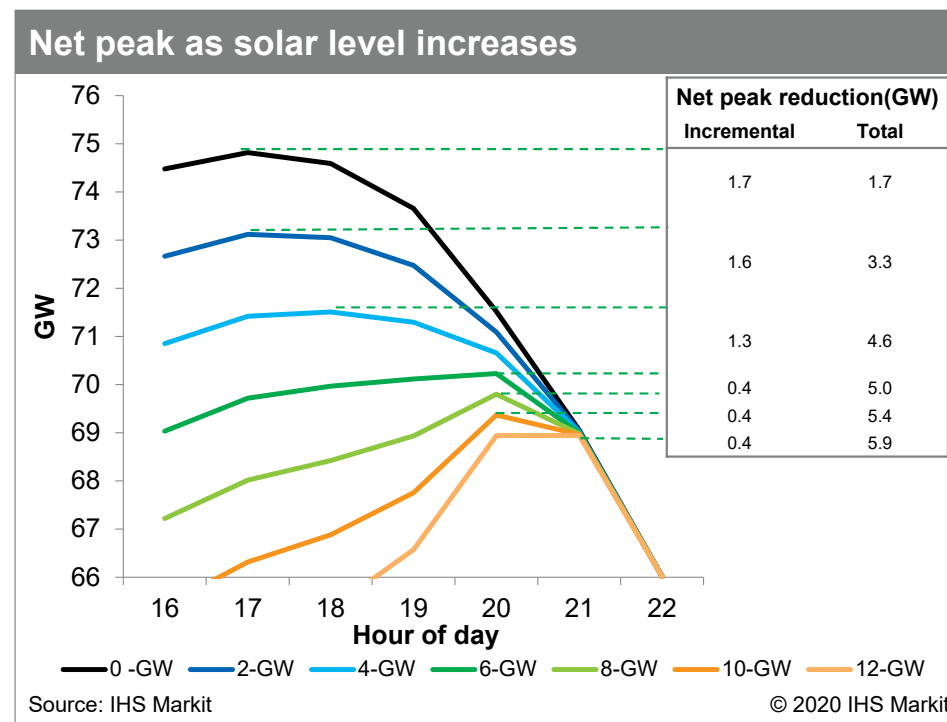
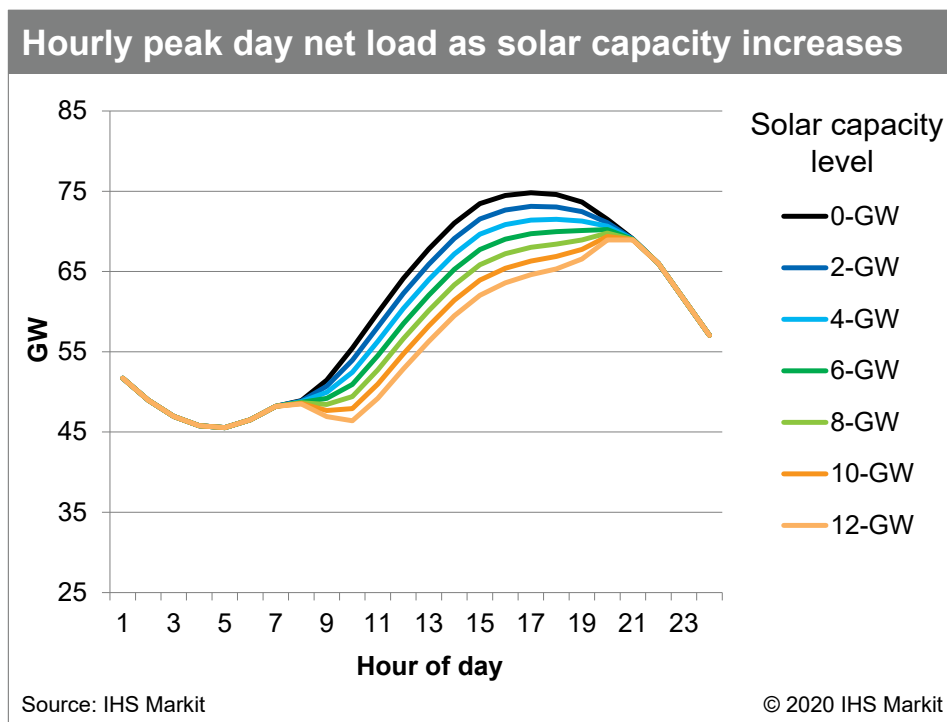
Decelerating—but still very large—RE capacity build



Solar and wind capacity grow very quickly, but lower capacity credits and simultaneously declining coal generation requires gas generation to grow



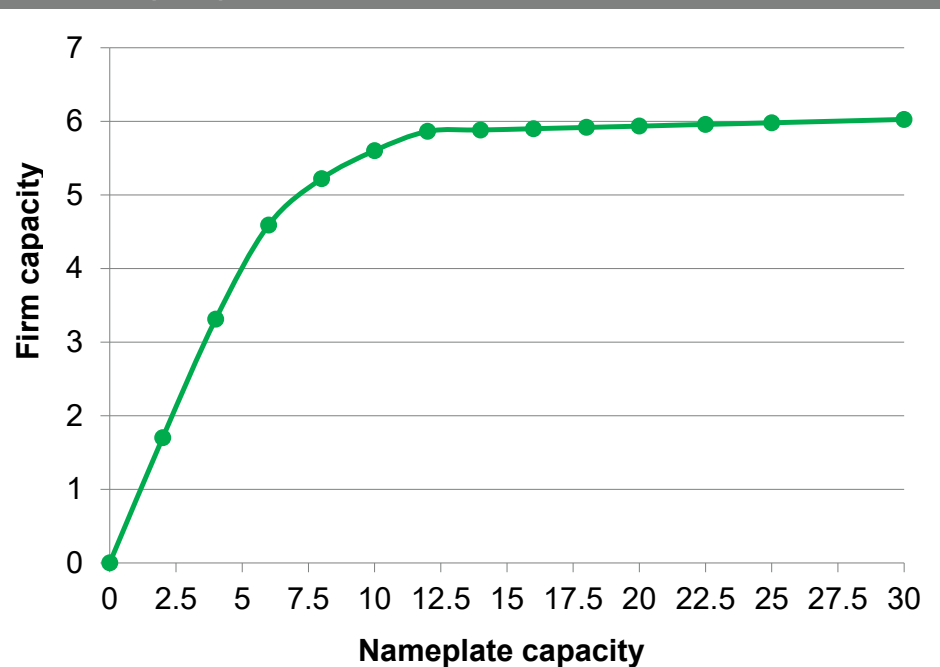
The more solar you add, the less it contributes to meeting the peak



Solar generation is available for a limited number of hours each day which are focused around mid-day. As solar penetration increases, the hour in which net peak occurs is pushed later into the evening and solar's capability to meet the new net peak is reduced.

Solar has diminishing ability to support net peak demand

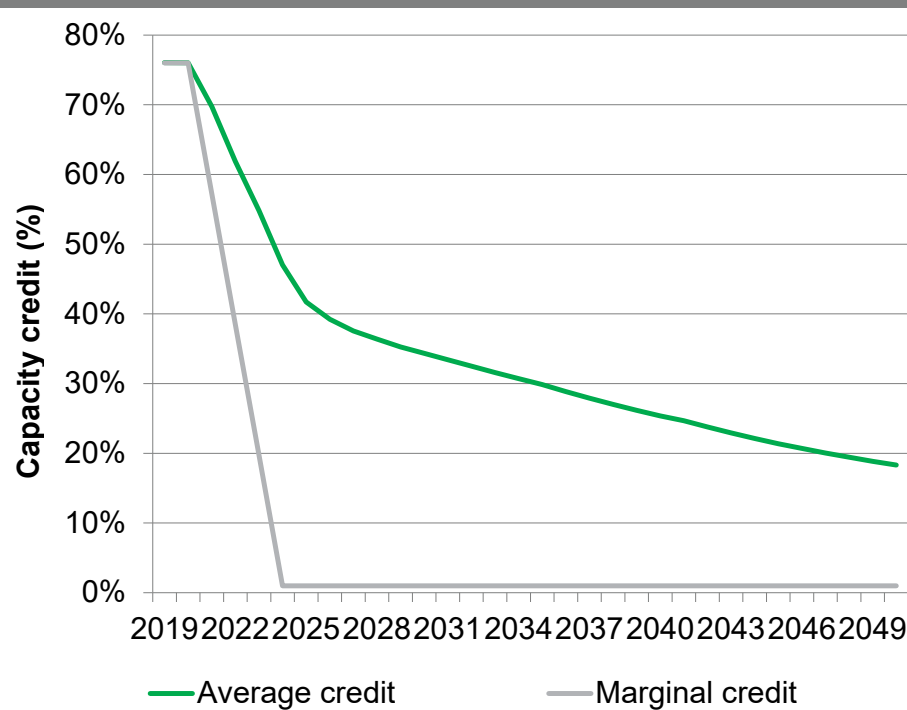
Solar PV: Firm capacity provided by given nameplate amount (GW)



Source: IHS Markit

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Average and marginal solar capacity credit, ERCOT

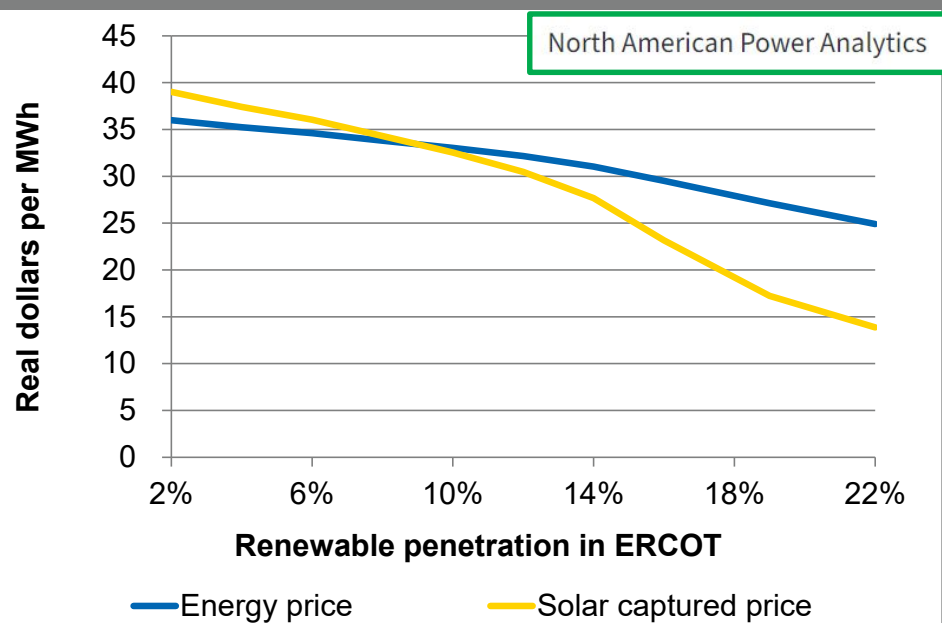


Source: IHS Markit

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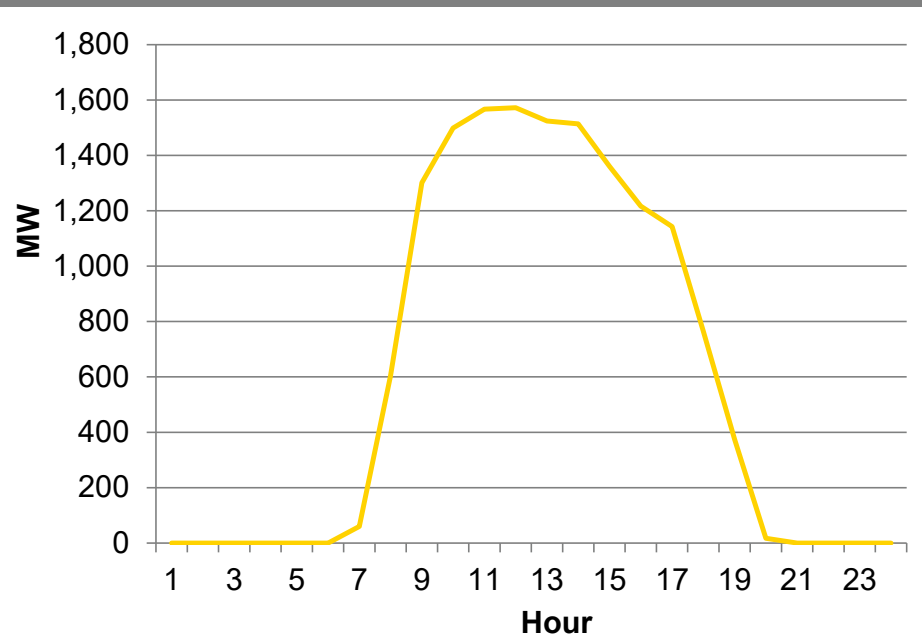
Higher solar penetration will depress energy market prices and revenue available to solar resources

ERCOT energy and captured prices under varying renewable penetration rates



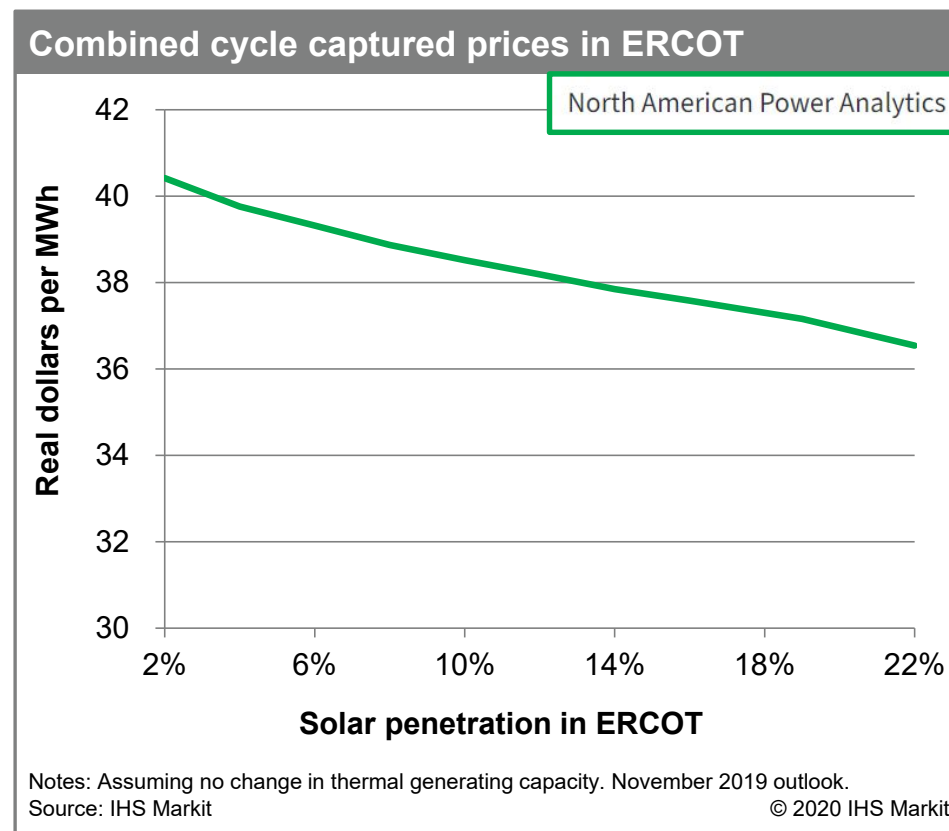
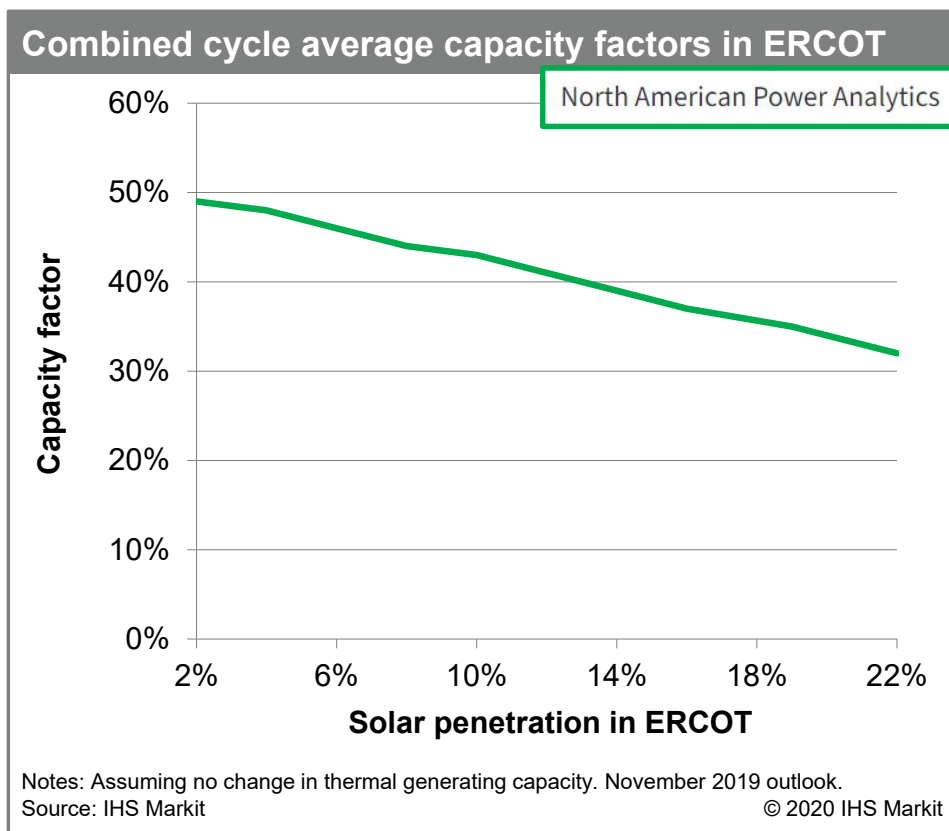
Notes: Assuming no change in thermal generating capacity. November 2019 outlook.
 Source: IHS Markit © 2020 IHS Markit

Solar generation in ERCOT (on 15 August 2019)

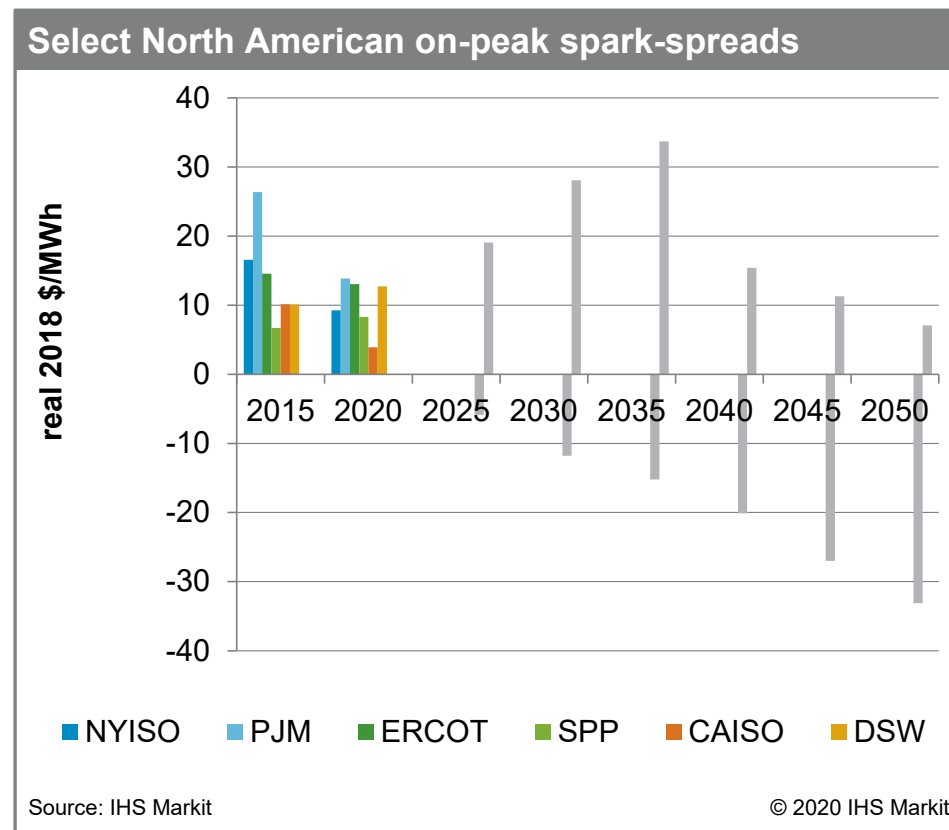
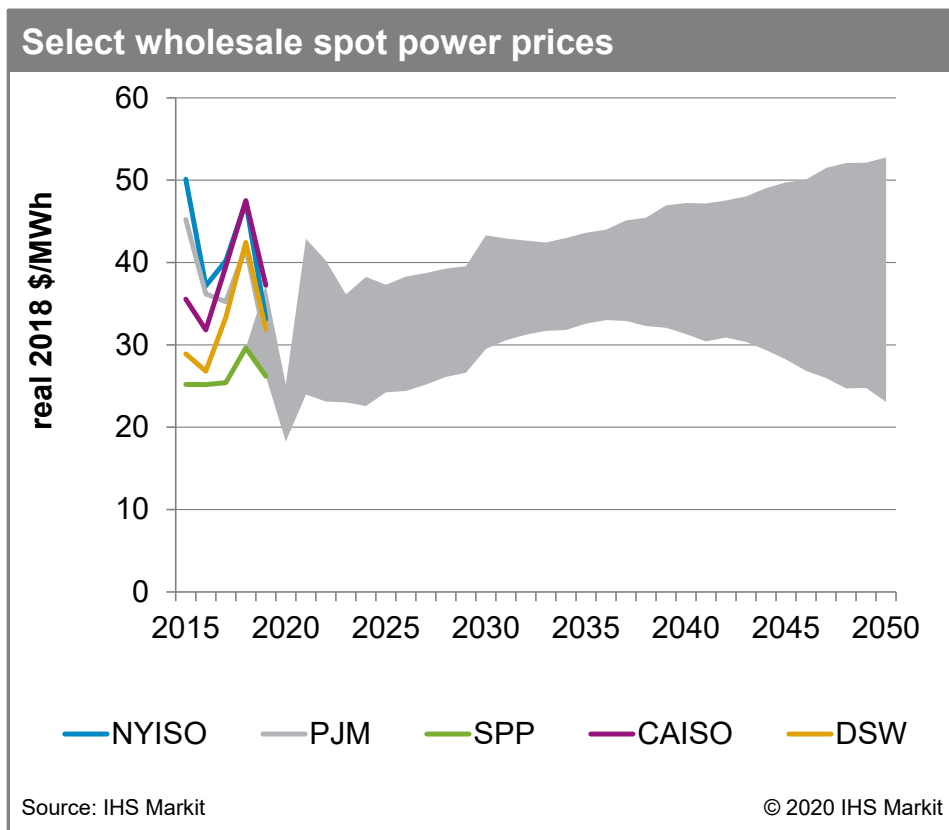


Source: IHS Markit and ERCOT © 2020 IHS Markit

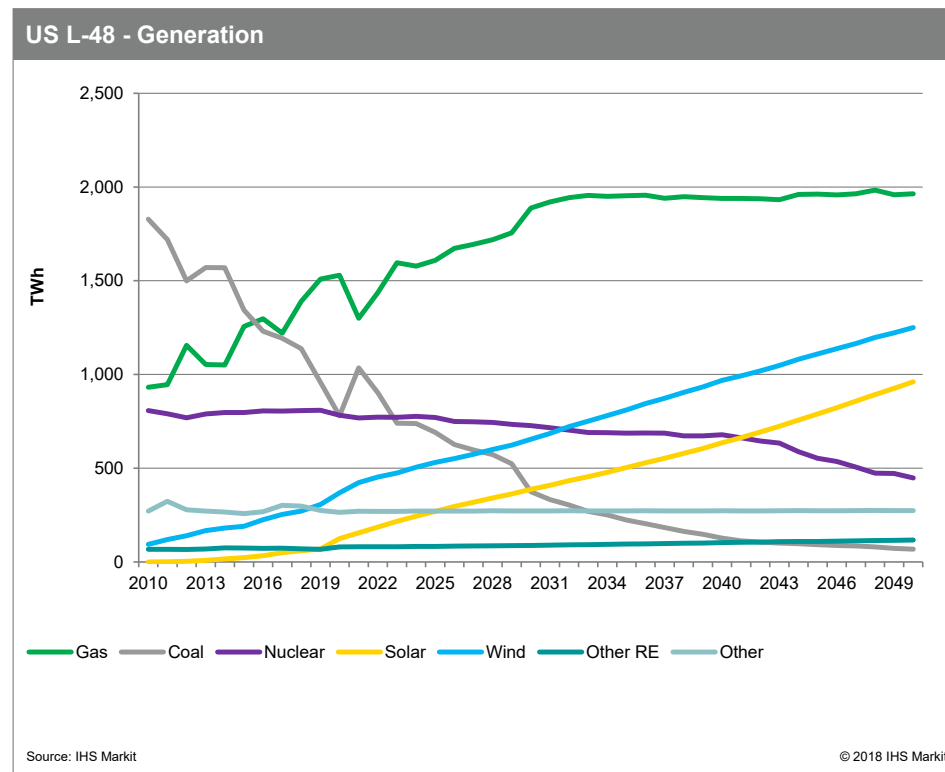
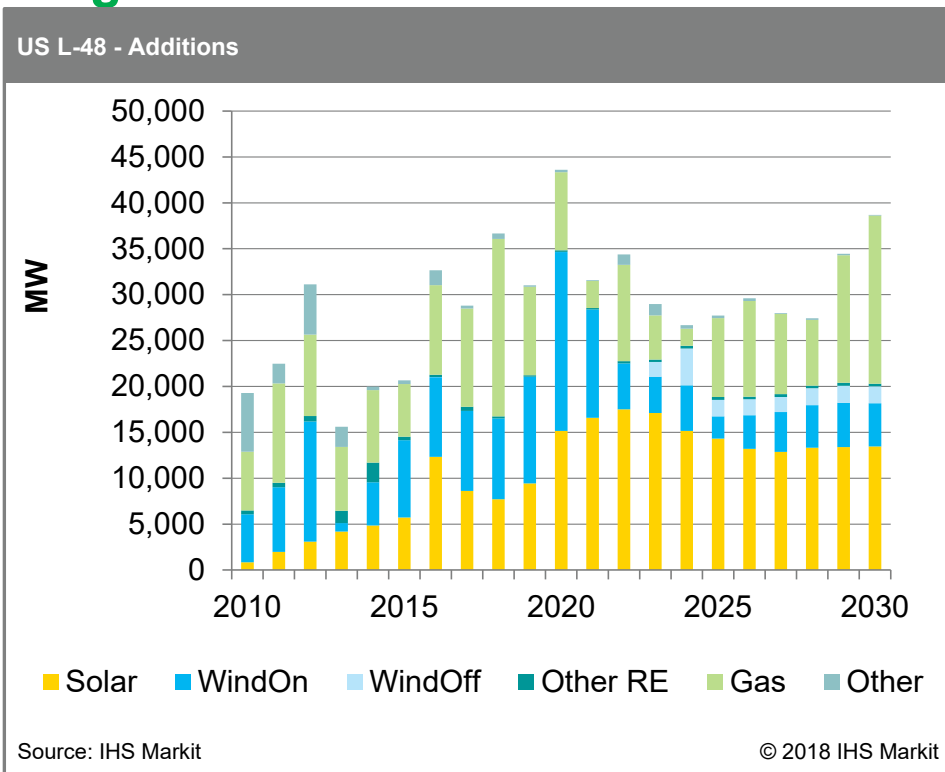
Increased solar will also put downward pressure on natural gas plant utilization and energy revenue



Higher power prices are largely an effect of higher gas prices, but... Spark-spreads decline in almost every market as RE penetration rises



Gas—even new gas—will still be needed. But energy revenues are losing weight as an incentive.



Although gas generation remains nearly-flat, total demand continues to grow. Gas's market share of generation will then plateau and decline.

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