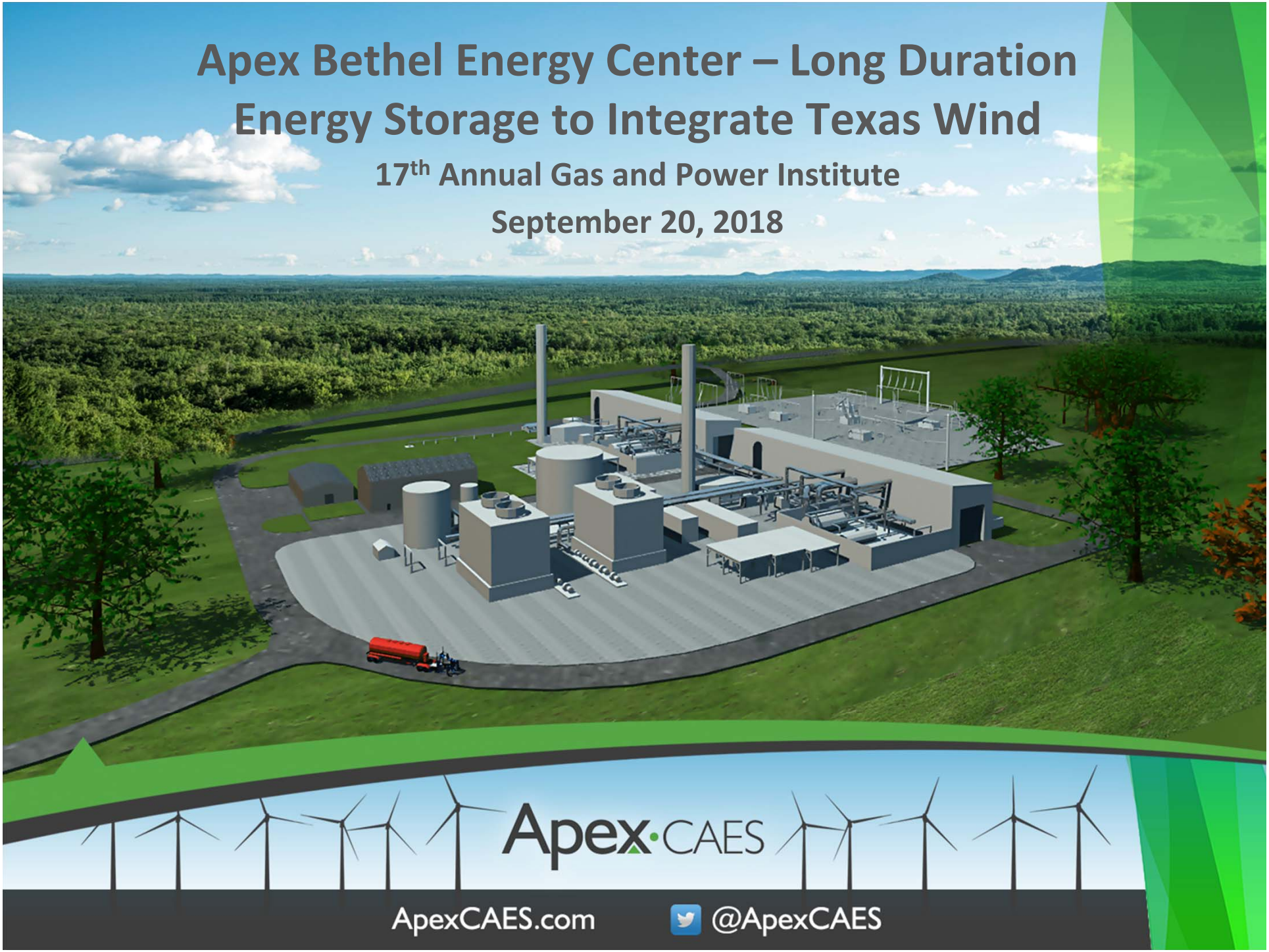
Apex Bethel Energy Center – Long Duration Energy Storage to Integrate Texas Wind

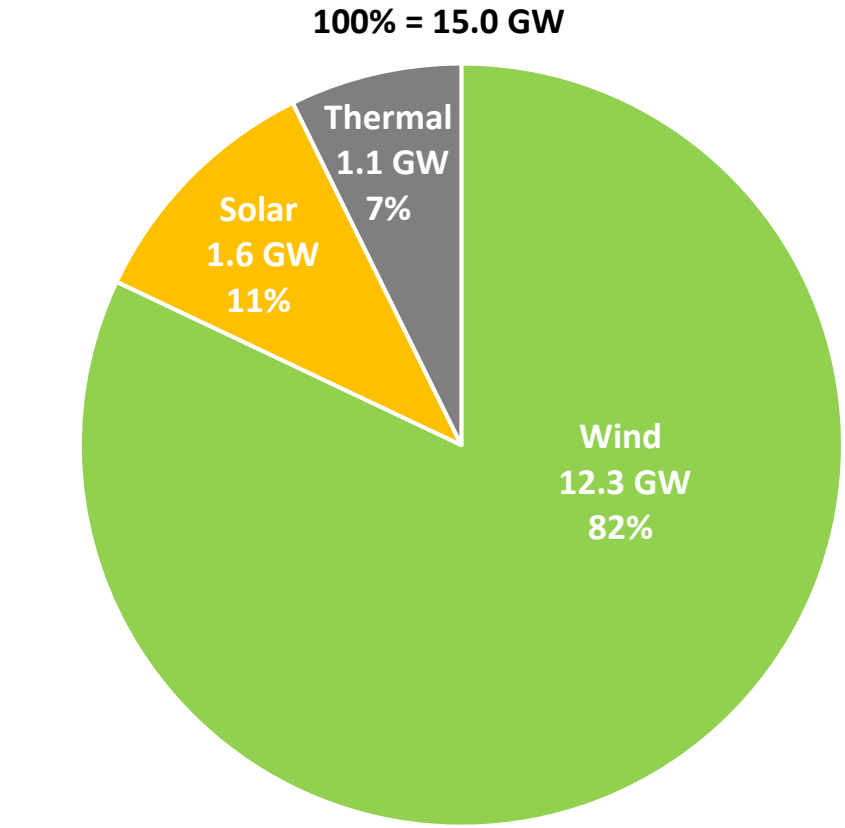
17th Annual Gas and Power Institute

September 20, 2018



WIND CAPACITY HAS DOMINATED NEW ERCOT SUPPLY FOR THE PAST 5 YEARS

2013 to 2018 ERCOT net capacity additions, GW



Wind additions are driven by long-term hedges from…

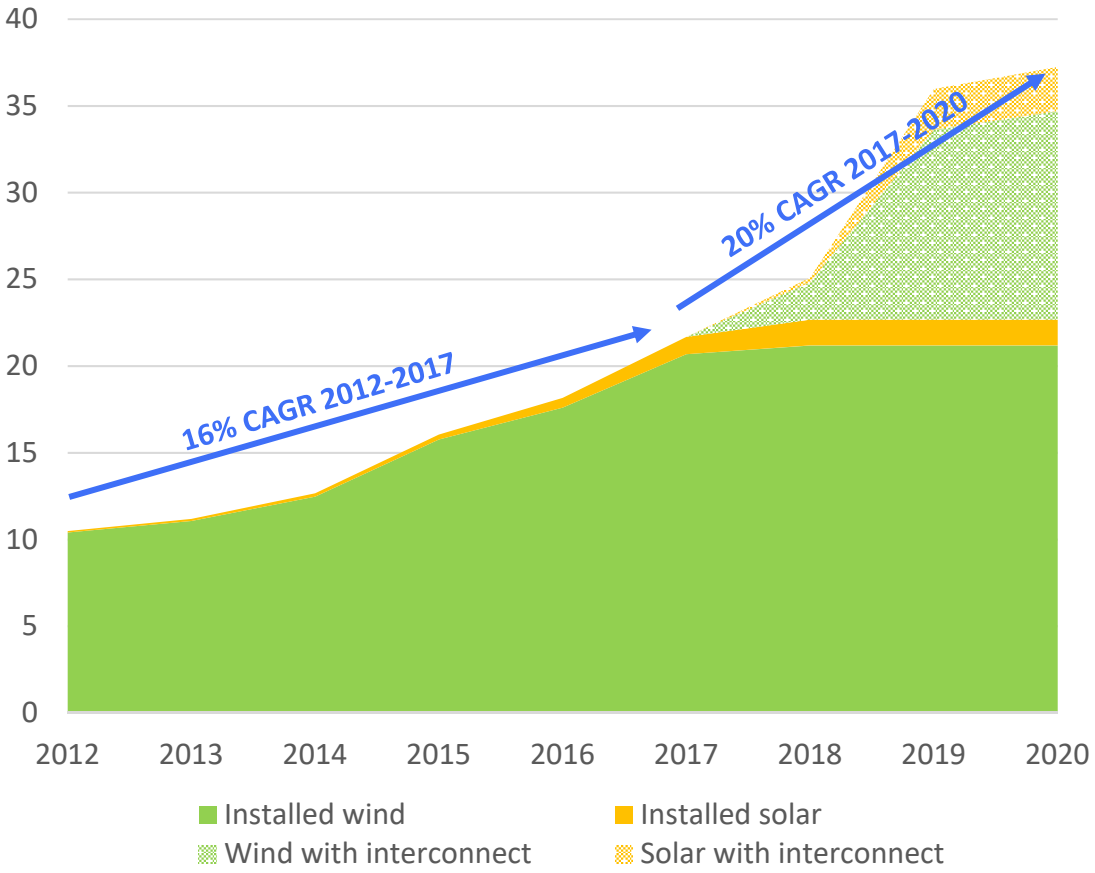
- Corporate ESG buyers (e.g., Microsoft, Google);
- Municipal/coop utility PPA buyers; and
- Bank and trading house hedges (e.g., Citibank, Shell)

* Net thermal capacity includes 4.2 GW of retirements

Source: ERCOT CDR May 2013, May 2018

STRONG GROWTH IN WIND CAPACITY PROJECTED TO CONTINUE

Historical and projected ERCOT renewable capacity, GW



Capacity additions:

- ERCOT is projecting an increased pace of renewable expansion over the next two years – new additions are dominated by wind

Renewable production:

- Renewables produced 20.7% of all supply in 2018 (YTD)
- At the pace of expansion seen over the last 2 years, ERCOT renewable could serve over 30% of ERCOT load in 5 years, and over 40% in 10 years*

* Based on 12-month additions of 2.5 GW of wind and 0.5 GW of solar from 8/17 to 7/18

Source: ERCOT Generation Interconnection Status report, July 31, 2018

Note: historical and projected ERCOT renewable capacity reflects year-end value

Title search: Apex Bethel Energy Center - Long Duration Energy Storage to Integrate Texas Wind

Also available as part of the eCourse
2018 Gas and Power eConference

First appeared as part of the conference materials for the
17th Annual Gas and Power Institute session
"Emerging Technologies in the Retail and Wholesale Electric Power Markets"