

When 'What if' Becomes 'What is':

A Utility Perspective on Renewables, Storage and Other Disruptive Technologies

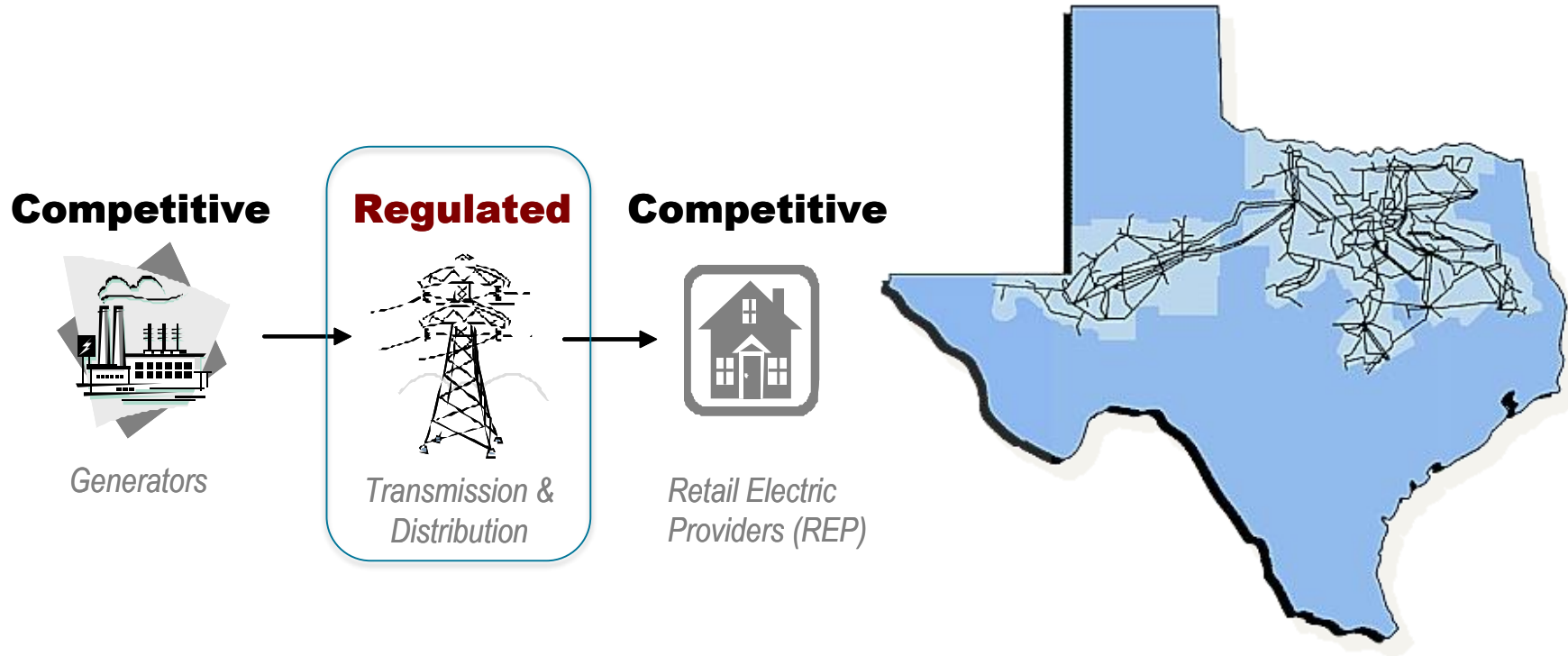
Lance Spross, P.E.

UT Energy Week

February 18, 2015



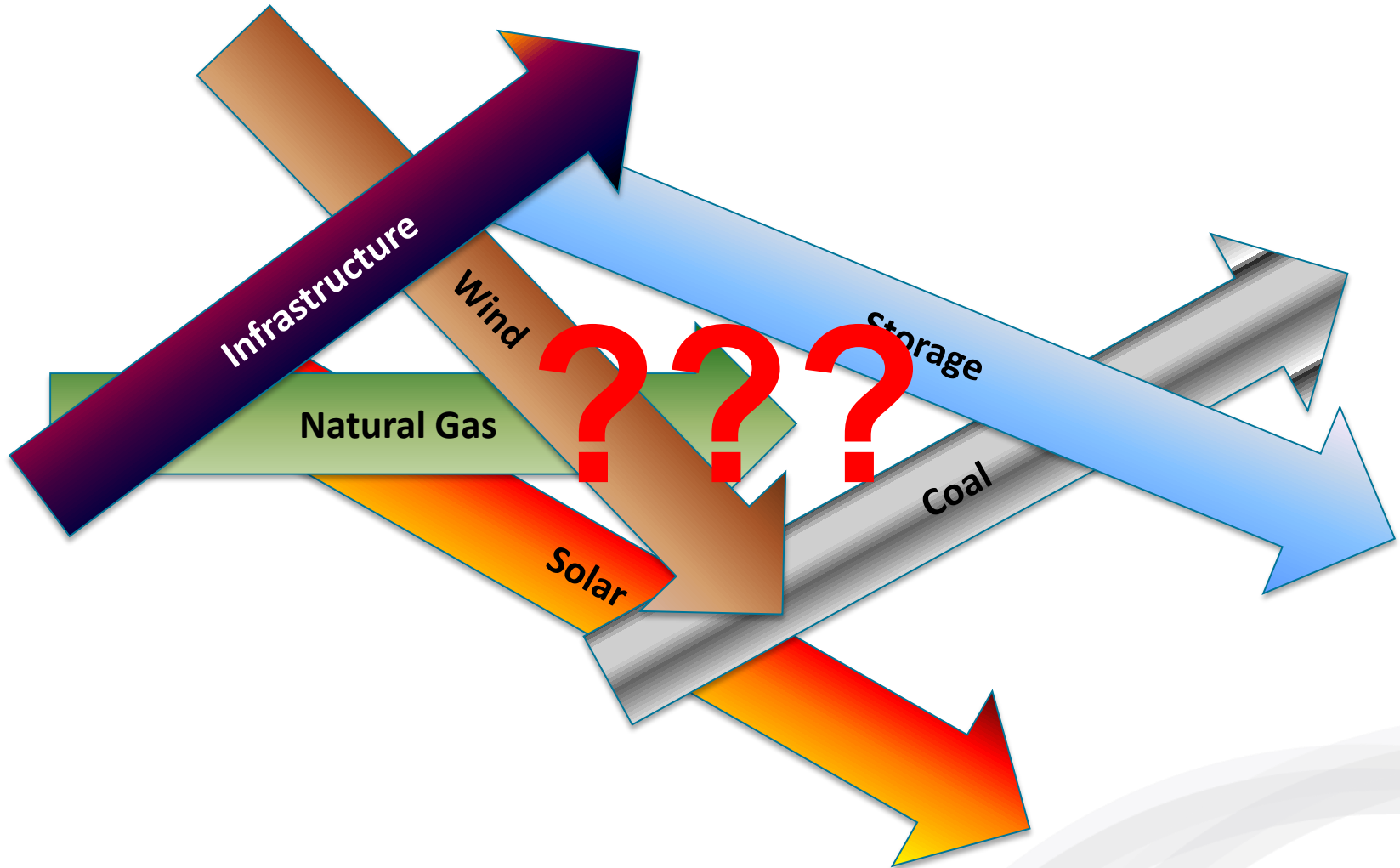
OUR ROLE IN THE MARKET



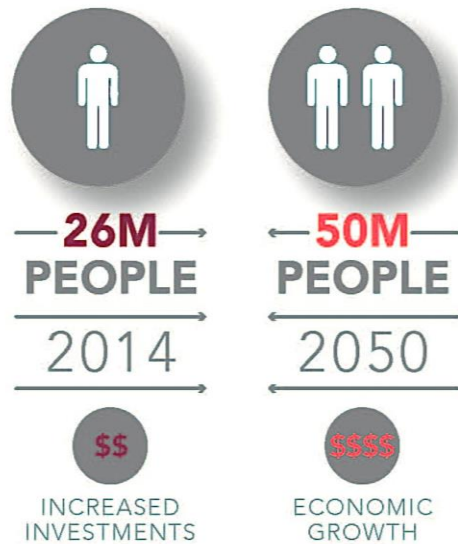
- Competitive ERCOT wholesale and retail electric energy market since 2002 for investor-owned players
- Regulated delivery utilities – do not generate, own, or sell electricity

Reliable delivery through the application of technology

EQUILIBRIUM???



TEXAS' CHALLENGE: POWERING OUR FUTURE GROWTH



- 1 AUSTIN
- 4 DFW
- 10 HOUSTON
- 20 SAN ANTONIO
- 2 MIDLAND
- 3 ODESSA
- 6 LONGVIEW

FORBES FASTEST GROWING CITIES (FEB. 2014); FORBES FASTEST GROWING SMALL CITIES (SEPT. 2014)

TEXAS LEADS:

- COMPETITION 1999
- ENERGY INFRASTRUCTURE 2005
- ADVANCED METERS 2005
- ENERGY STORAGE NEXT STEP



ENERGY STORAGE WILL BRING

- * RELIABILITY
- * AFFORDABILITY
- * FLEXIBILITY
- * EFFICIENCY
- * INDEPENDENCE
- * SECURITY

UTILITY EXPERIENCE WITH ENERGY STORAGE

ONCOR'S INITIAL INSTALLATION



GLOBAL UTILITY PROJECTS

- Department of Energy
- Detroit Edison
- Duke Energy
- Italy
- Pacific Gas & Electric
- San Diego Gas & Electric
- Southern Cal Edison
- United Kingdom

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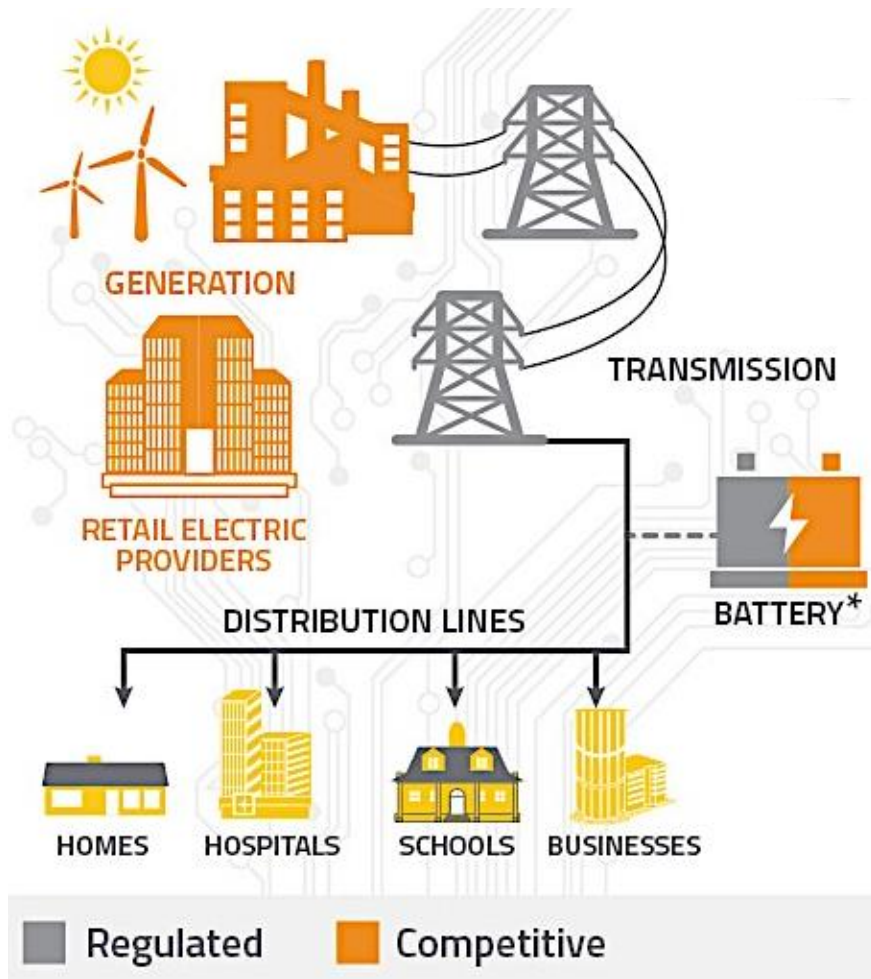
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ENERGY STORAGE: CRITICAL COMPONENT



Grid integrated energy storage is the only technology that allows utilities to accomplish all of the following:

- Improve reliability by providing backup power during short-term outages
- Defer transmission and distribution investment through extending grid element life and optimization of system
- More efficiently and flexibly use existing power resources
- Improve voltage regulation
- Address renewable integration and grid stability

Contact

- Lance Spross, P.E.
- Oncor
- lance.spross@oncor.com
- 214-926-6777

