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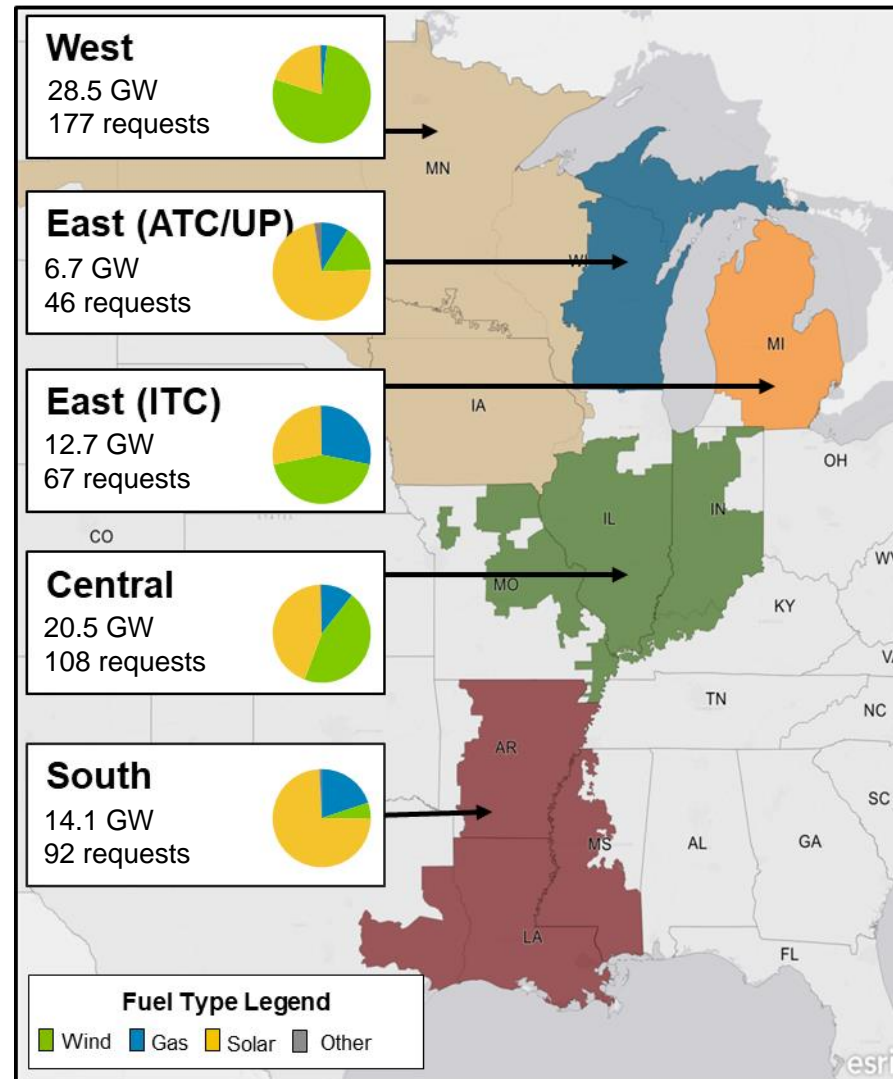


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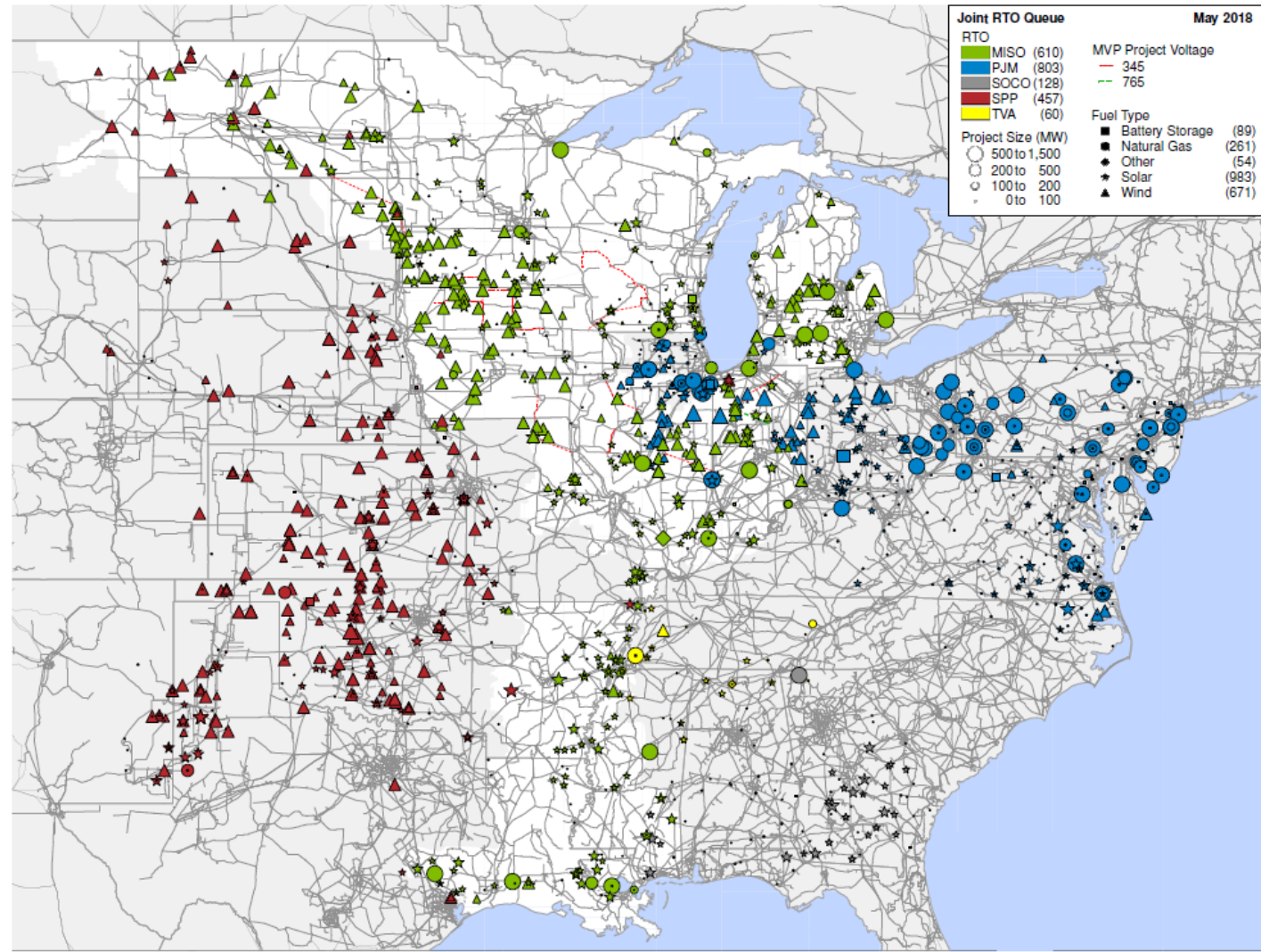
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The MISO resource interconnection queue consists of 490 projects totaling over 80 GW

MISO Active Queue by Study Area



The Eastern Interconnection is experiencing the same phenomenon



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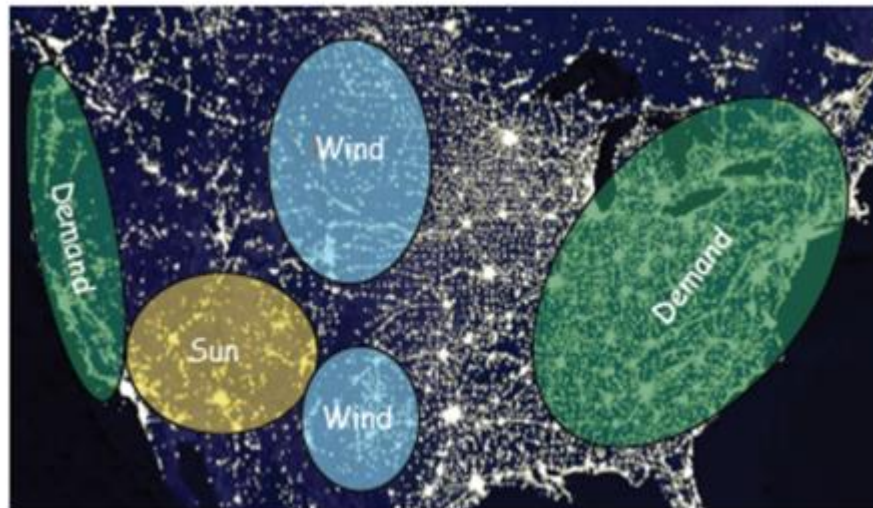
Jodi Moskowitz, Sr. Dir. Trans Strat, Policy & Rates
Public Service Electric and Gas Company

November 13, 2018

How can we ensure that transmission planning processes and cost allocation practices are facilitating beneficial development?



Figure 2- High-Voltage Transmission Network and Substations of the 48 Contiguous States 2015

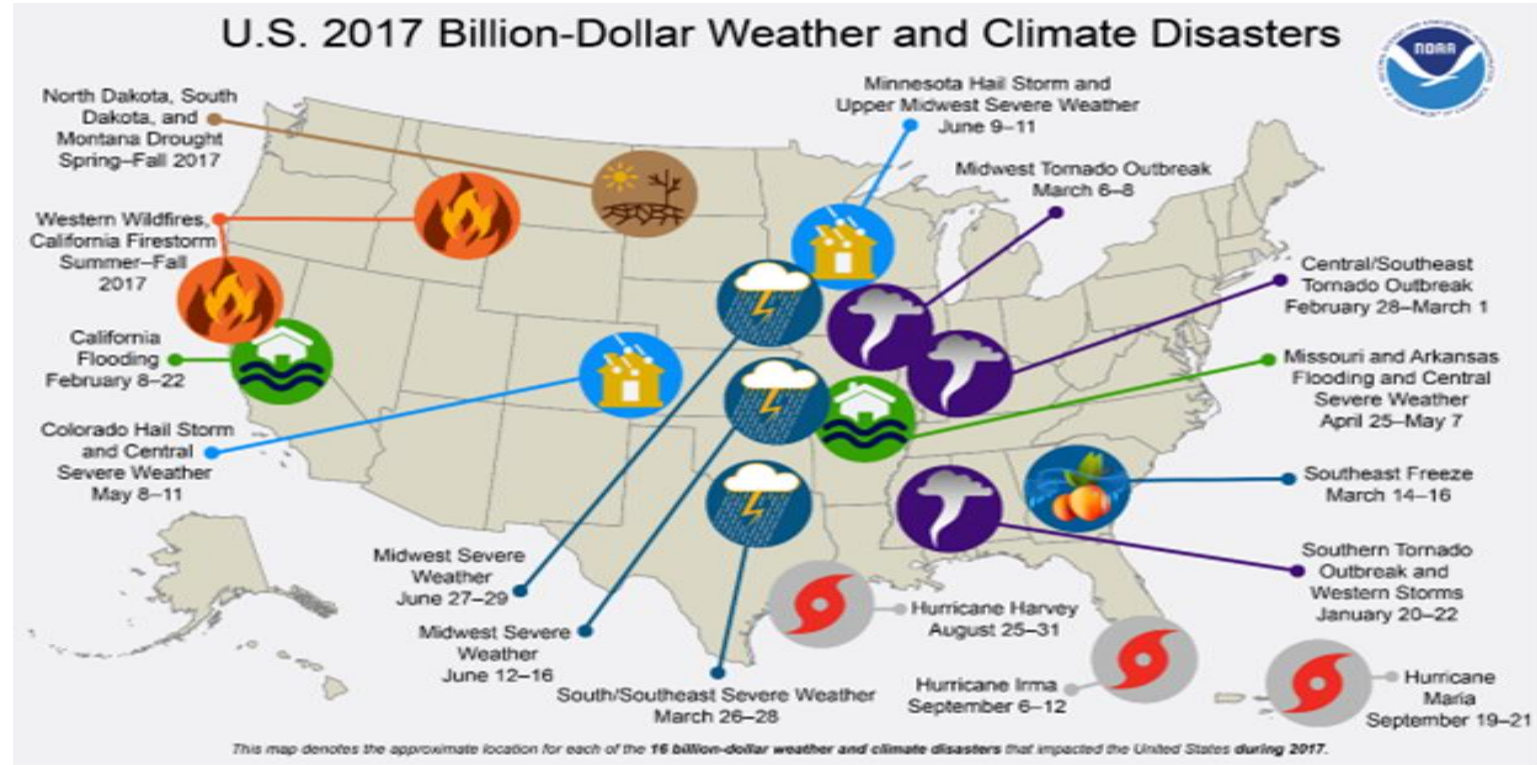


Source: Map based on information from NASA and the National Renewable Energy Laboratory.



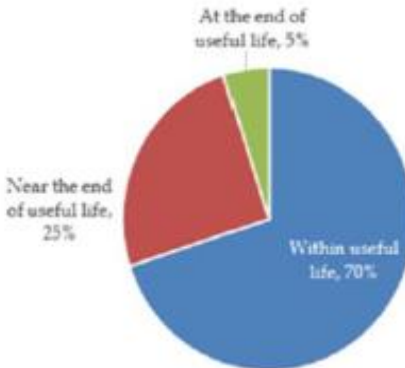
Source: Department of Energy, Quadrennial Energy Review Second Installment (2017)

Challenges and Needs – Reliability and Resiliency



<https://www.climate.gov/news-features/blogs/beyond-data/2017-us-billion-dollar-weather-and-climate-disasters-historic-year>

Figure 9. Current transmission infrastructure age, relative to useful life



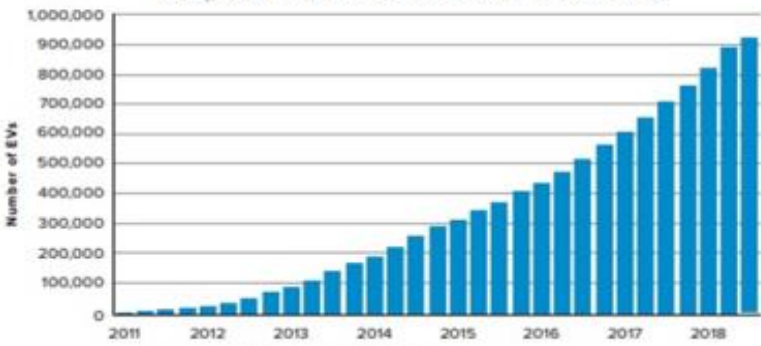
Source: Edison Electric Institute ("EEI") / Harris Williams Co. "Transmission & Distribution Infrastructure." Summer 2014.

http://www.harriswilliams.com/sites/default/files/industry_reports/ep_td_white_paper_06_10_14_final.pdf

Figure 8

ELECTRIC VEHICLES ON THE ROAD

920,000 EVs Are on the Road in the U.S.



Sources: InsideEVs.com and HybridCars.com

3 KEY FACTS

- About 920,000 EVs are on the road in the U.S. (through July 2018).
- Overall, 2018 sales are up 48% compared to 2017.
- As of July 2018, more than \$1 billion of electric company investments in transportation electrification have been approved.

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Transmission Solutions: Potential Cost Savings Offered by Competitive Planning Processes

Discussion Paper

PRESENTED TO



NARUC

National Association of Regulatory
Utility Commissioners

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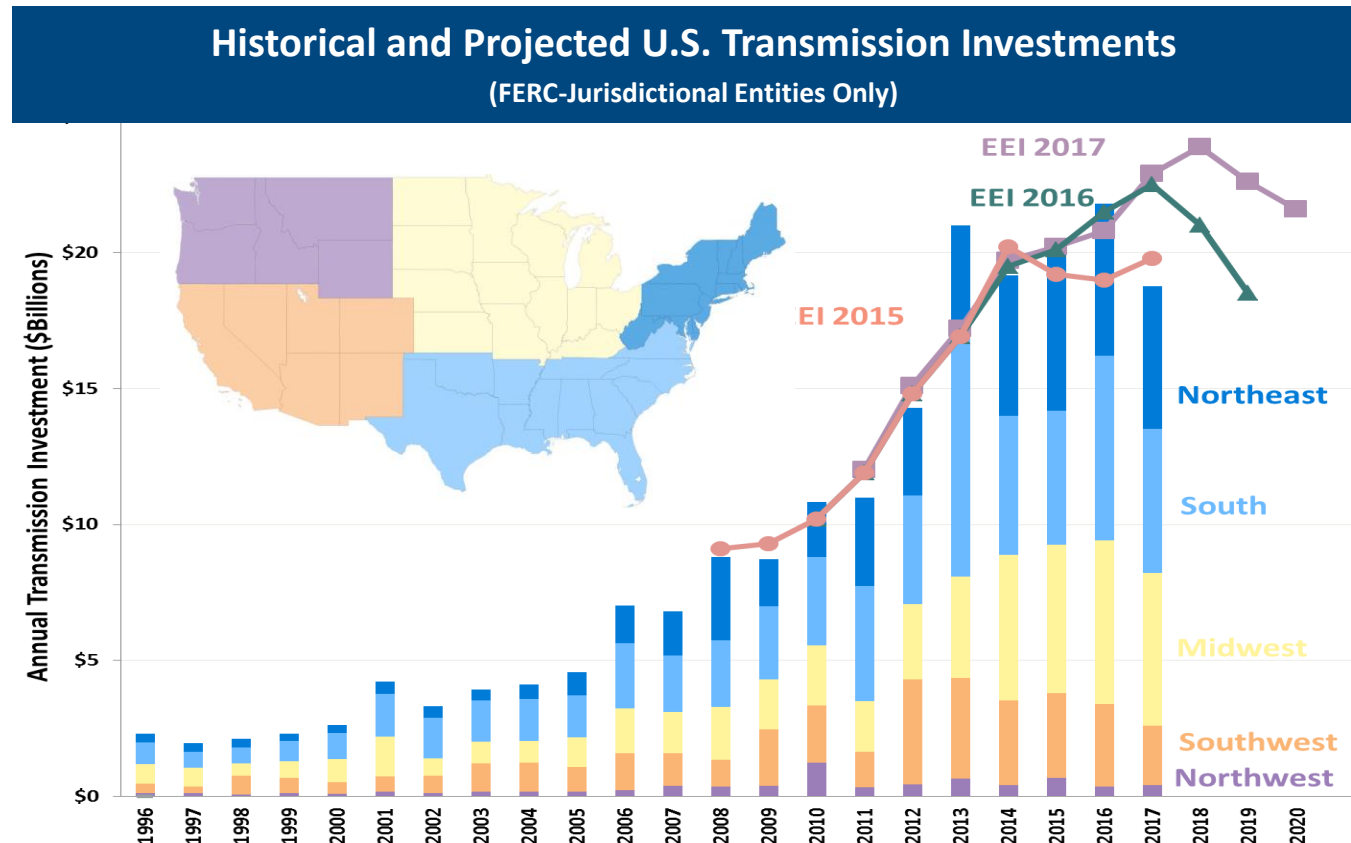


THE **Brattle** GROUP

STUDY HIGHLIGHTS

Historical and Projected U.S. Transmission Investment by FERC-Jurisdictional Entities

U.S. transmission investments have stabilized at approx. \$20 billion/year in the last five years, after rising steadily from \$2 billion/year in 1990s



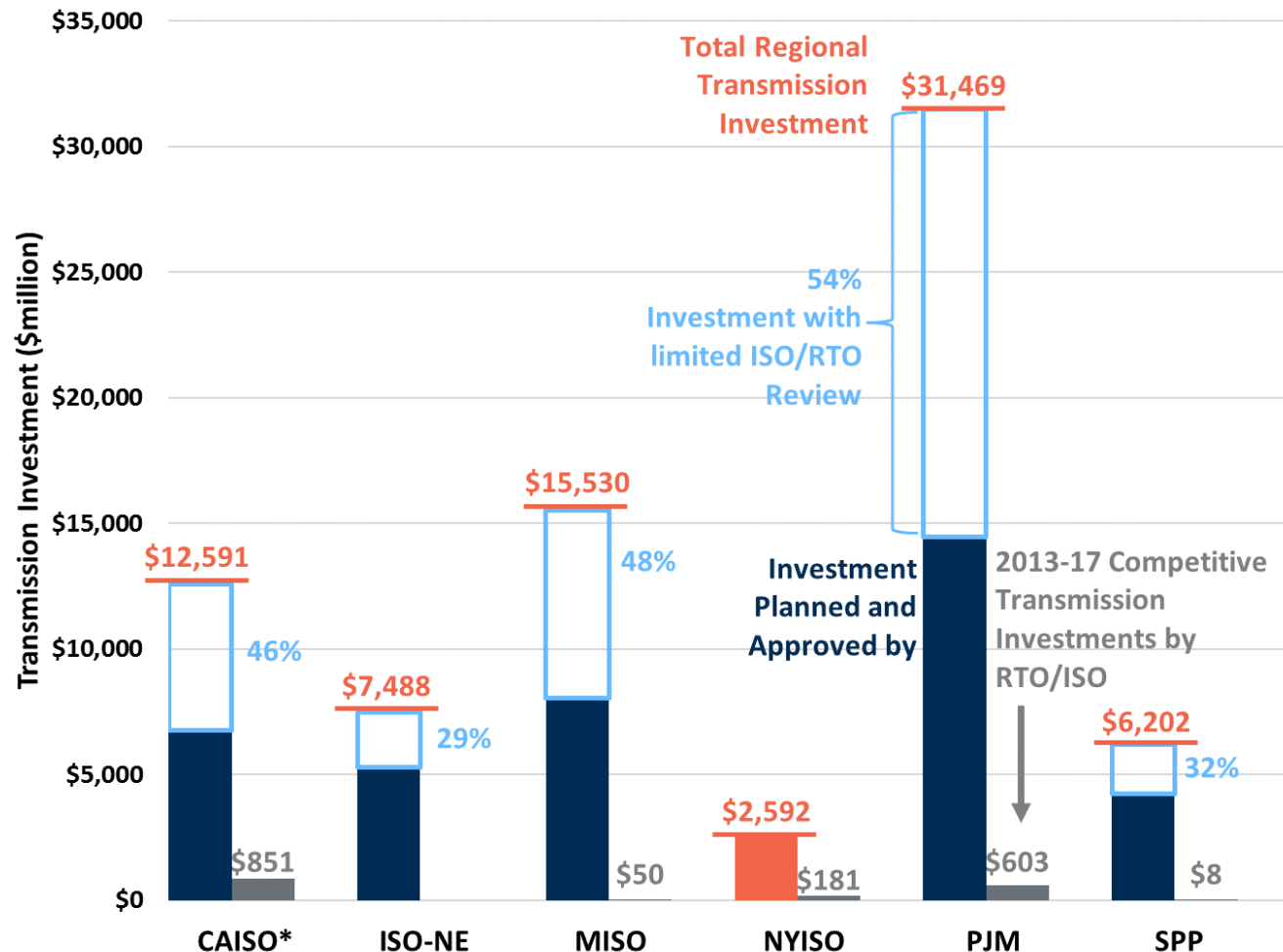
Sources and Notes:

The Brattle Group, © 2018. Regional Investment based on FERC Form 1 investment compiled in Ventyx's Velocity Suite, except for ERCOT for years 2010 - 2017, which are based on ERCOT TPIT reports. Based on EIA data available through 2003, FERC-jurisdictional transmission owners estimated to account for 80% of transmission assets in the Eastern interconnection and 60% in WECC. Facilities >300kV estimated to account for 60-80% of shown investments. EEI annual transmission expenditures updated December 2017 shown (2011 -2020) based on prior year's actual investment through 2016 and planned investments thereafter.

STUDY HIGHLIGHTS

Limited Scope of Full ISO/RTO Planning Review (53%) and Competitive Projects (2%)

2013-17 Transmission Investments: (1) with Full/Limited Review in Regional Planning Processes (2) Subject to Competitive Bidding

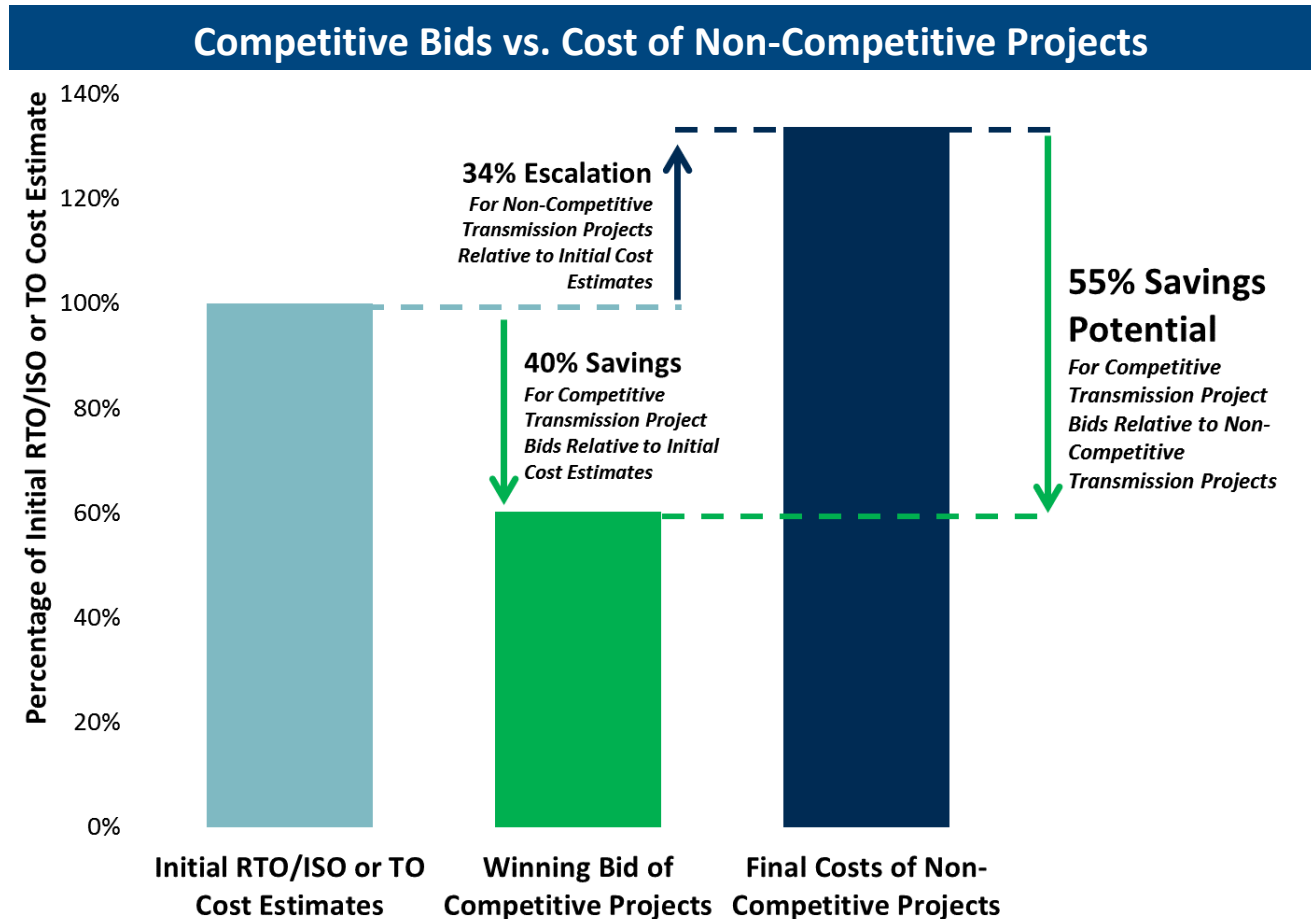


- 47% of total transmission investments across all ISO/RTO regions are not subject to full ISO/RTO and stakeholder review in regional planning processes
- Since 2013, fifteen competitively-bid transmission projects account for only 2% of total transmission investments in ISO/RTO regions

* CAISO full/limited share based on 2013-16 data

STUDY HIGHLIGHTS

Potential Customer Savings from Competitive Transmission Planning Processes (\$8 billion)



Cost savings benefit both customer and transmission owners:

- Customers see lower overall costs
- Transmission owners benefit from keeping transmission a more attractive option to in an energy future of low gas prices and declining cost of wind and solar generation, batteries, and DER technologies

Even if long-term savings were only half this 55% difference and if the scope of competition could be expanded from 2% to 33% of total transmission investments, estimated **customer benefits would be approximately \$8 billion over just five years**

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Session A5

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