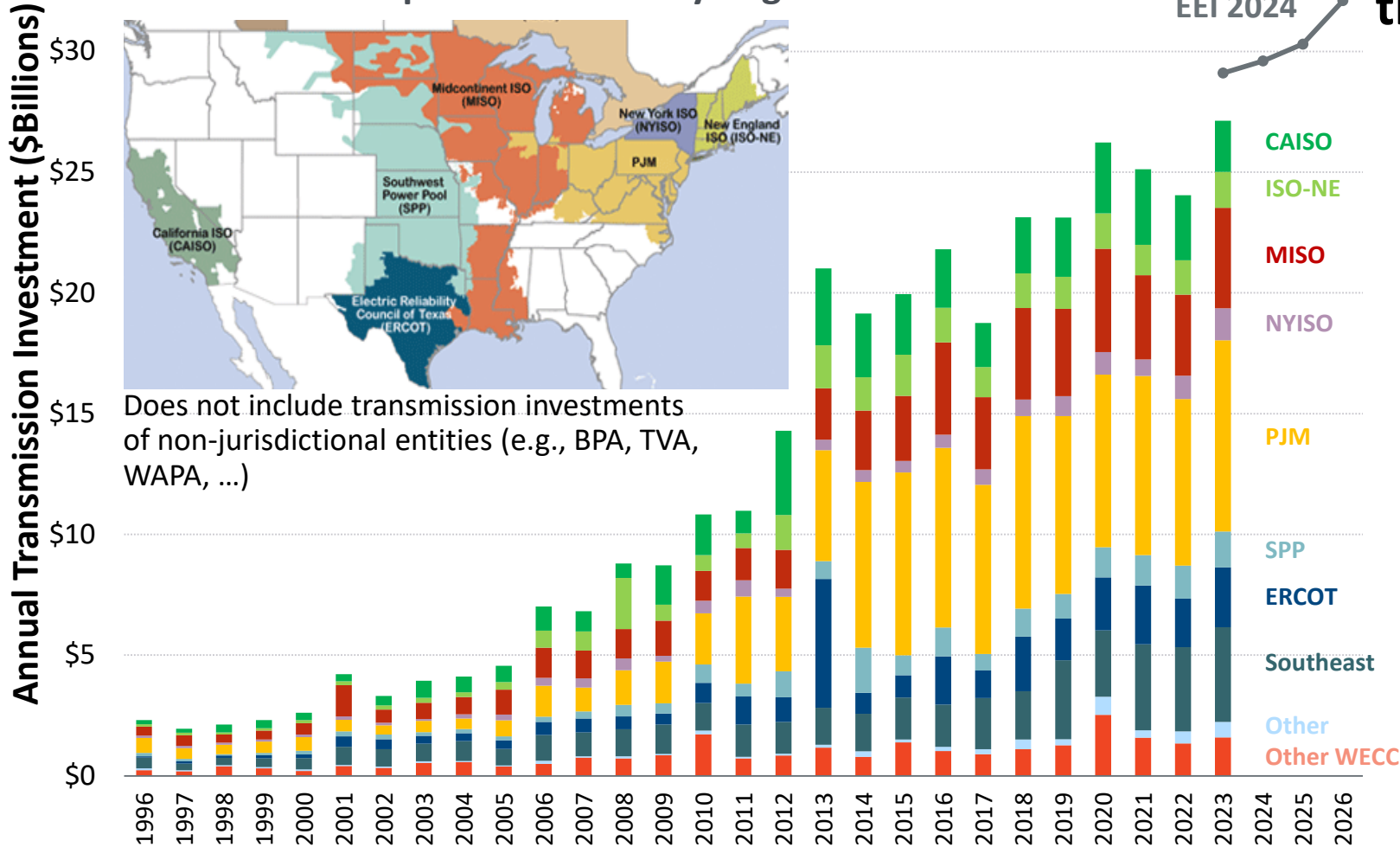


# Annual U.S. Transmission Investments 1996-2023

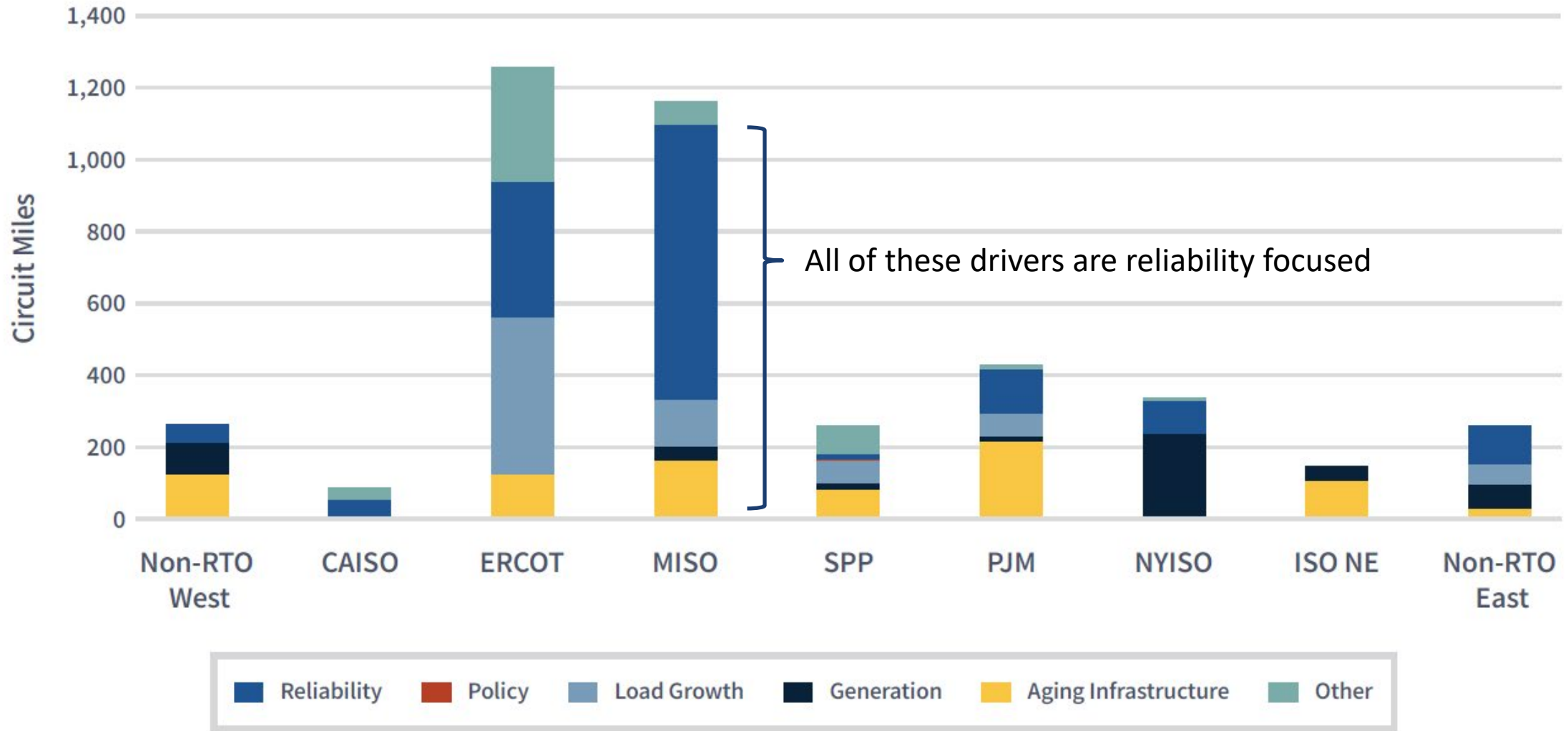
Annual Transmission Investment as Reported to FERC by Region



**\$25+ billion in annual U.S. transmission investments, but:**

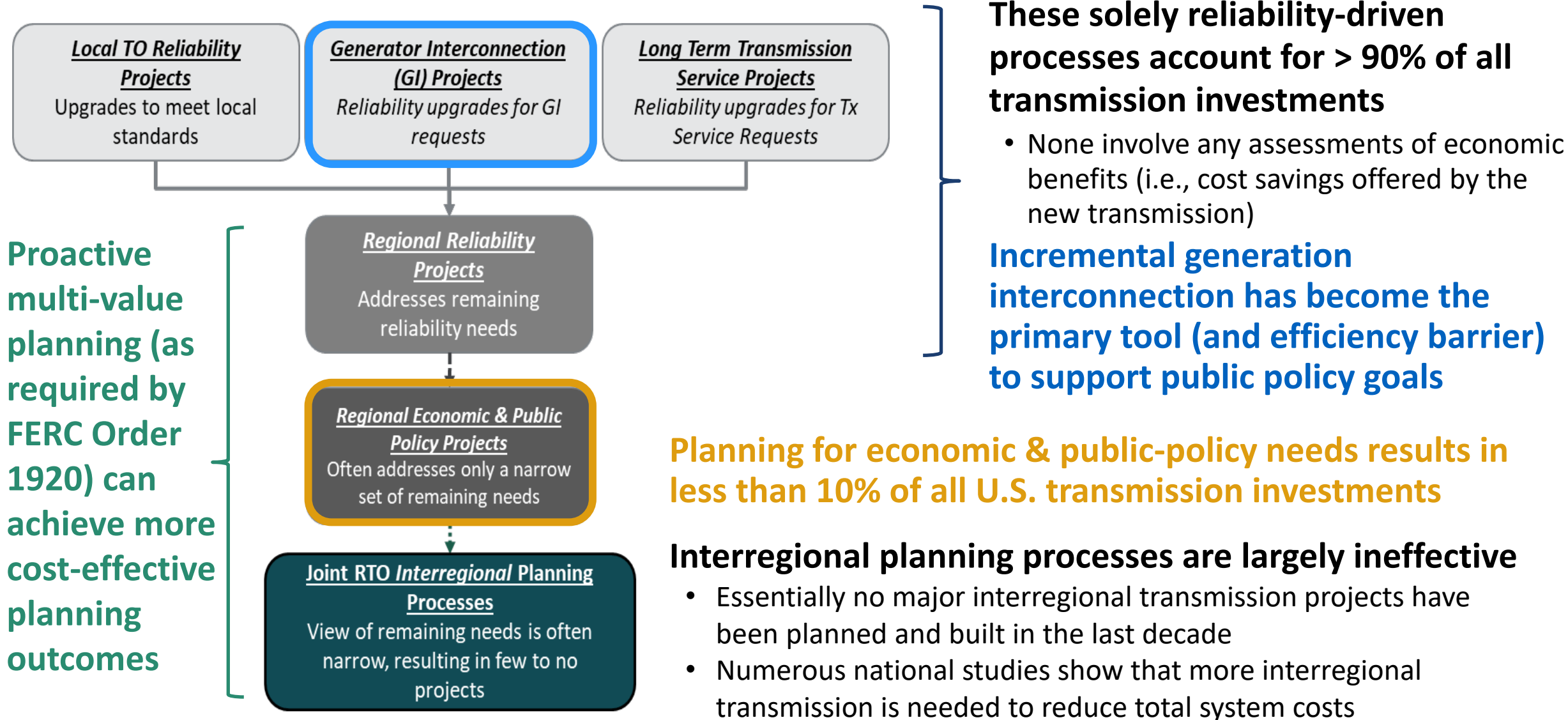
- More than 90% of it justified solely based on reliability needs without benefit-cost analysis
  - About 50% solely based on “local” utility criteria (without going through regional planning processes)
  - The rest justified by regional reliability and generation interconnection needs
- While significant experience with transmission benefit-cost analyses exists, very few projects are justified based on economics to yield overall cost savings
- FERC Order 1920 may change that

# 2023 Transmission Investments by Driver



Source: [FERC Staff Report: 2023 State of the Markets \(March 21, 2024\)](#), Figure 15 (based on C3 Group data)

# Much of the U.S. Continues to Rely on Siloed, Reliability-focused Transmission Planning Processes



# Brattle Group Publications on Transmission

DeLosa, Pfeifenberger, Joskow, [Regulation of Access, Pricing, and Planning of High Voltage Transmission in the US](#), MIT-CEEPR working paper, March 7, 2024.

Pfeifenberger, [How Resources Can Be Added More Quickly and Effectively to PJM's Grid](#), OPSI Annual Meeting, October 17, 2023.

Pfeifenberger, Bay, et al., [The Need for Inertia Optimization: Reducing Customer Costs, Improving Grid Resilience, and Encourage Interregional Transmission](#), October 2023.

Pfeifenberger, Plet, et al., [The Operational and Market Benefits of HVDC to System Operators](#), for GridLab, ACORE, Clean Grid Alliance, Grid United, Pattern Energy, and Allete, September 2023.

Pfeifenberger, DeLosa, et al., [The Benefit and Urgency of Planned Offshore Transmission](#), for ACORE, ACP, CATF, GridLab, and NRDC, January 24, 2023.

Brattle and ICC Staff, [Illinois Renewable Energy Access Plan: Enabling an Equitable, Reliable, and Affordable Transition to 100% Clean Electricity for Illinois](#), December 2022.

Pfeifenberger et al., [New Jersey State Agreement Approach for Offshore Wind Transmission: Evaluation Report](#), October 26, 2022.

Pfeifenberger, DeLosa III, [Transmission Planning for a Changing Generation Mix](#), OPSI 2022 Annual Meeting, October 18, 2022.

Pfeifenberger, [Promoting Efficient Investment in Offshore Wind Transmission](#), DOE-BOEM Atlantic Offshore Wind Transmission Economics & Policy Workshop, August 16, 2022.

Pfeifenberger, [Generation Interconnection and Transmission Planning](#), ESIG Joint Generation Interconnection Workshop, August 9, 2022.

Pfeifenberger and DeLosa, [Proactive, Scenario-Based, Multi-Value Transmission Planning](#), Presented at PJM Long-Term Transmission Planning Workshop, June 7, 2022.

Pfeifenberger, [Planning for Generation Interconnection](#), Presented at ESIG Special Topic Webinar: Interconnection Study Criteria, May 31, 2022.

RENEW Northeast, [A Transmission Blueprint for New England](#), Prepared with Borea and The Brattle Group, May 25, 2022.

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Pfeifenberger, [The Benefits of Interregional Transmission: Grid Planning for the 21st Century](#), US DOE National Transmission Planning Study Webinar, March 15, 2022.

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Pfeifenberger et al., [Transmission Planning for the 21st Century: Proven Practices that Increase Value and Reduce Costs](#), Brattle-Grid Strategies, October 2021.

Pfeifenberger et al., [Initial Report on the New York Power Grid Study](#), prepared for NYPSC, January 19, 2021.

Van Horn, Pfeifenberger, Ruiz, ["The Value of Diversifying Uncertain Renewable Generation through the Transmission System"](#), BU-ISE, October 14, 2020.

Pfeifenberger, Newell, Graf and Spokas, ["Offshore Wind Transmission: An Analysis of Options for New York"](#), prepared for Anbaric, August 2020.

Pfeifenberger, Newell, and Graf, ["Offshore Transmission in New England: The Benefits of a Better-Planned Grid"](#), prepared for Anbaric, May 2020.

Tsuchida and Ruiz, ["Innovation in Transmission Operation with Advanced Technologies"](#), T&D World, December 19, 2019.

Pfeifenberger, ["Cost Savings Offered by Competition in Electric Transmission"](#), Power Markets Today Webinar, December 11, 2019.

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