RTOs: Successes and Challenges
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Consumer Perspective

Questions for reflection:

1) What is the purpose of the energy markets?
2) What is the expectation for reliability?
3) How much will it cost?

Without reflection, we go blindly on our way, creating more unintended consequences, and failing to achieve anything useful.

Margaret J. Wheatley
RTO Successes

- RTOs have functioned well in an environment of surplus, diversified energy sources
  - Operation coordination: Facilitate markets for capacity and energy, but also for non-energy products such as demand response and financial transmission rights
  - Holistic planning: produce an efficient system through a transparent process of regional (rather than local) planning for transmission needs
  - Stakeholder Involvement: provide a platform for member and stakeholder coordination and dispute resolution
Opportunities for Improvement

- RTO rules were designed to manage incremental changes in a balanced stable system
- RTOs processes have been less adaptive to significant shifts in fuel sources and managing physical risks
  - Planning model ill equipped to shifting fuel sources and supply chain risks
  - Market pricing is not supporting new entrants
  - Outage coordination and contingency load shedding, particularly in areas with significant retirements
  - Cross border solutions left on the table
  - Lack of coordination and cost allocation across the RTO seams means that the most cost effective and efficient solutions may not even be considered
- RTO governance must be independent, fair and transparent
RTOs and Order 1000

• Implementing competitive transmission project and developer selection is one of the most significant challenges facing the RTO/ISOs

• Competitive processes for project and developer selection
  – Independent
  – Open and transparent
  – Solicit input from states and other stakeholders
  – Encourage, invite and consider innovative solutions

• Consumer focused
  – Development and identification of lower cost solutions for both renewable integration and reliability essential
## Industry Challenges

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<td>Responsibility based</td>
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> Whatever there be of progress in life comes not through adaptation but through daring.

*Henry Miller*
Appendix
PJM Generation Retirements

- ≈ 9 GW of generation retired in PJM in the past decade
- ≈ 16 GW of generation retirements announced in PJM within the next 3 years
  - ≈ 7 GW retiring in state of Ohio
  - ≈ 3 GW is retiring on the shores of Lake Erie
Breakthrough Overhead Line Design (BOLD)

- AEP has developed a new state of the art double circuit line design capable of providing significantly more throughput capacity than traditional designs.

- Compact arrangement of phases provides:
  - Dramatic (~50%) capacity increase versus traditional 345 kV
  - One-third reduction in structure height
  - Cost competitive ($/MW-mile)