



Capacity Trading Across Balancing Authorities: PJM's Requirements and Lessons Learned

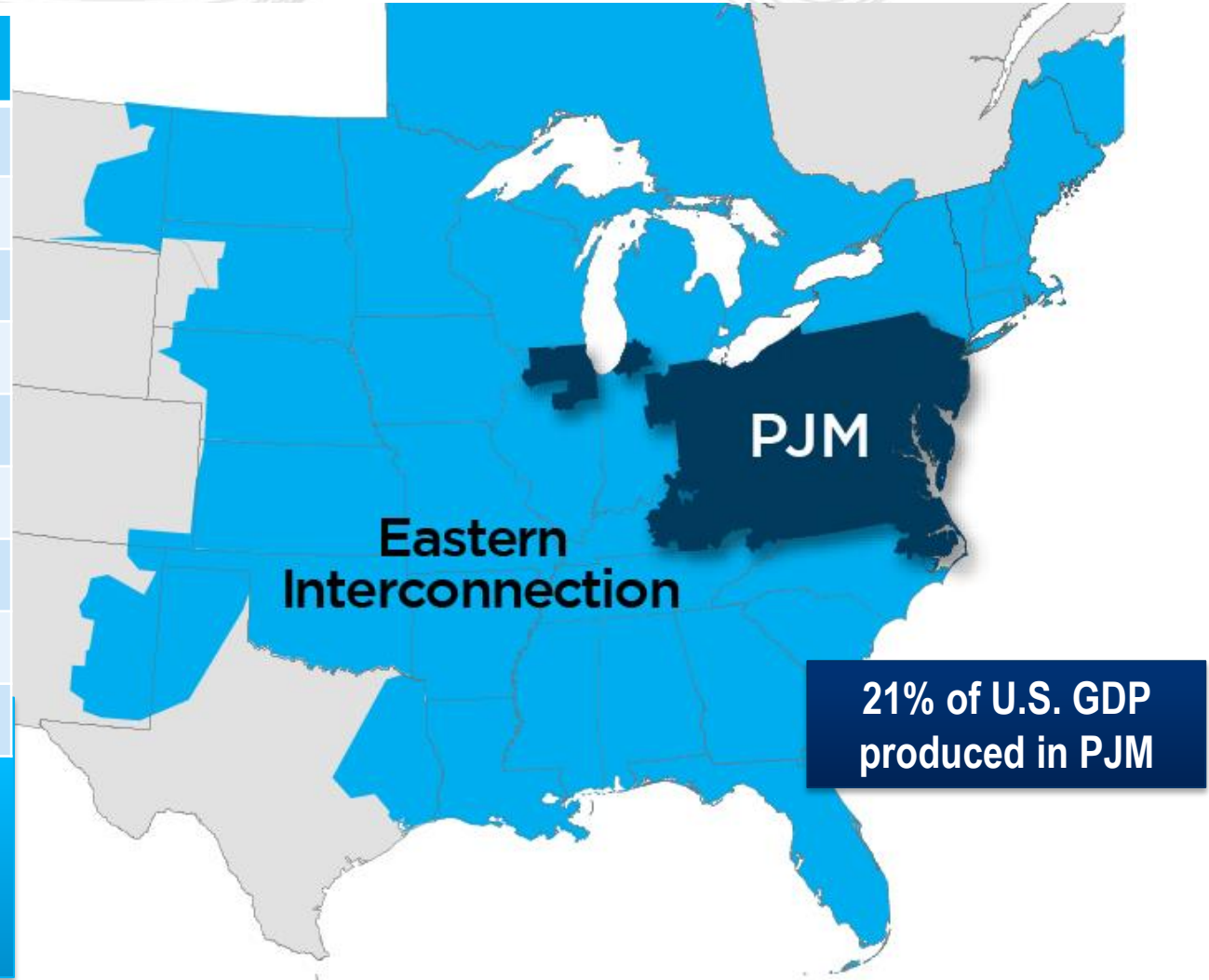
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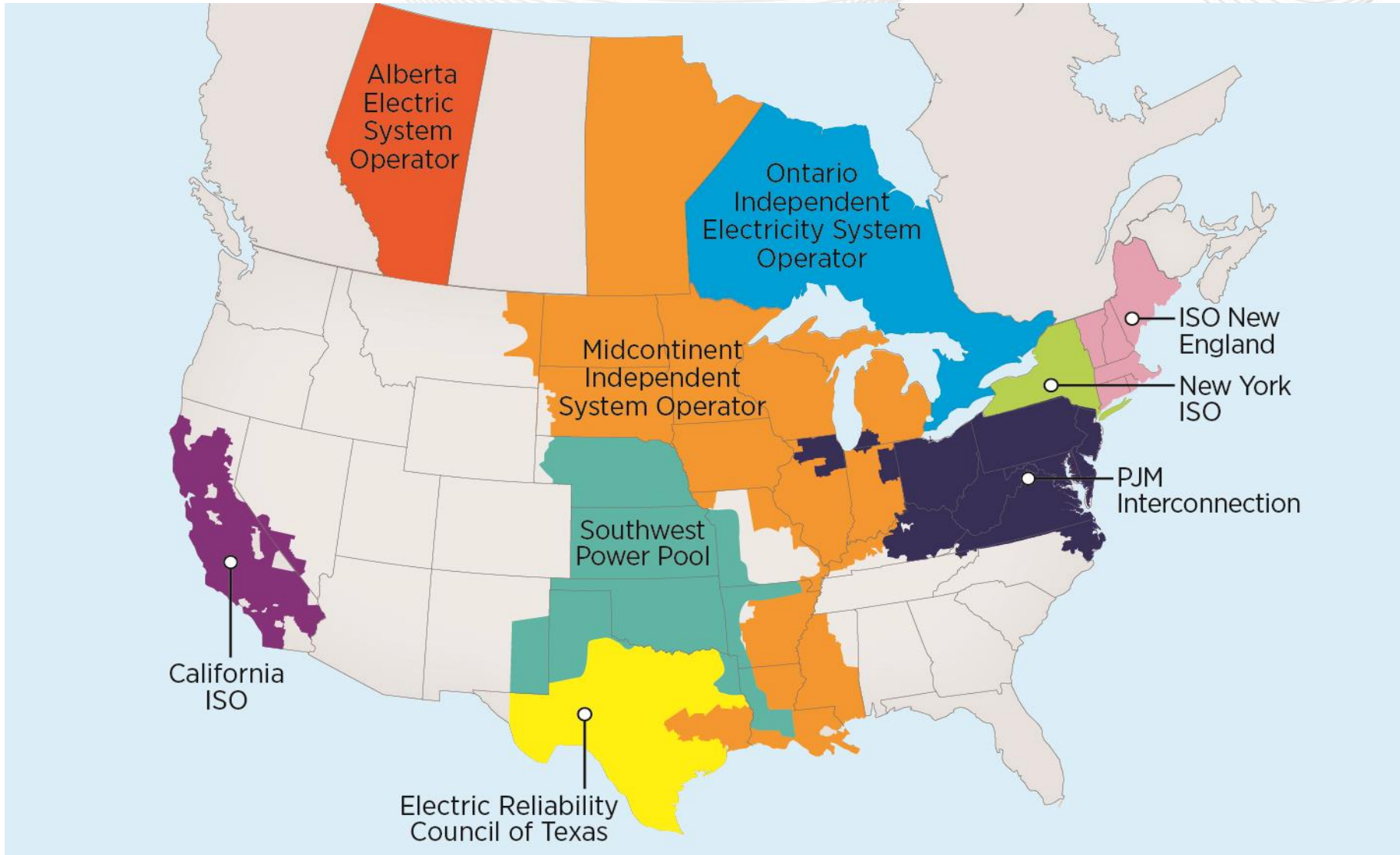
Key Statistics

Member companies	1,040+
Millions of people served	65
Peak load in megawatts	165,492
MW of generating capacity	178,563
Miles of transmission lines	84,042
2017 GWh of annual energy	773,522
Generation sources	1,379
Square miles of territory	243,417
States served	13 + DC

- 27% of generation in Eastern Interconnection
- 28% of load in Eastern Interconnection
- 20% of transmission assets in Eastern Interconnection



As of 2/2018



PJM Capacity Market Features

- Product definition: capacity treated as call right on energy during emergencies
- Time horizon: three-year forward auction
- Deliverability requirements: evolution over time
 - First iteration - Distant units allowed to qualify
 - Second iteration - Capacity import limit - Aggregate deliverability limit recognizing need for deliverability throughout PJM
 - Third iteration - Pseudo-tie arrangements with electrical distance requirements to recognize modeling limitations

Today's Requirements for Capacity Imports

- Firm network service from home balancing authority reviewed by PJM
- Summer and winter net capability testing
- Unit treated as electronically moved to importing balancing authority
- Letter of non-recallability from host balancing authority

Lessons Learned

- Tension between non-discriminatory treatment and accounting for modeling and host balancing authority deliverability standards
- Affect of distance on feasibility of modeling of deliverability
- Need for working arrangements with neighboring balancing authorities to avoid “cherry picking” resources
- Consistency of credit requirements
- Complications to arrangements between neighbors from different philosophies and requirements around capacity



Let's talk ...

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