Perkins Coie

DATA CENTER WEEK 2025

Data Gravity & Energy Demand: Addressing Power Constraints in Expanding Markets

Integrated Resource Planning for the Electric Grid

Agenda

1. ***Regulatory landscape for electric grid planning***
2. ***Why is grid planning important?***
3. ***State resource procurement planning processes***
4. ***Federal resource procurement planning processes***
5. ***Frontier of regulation: transmission-connected large loads***

Presenters

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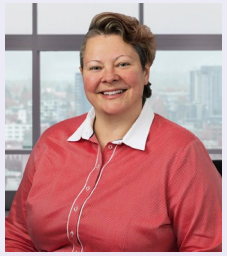

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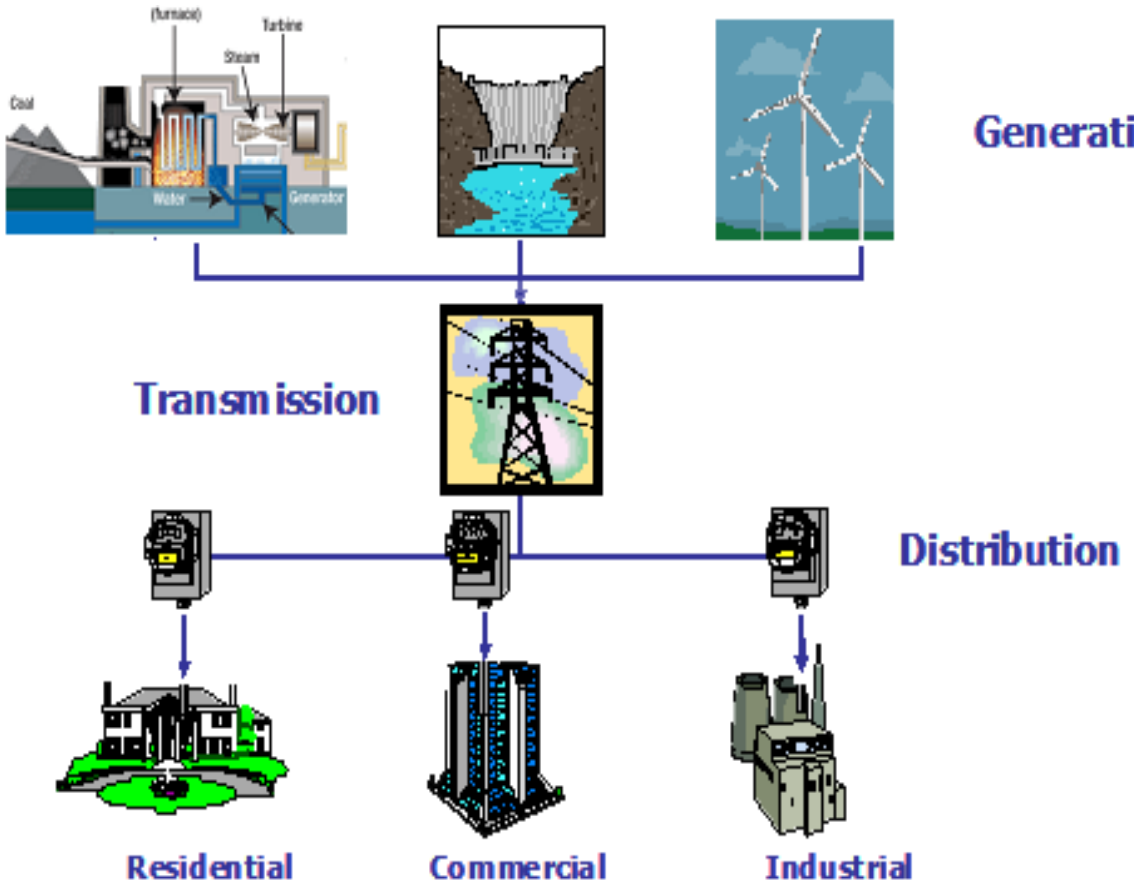
Regulatory Landscape & Why Grid Planning Is Important

Complex Regulatory Landscape

Federal and state interrelated jurisdiction



- Federal regulation of wholesale sales
- State regulation of retail sales to end users
- Interstate transmission regulated by FERC
- Distribution regulated by the states

Why Is Grid Planning Important?

Electric systems require balance:

- Load (amount of power being consumed by users at a given time)
- Capacity (maximum amount of power that a system can produce, e.g., megawatts (MW))
- Energy (total amount of power produced or used over a period of time, e.g., MW hours (MWh))
- Reactive power (necessary to maintain voltage levels, e.g., volt-amperes reactive (MVARs))

Type of resources and where you put them matters

Why Is Grid Planning Important?

Forecasting is critical for planning:

- Capacity and energy needs change over time
- Different resource types offer differing amounts of energy and capacity at varying costs, installation timelines, and depreciable lives
- Different loads have different levels of certainty/ramp rates

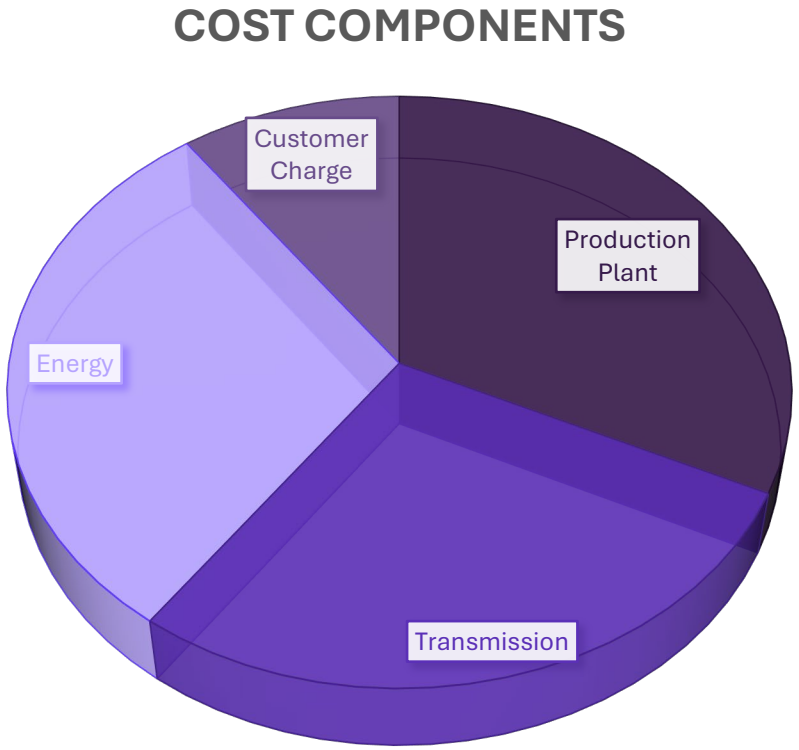
Why Is Grid Planning Important?

Who pays?

- New customers
- Existing customers
- Blend

Special contracts or large load tariffs:

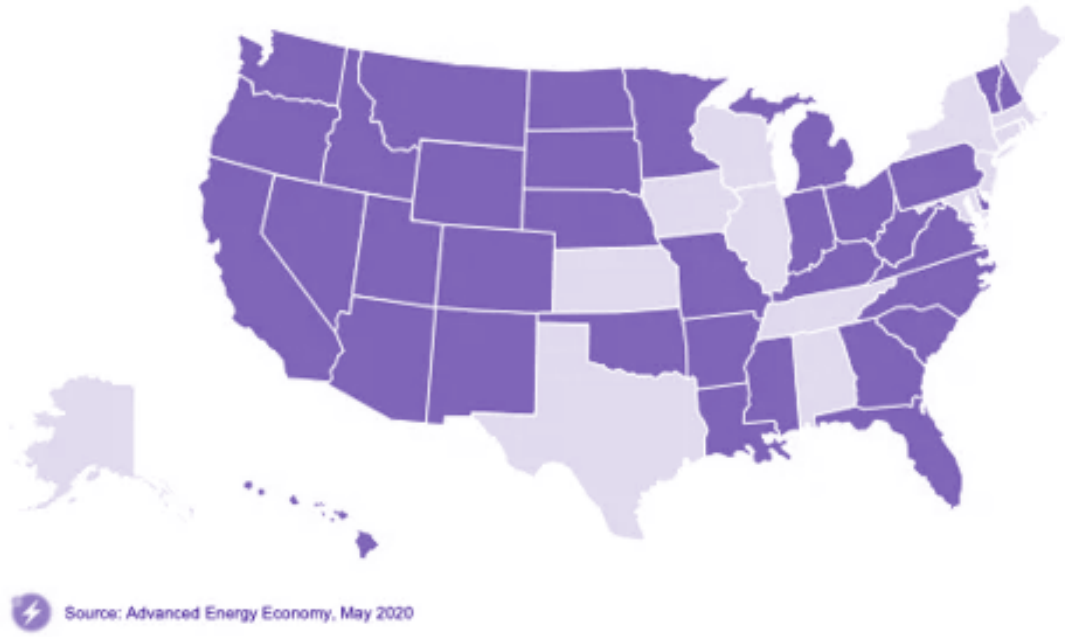
- Standard rates
- Minimum demand charges
- Advance payments
- Exit fees
- Real time market pricing



State Resource Procurement Planning

Utility Integrated Resource Planning

Utilities Required to File an IRP with their PUC



Source: Advanced Energy Economy, May 2020

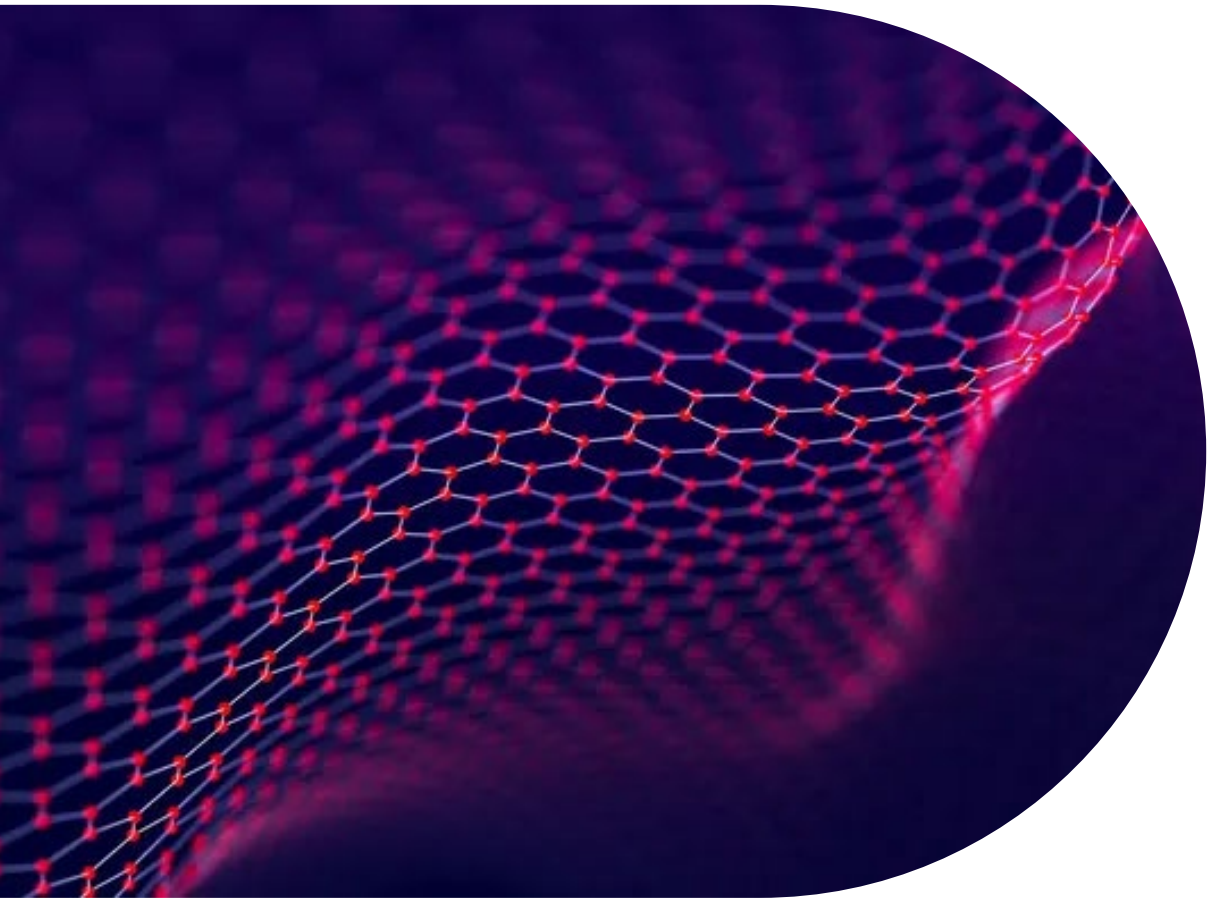
Utility Integrated Resource Planning

Stakeholder Concerns

- Utility
  - Timing (can utility serve new customers in time)
  - Potential for retail competition (in regulated states)
  - Stranded investments
- Customers
  - Timing (can utility meet demand in time)
  - Cost responsibility and payment timing
  - Greenhouse gas emission targets
- State Commission
  - Reliability
  - Impact on existing and new customers
  - State policy goals

Federal Resource Procurement Planning

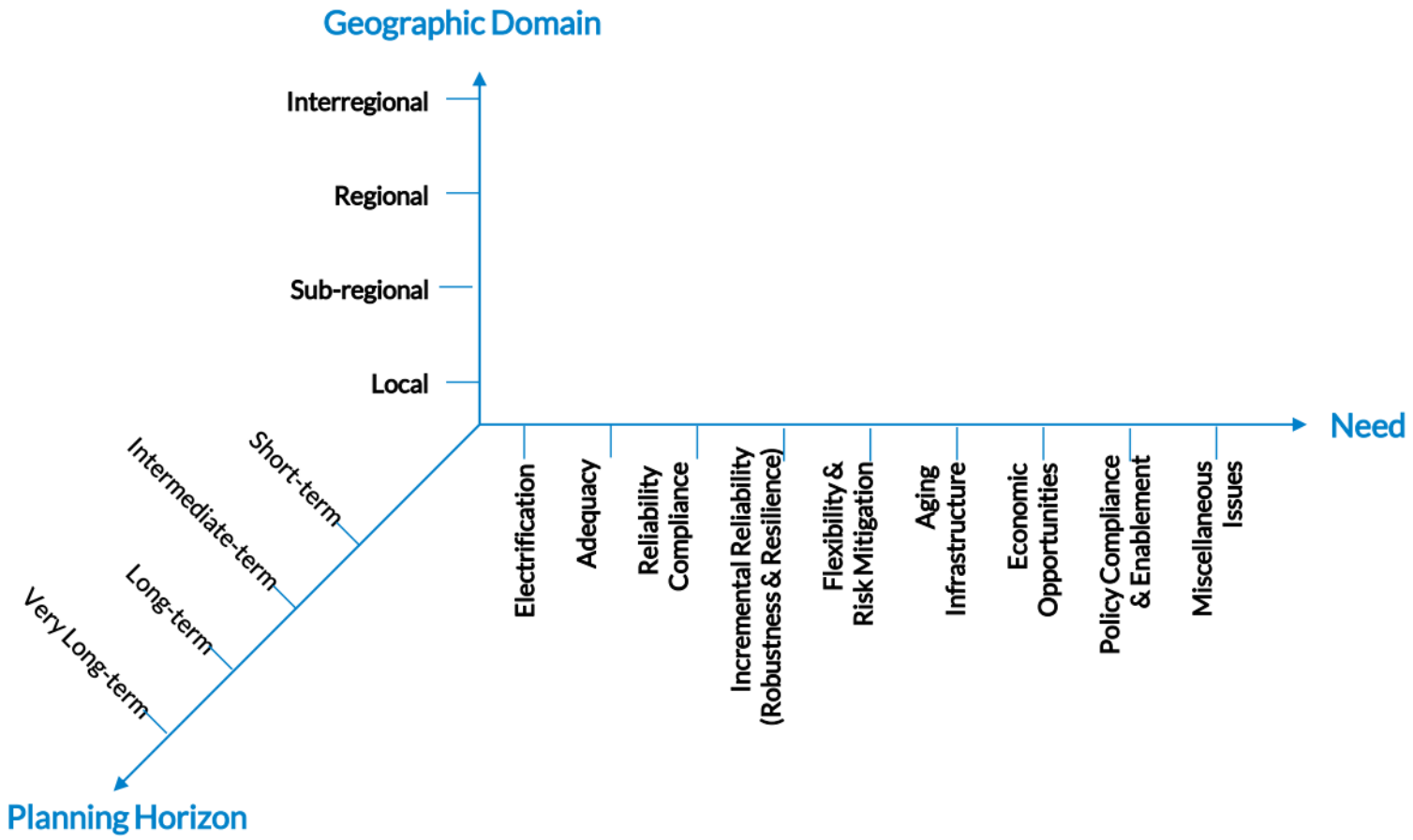
Transmission Planning



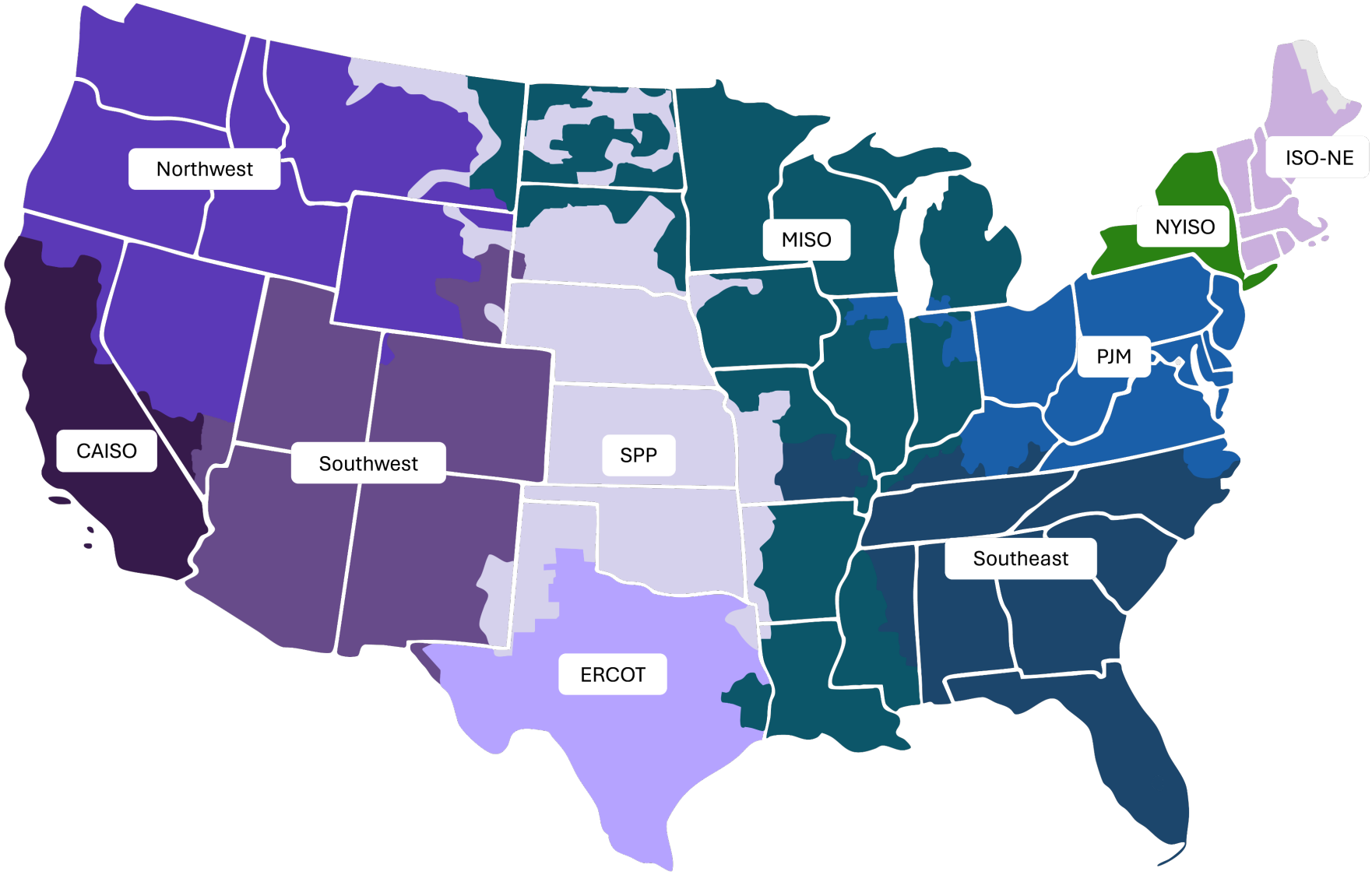
- Regulated by the Federal Energy Regulatory Commission (FERC) as a practice affecting rates for transmission services
- Every transmission utility is required to engage in local planning for its system, as well as regional planning in coordination with neighboring grid operators
- Goal is to identify most efficient upgrades to the grid to maintain reliability and improve efficiency by reducing congestion
- Many stakeholders:
  - utilities
  - developers (generation and transmission)
  - state regulators
  - consumer advocates
  - trade associations

Transmission Planning

Three Planning Dimensions



Significant regional differences in processes and practice; coordinated by utilities or RTO/ISO depending on location



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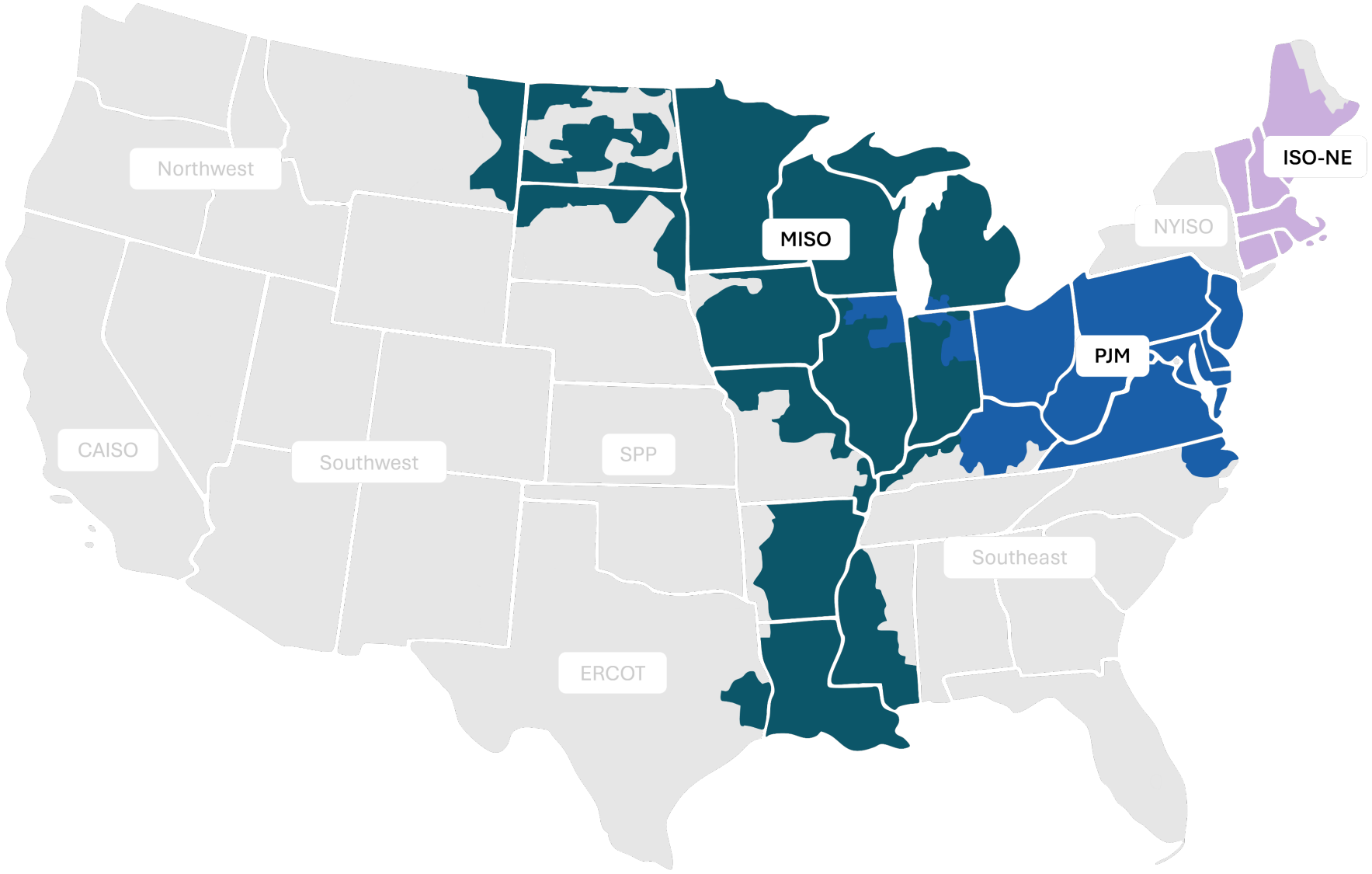

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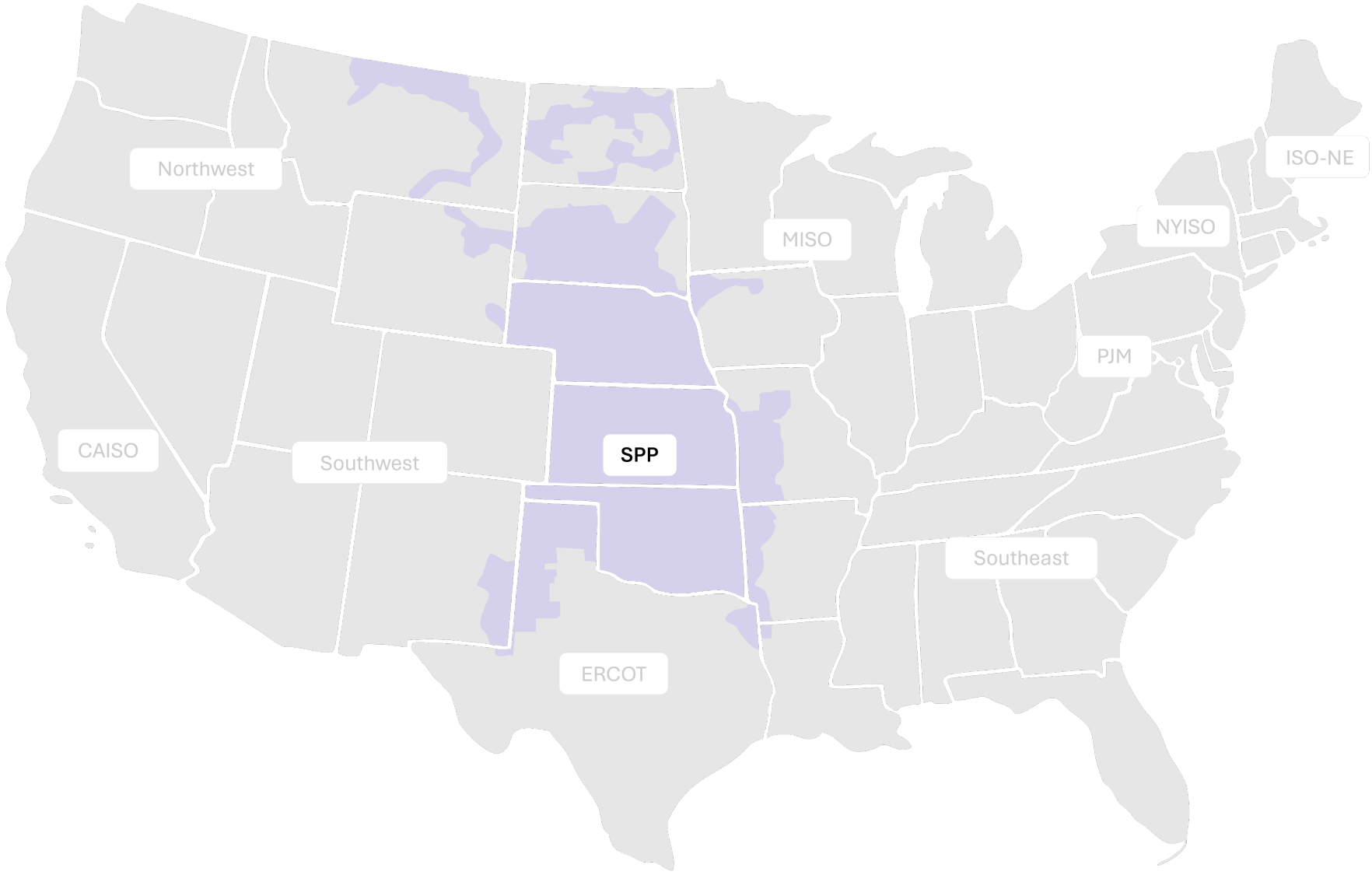

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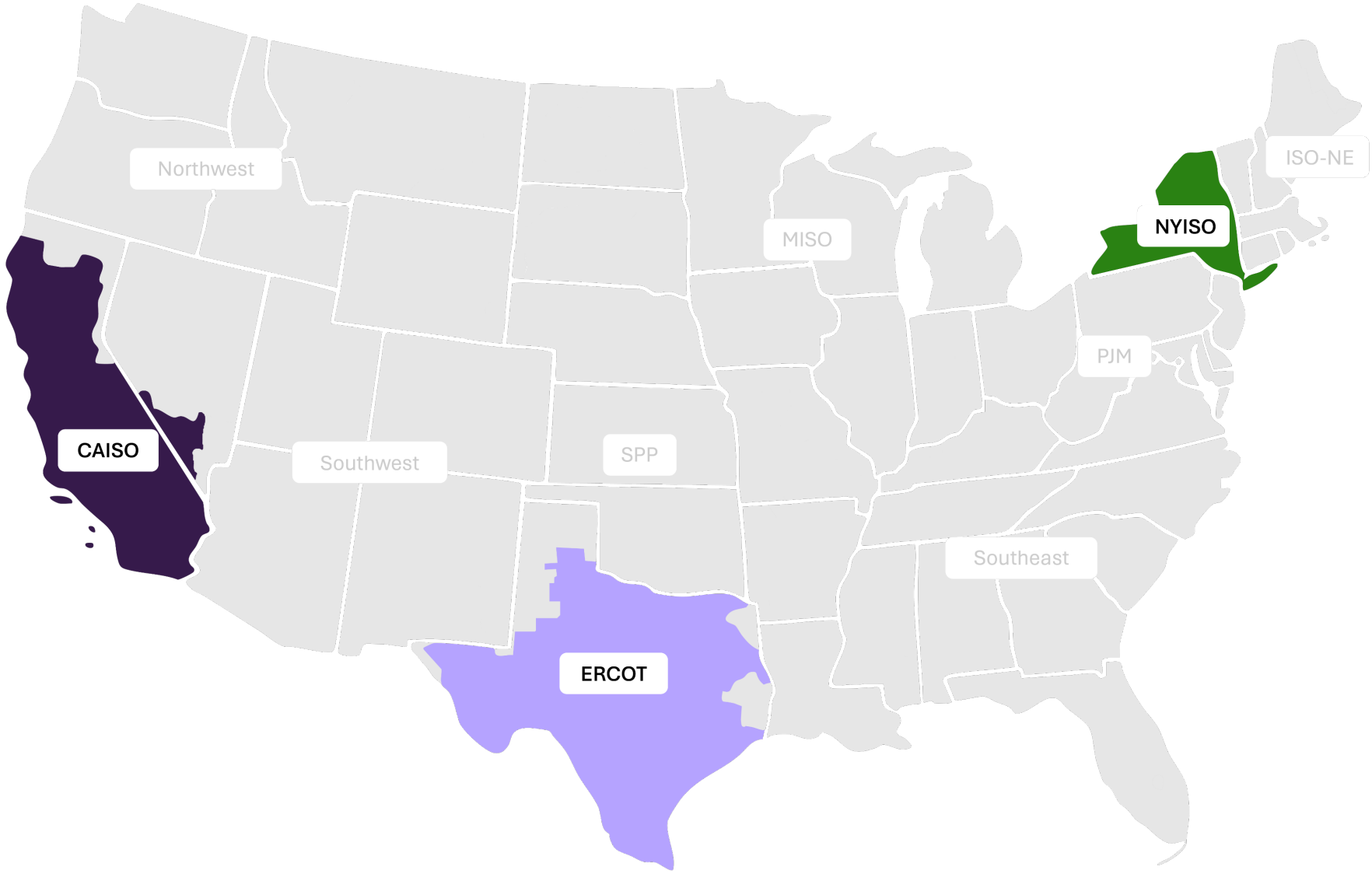

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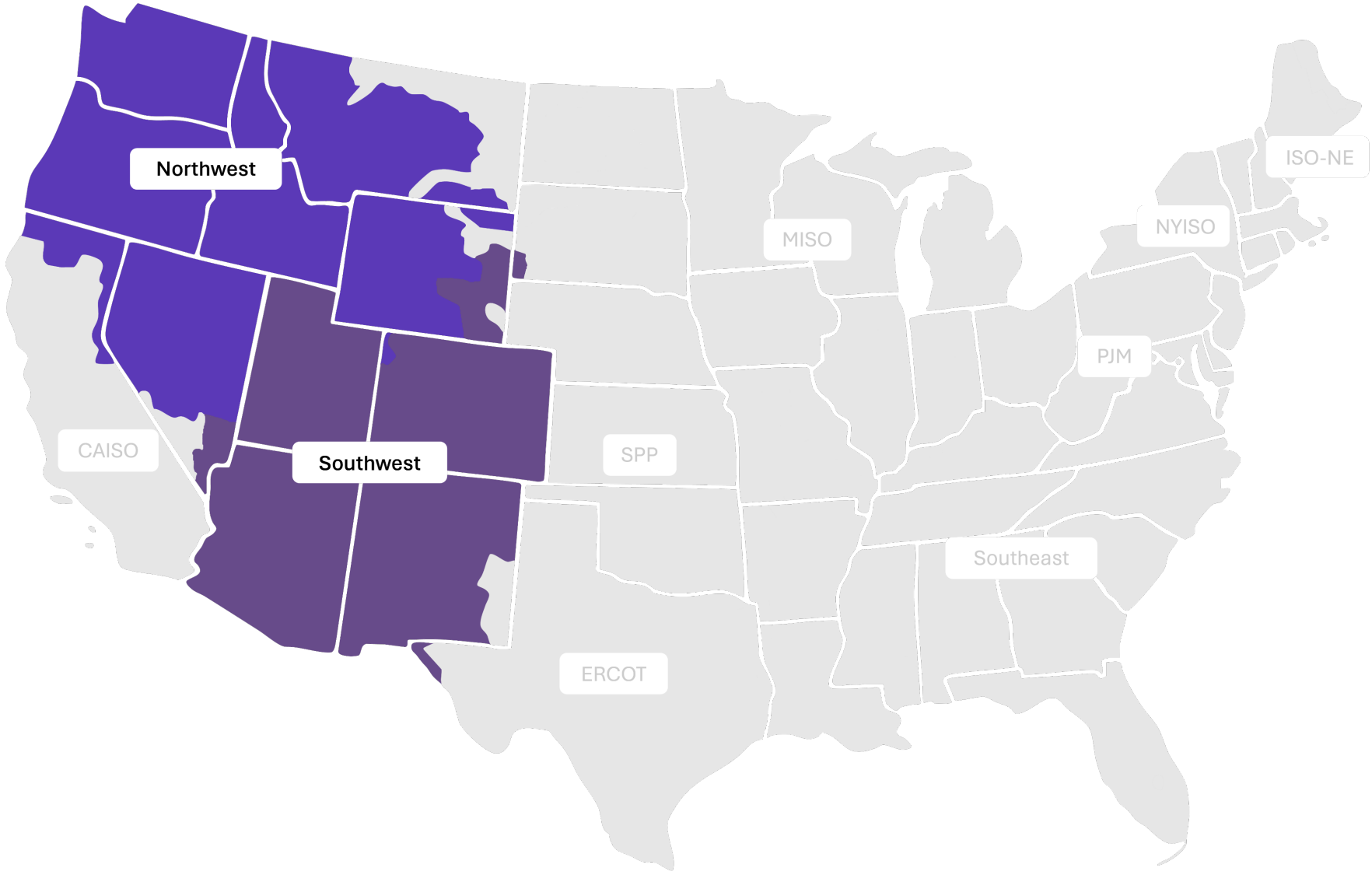

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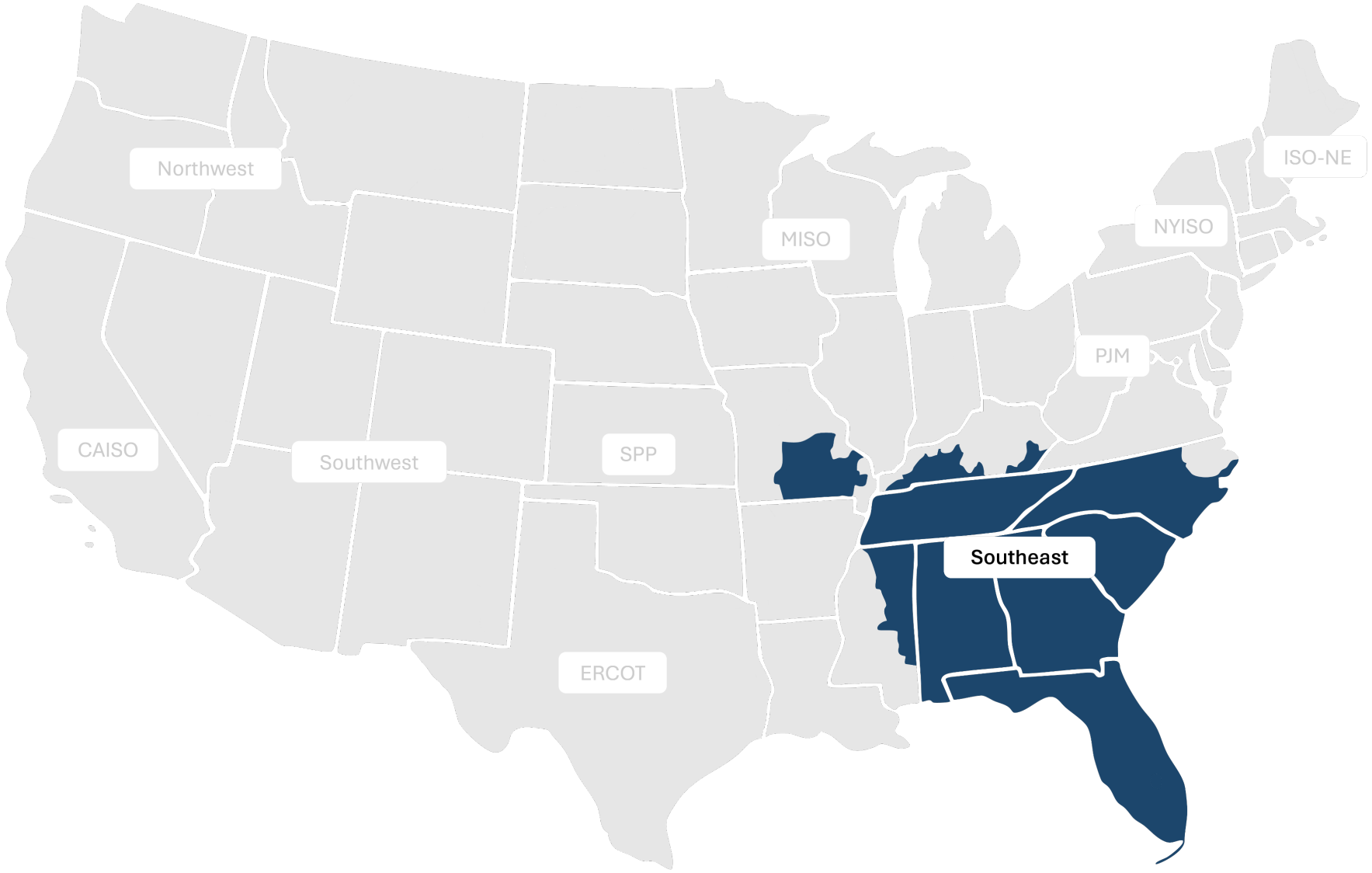
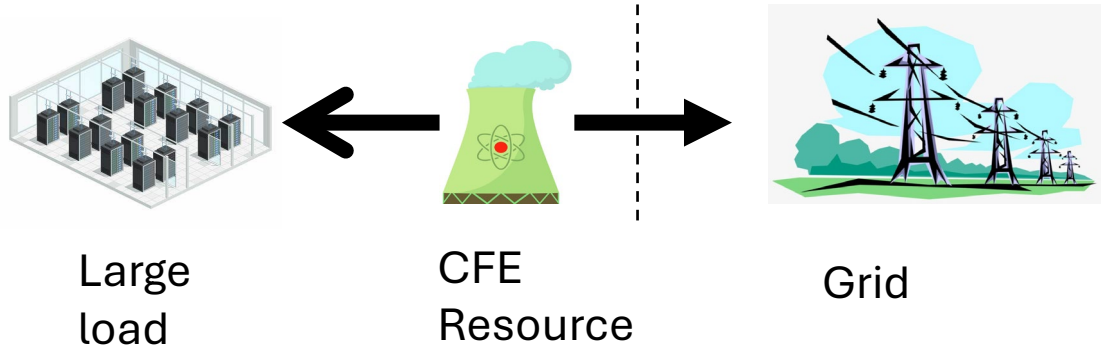


Capacity Procurement

- Capacity is the construct used to ensure that every load serving entity procures enough resources to serve its load, plus a reserve margin
- While state regulatory planning processes oversee additions of capacity to the system, in some regions some control over capacity procurement has been ceded to markets
- Every region is different:
  - Mandatory 3-year forward commitments
  - Voluntary 1-year forward commitments
  - State run procurement
  - Utility procurement
- Do capacity markets fix a “missing money problem”? Or do they mean free money for developers on the backs of consumers? The debate continues…

Frontier of Grid Resource Planning

Co-Located Generation + Load



- Existing and new generating resources seek to serve large new loads behind the resource meter.
- In some cases, existing clean energy resources (such as nuclear) want to remove capacity from the markets (serving general grid reliability) in order to serve behind-the-meter loads directly.
- Raises unresolved regulatory questions:
  - Is it fair to allow large loads to divert capacity that otherwise serves the grid?
  - Are those loads still receiving grid benefits for which they ought to pay? If so, how much?
  - How do grid operators plan for reliable service with proliferating structures?
  - Who regulates the connection to the transmission system – FERC (jurisdiction over transmission service) or the state (jurisdiction over end use supply)?

CLE Code Word

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