



Energy solutions
for a changing world

Encouraging Transmission Investment for Clean Energy

Regulatory Policy Examples

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Transmission regulation

- Network monopoly providing essential public services – regulation is appropriate and essential
- Purposes of transmission regulation?
 - Ensure reliability and security of supply;
 - Promote competitive and efficient markets: equal access, cost allocation, and cost recovery
 - **AND ALSO: to advance societal objectives, including enabling a clean energy transition**

US Background

- Bulk Transmission is regulated by FERC;
- North American Electric Reliability Council oversees reliability standards;
- But states (each with an independent regulator) control transmission siting, generation, distribution, and retail sales;
- Important regional markets (RTOs and ISOs) create needs for interconnections, larger balancing areas;
- FERC Order 1000 now affecting the industry -- a major Order addresses both planning and cost allocation

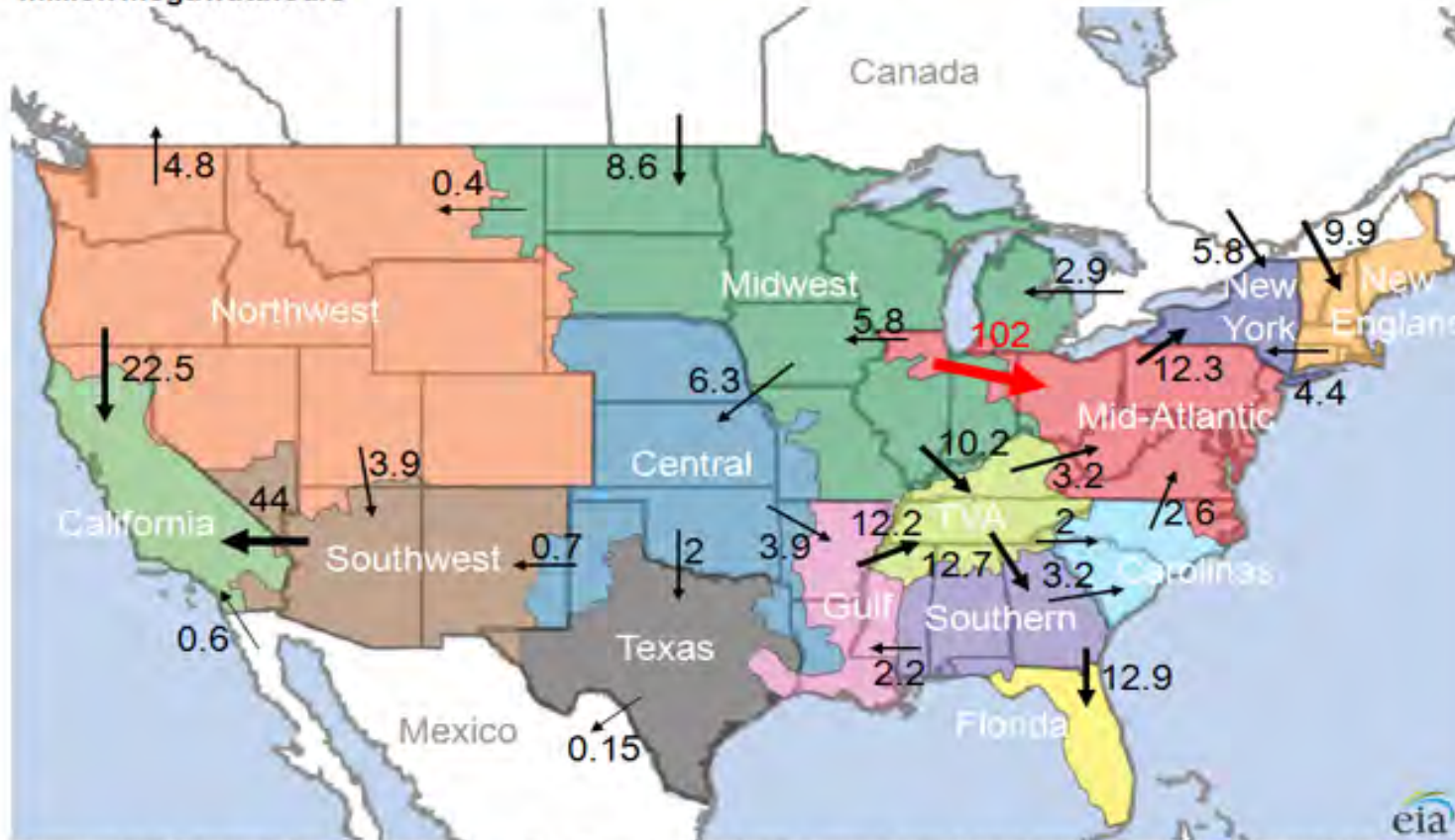
4 Regulatory Policy Innovations

1. Public, multi-stakeholder transmission planning processes
2. Financial incentives for transmission investments
3. Renewable power transmission zones
4. Non-transmission alternatives

1. Substantial inter-regional flows drives need for neighboring regions to coordinate plans – FERC Order 1000 now requires this

Electricity tends to flow south in North America

Annual net power flows among regions in North America, 2010
million megawatthours



Source: U.S. Energy Information Administration, based on Federal Energy Regulatory Commission (FERC) Form 714 data.

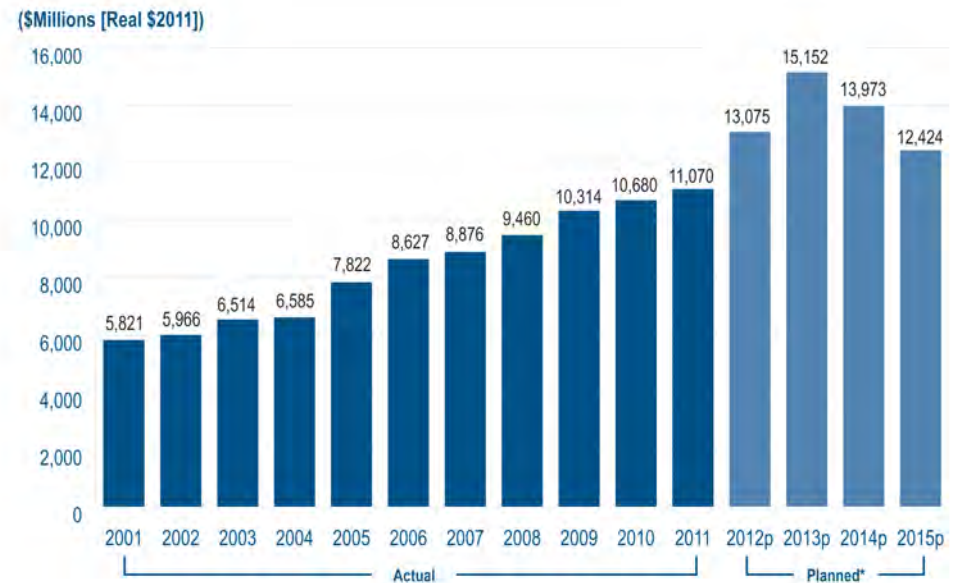
FERC Order 1000 planning requirements

- Public utility transmission providers are required to participate in a regional transmission planning process
- **Stakeholders** must have an opportunity to participate in identifying and evaluating potential solutions to regional needs
- Local and regional **transmission planning processes must consider transmission needs driven by public policy requirements** established by state or federal laws or regulations
- Public utility transmission providers in each pair of neighboring transmission planning regions **must coordinate** to determine if more efficient or cost-effective solutions are available

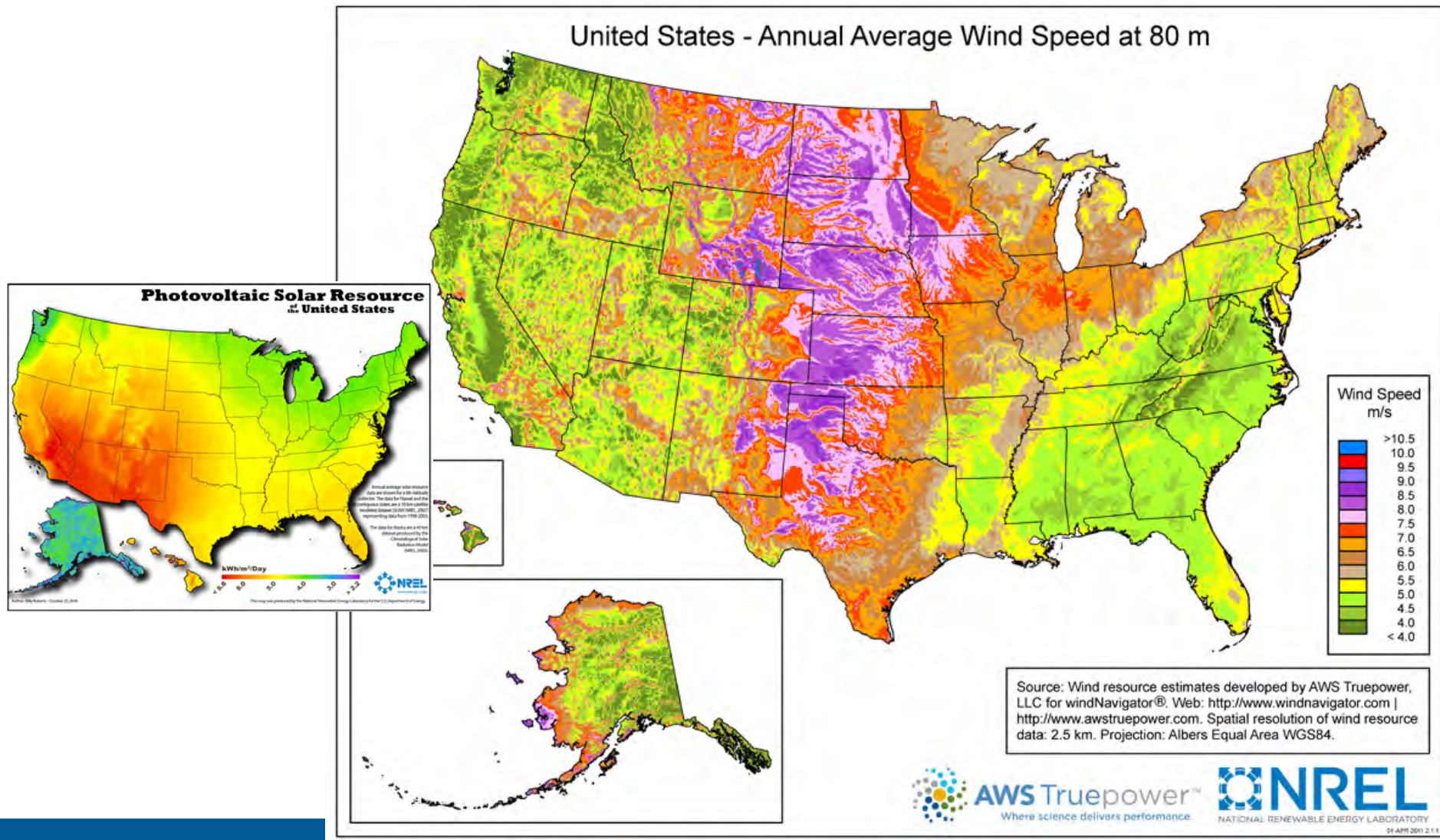
2. Financial Incentives for Investment

(annual investments roughly doubled since 2004)

- Federal law (2005) – FERC to give financial incentives for Transmission investments
- At first: FERC enhanced ROE for Tx broadly.
- Recently, FERC adjusted the rules – now more tailored.
- Higher ROE for TOs that participate in regional Tx organizations
- Allowed recovery of CWIP, accelerated depreciation, etc
- “Socializing” Regionally-important/Reliability projects



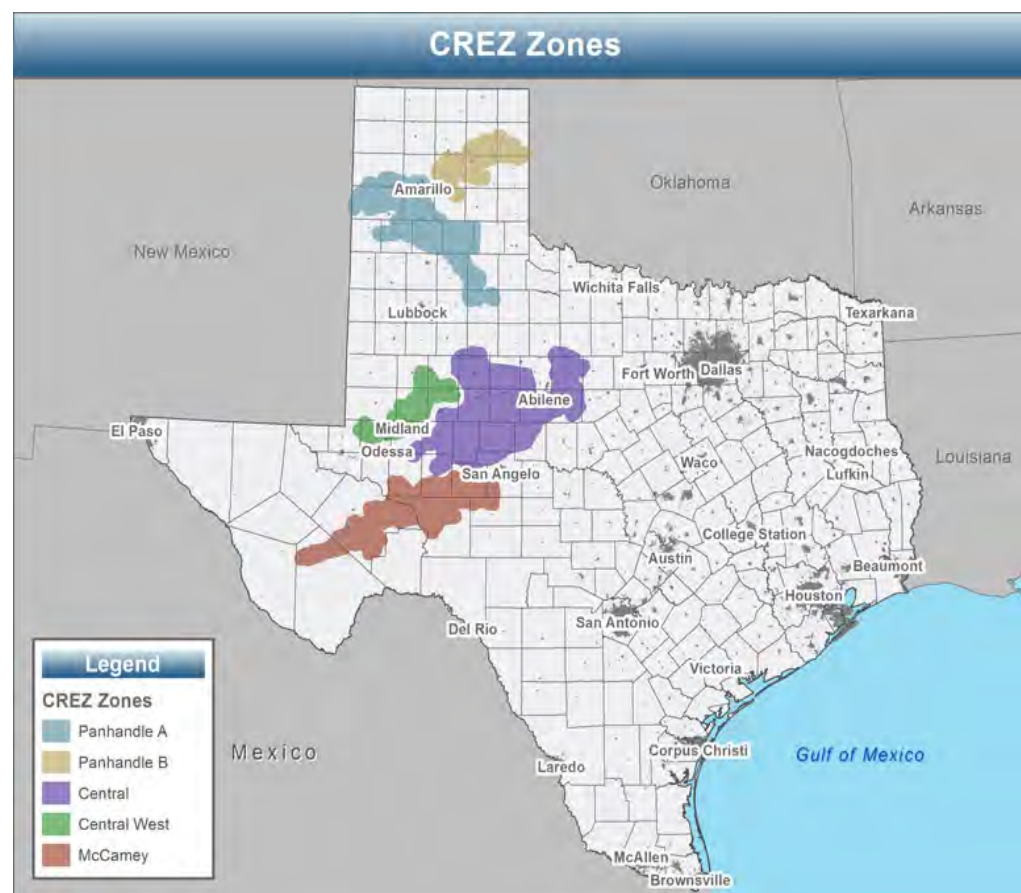
3. As in Europe, Renewable Resources and Loads are not in the same places



3. Texas – CREZ

Competitive Renewable Energy Zones

- CREZ = area with large wind potential but not adequate transmission
- 2007: Texas PUC (regulator) revised the state's Renewables standard to define CREZ zones and plan new transmission
- 2008: PUC approved ~\$5 Billion in new lines (transmission and feeders) to serve over 18 GW of new wind in 5 CREZ zones



4. Non-Wires Solutions – Bonneville Power Administration example

- Bonneville Power is a federal, regional transmission agency serving a large region in the NW United States.
- NWS are non-traditional solutions, such as distributed generation, demand exchange, demand response, and conservation measures, that may keep costs down, while maintaining reliability.
- Often constraints on the transmission system are 40 hours or less during extreme weather, in any given year. The traditional approach would be construction of a multi-million dollar transmission line. NWS may be far less expensive and just as reliable.
- Example projects: Orcas Island (conservation while replacing damaged underwater cable) and Puget Reinforcement Project (conservation plus series capacitors, etc. that avoided voltage collapse and delayed construction of new transmission over Cascades by 10 years)



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About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

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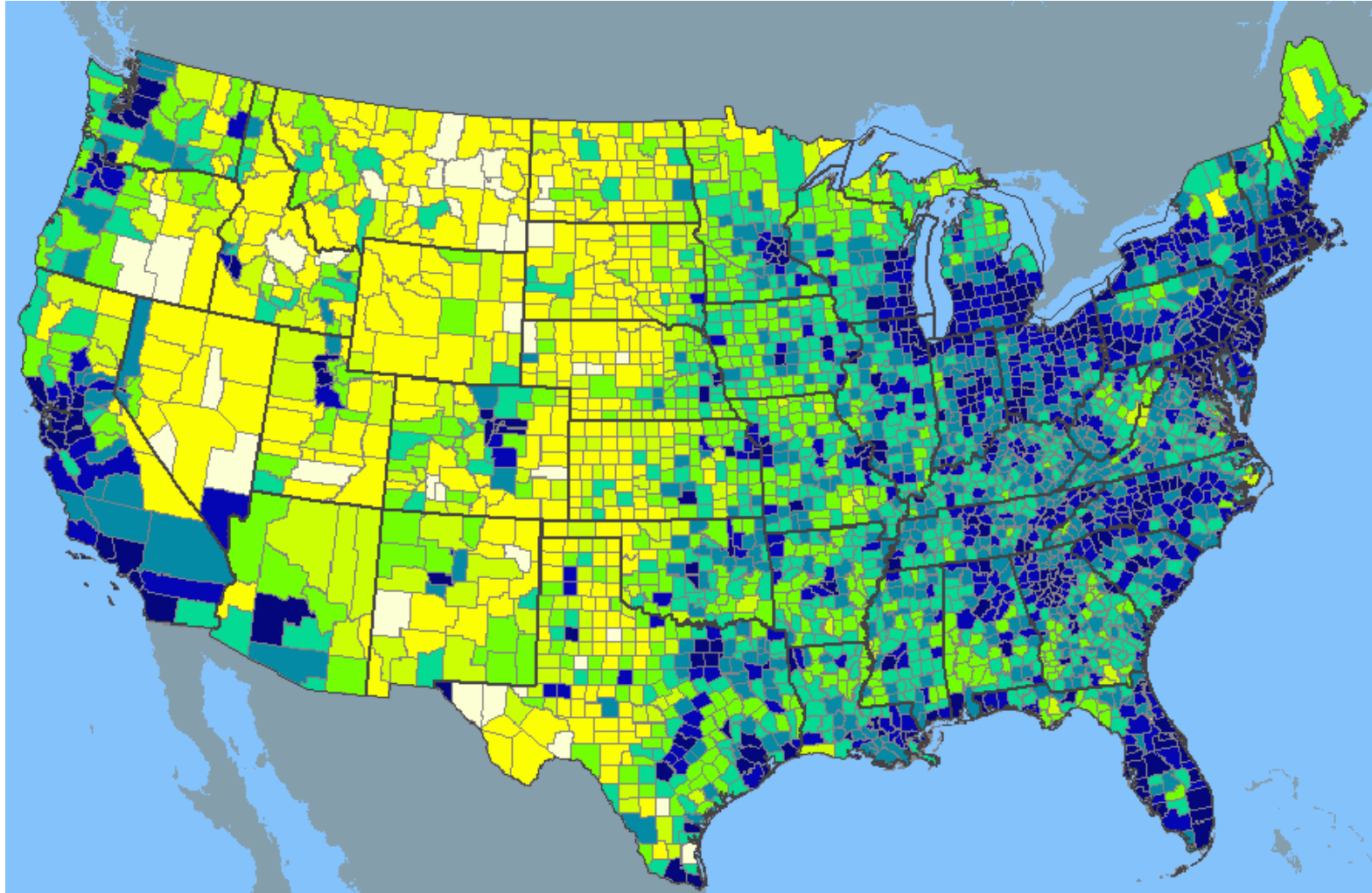


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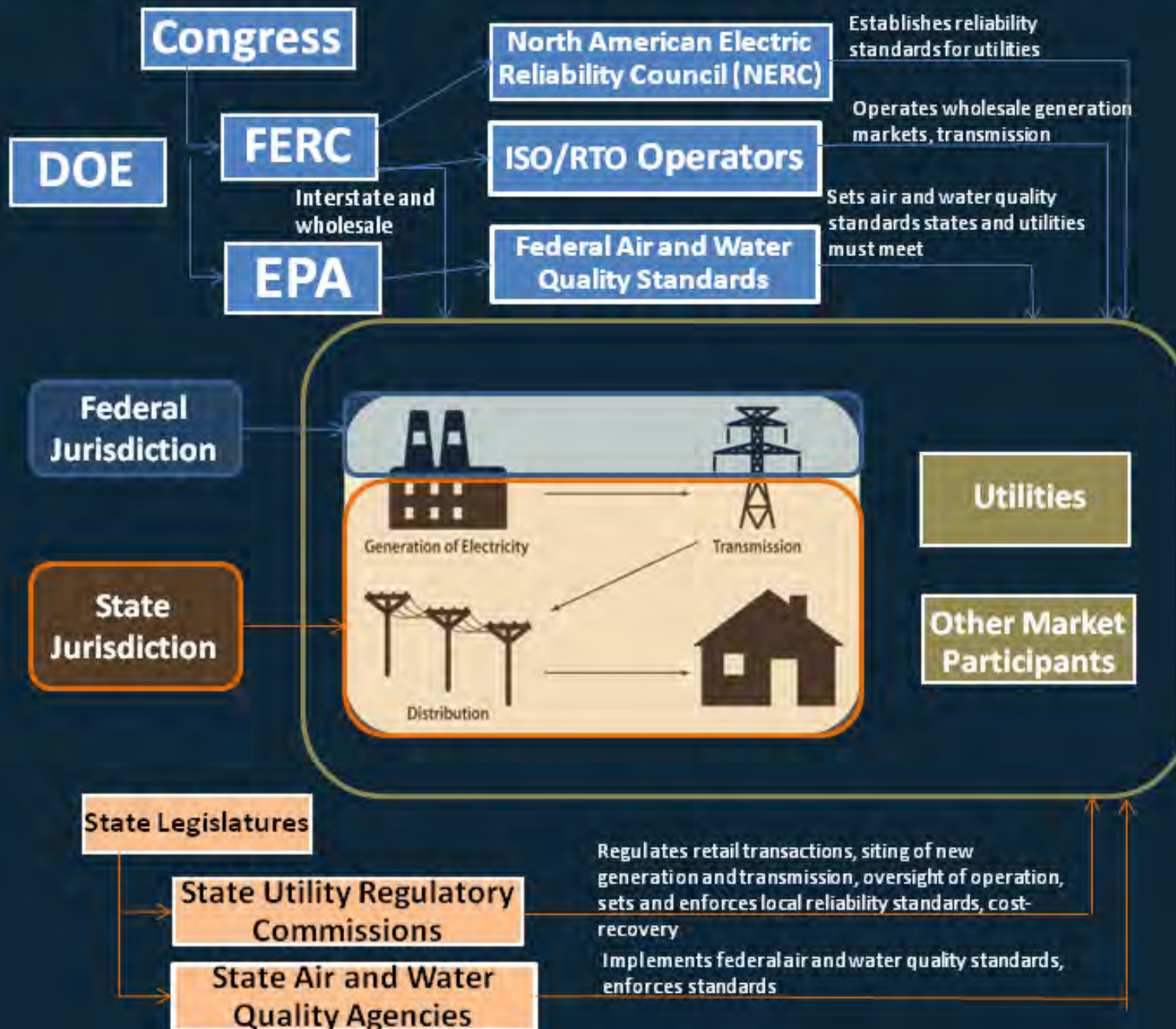
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Loads (here Population) are Distant from Wind



US Electricity Sector is Jurisdiction is Split Between States and National Government



The US Transmission System and New Lines



Source: NRP.org

FERC Order 1000

- Required transmission companies to consider state and federal policy goals in determining need for transmission;
- 29 states have established a renewable portfolio obligation;
- Wind and solar resources are often distant from loads.

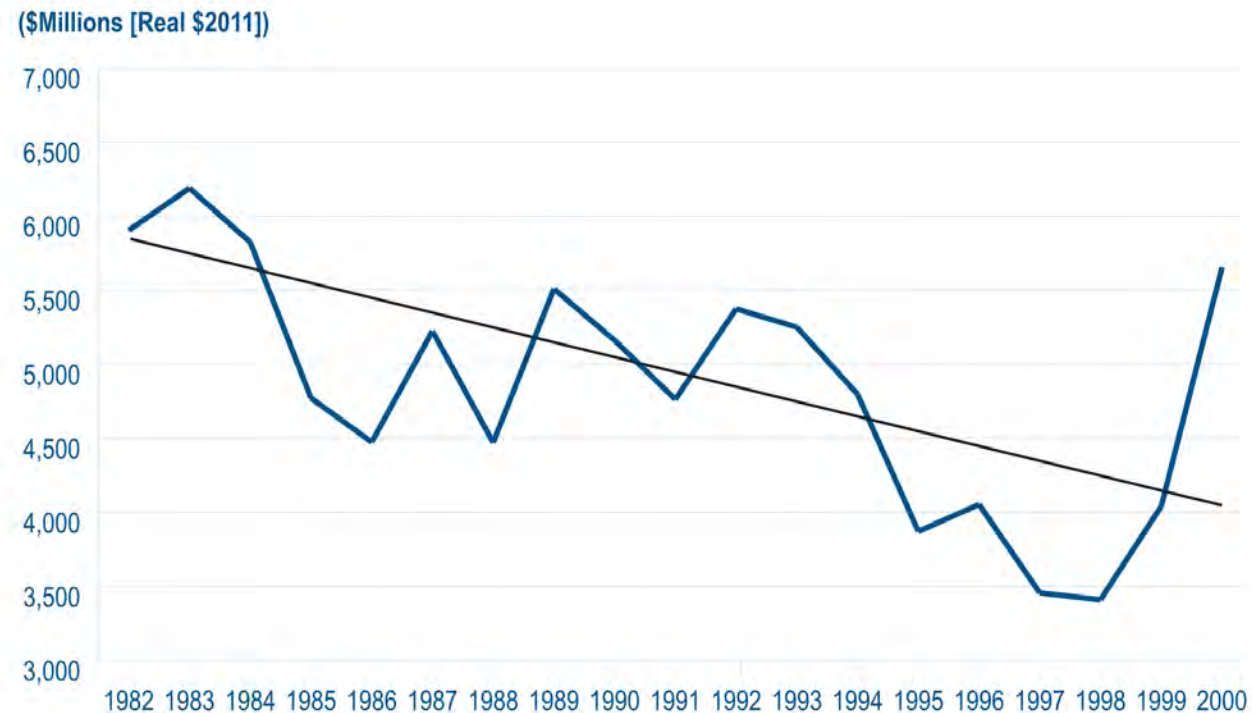
Some Recent US Initiatives

- Planning
 - Renewable Energy Zone Planning -- CREZ and WREZ (Western Grid and Texas)
 - Regional Coordination Pursuant to FERC 1000

Some Recent Innovations

- Cost Allocation
 - (various pools have innovative frameworks for socializing investments)
- Capacity Auctions
 - (BPA has established innovative approach to matching resources to fill new transmission)
- Energy Imbalance Markets
- Dynamic Capacity Ratings

Recent Decades Reflected a Period of Declining Investment in Transmission



Source: EEI