

A Tale of Two Sectors: Regulatory Structures and Impacts on Investment in US Gas and Electric Transmission

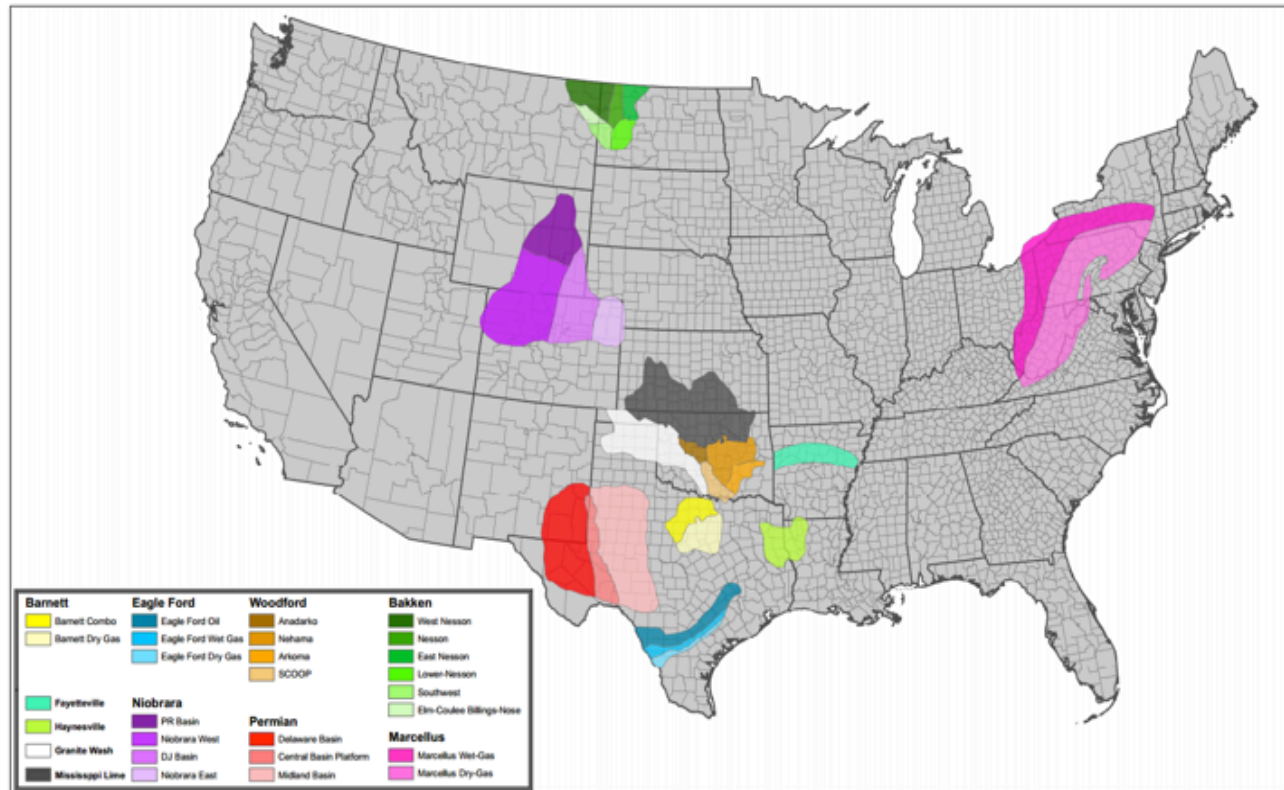
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New shale supply rapidly increased demand for gas transportation



Source: DrillingInfo

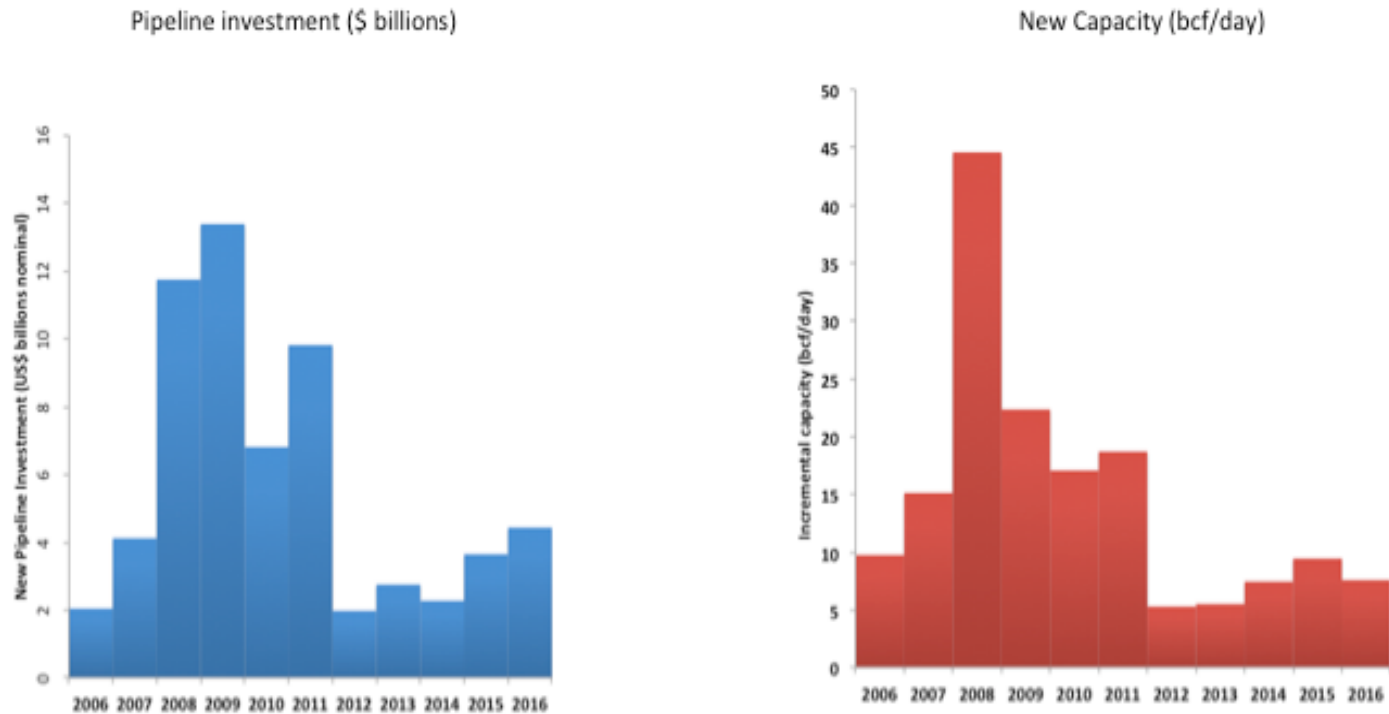
New interstate gas pipelines entering service since 2006



Source: Author analysis and PointLogic

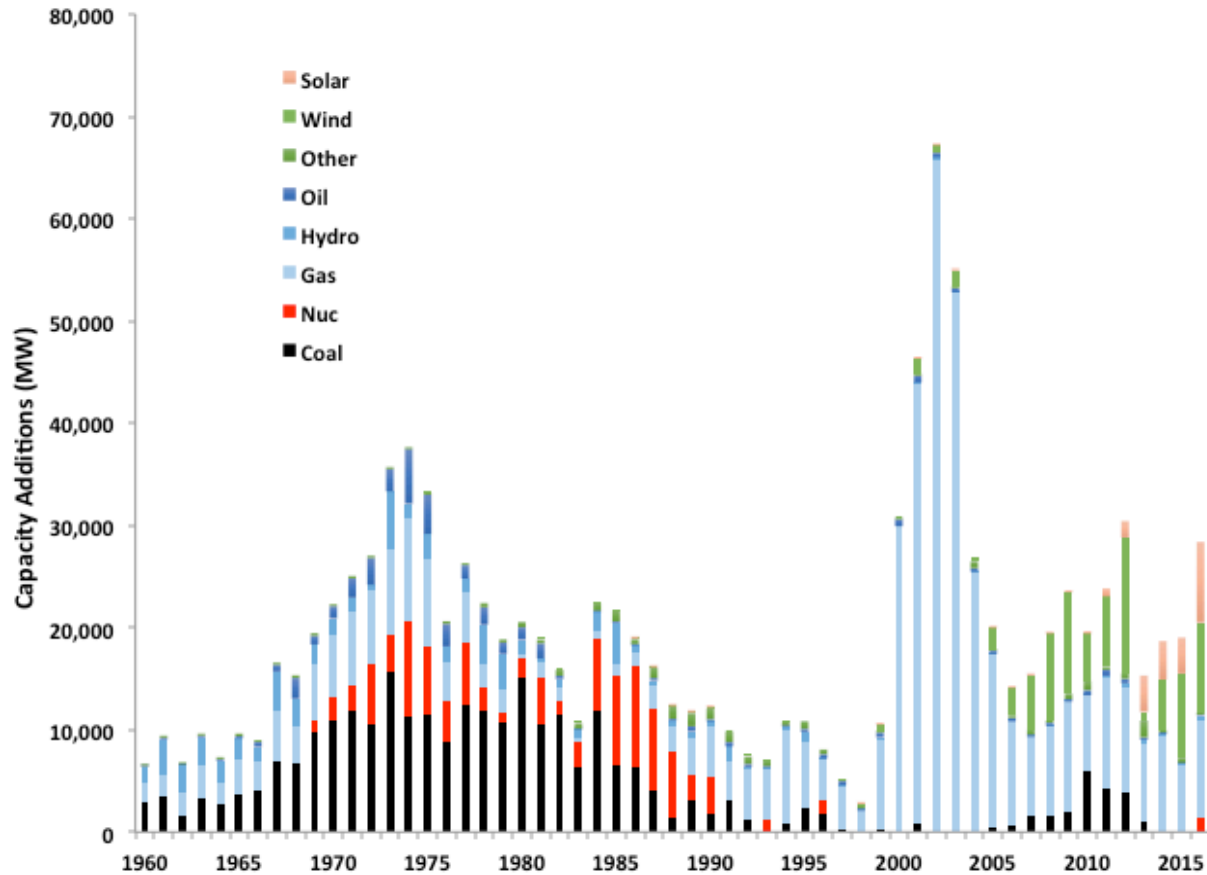
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New interstate pipeline investment and capacity: 2006-2016



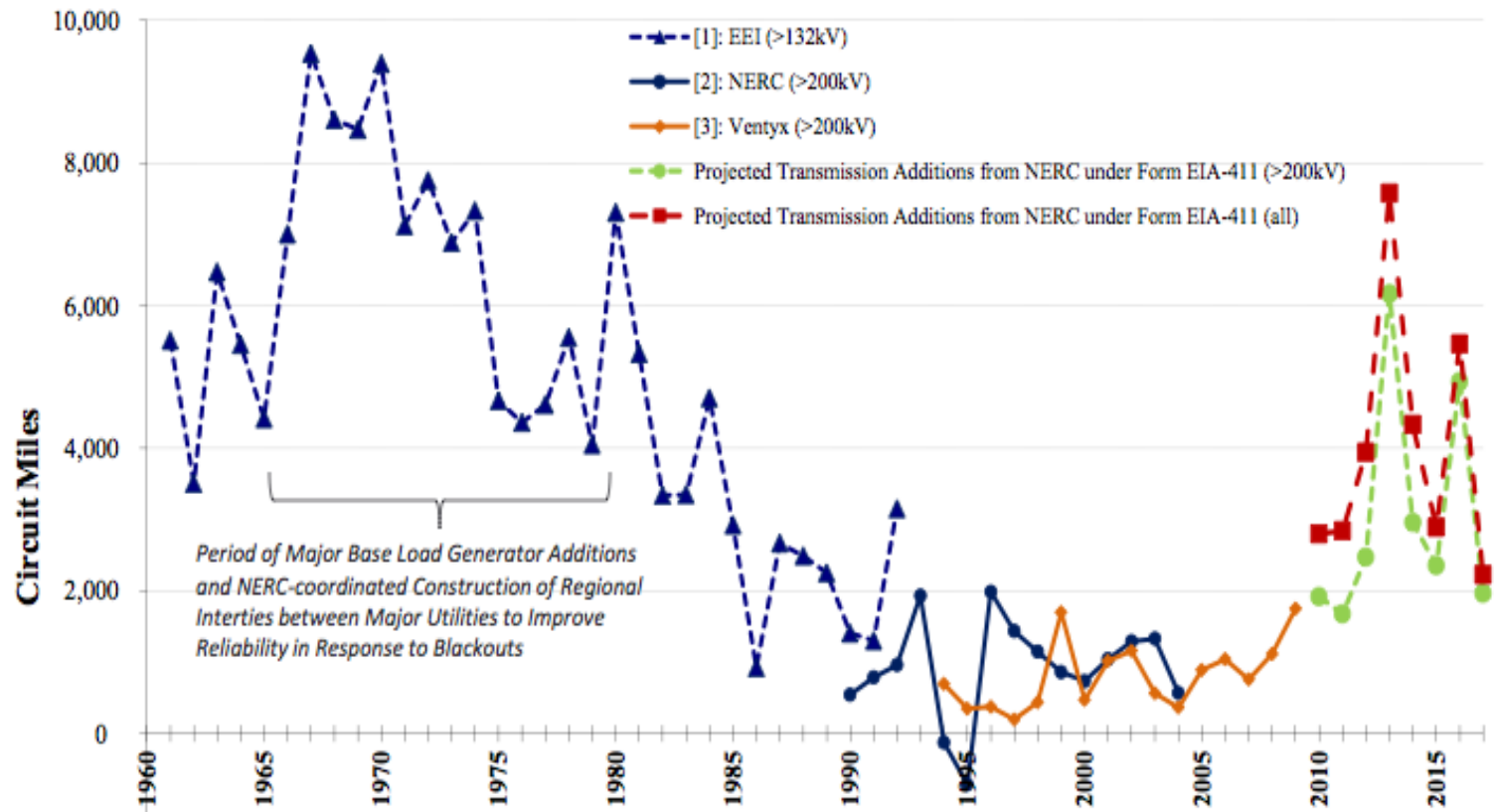
Source: Author analysis of EIA database

New interstate pipeline investment and capacity: 2006-2016



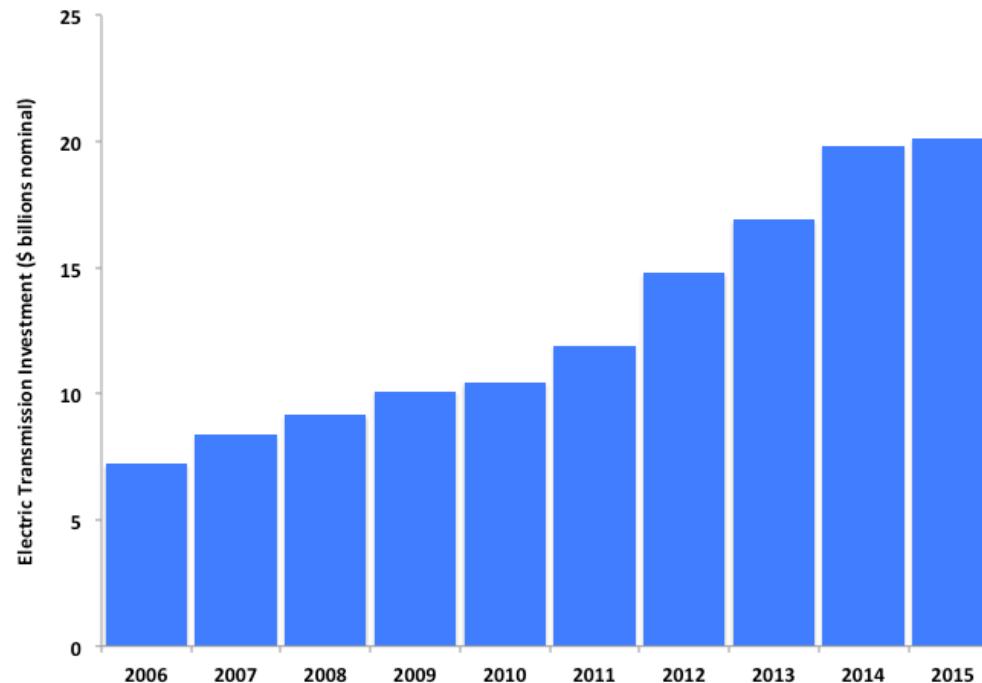
Source: EIA

The US transmission grid is rapidly aging as well



Source: USDOE QER

Electric transmission investment growth has been modest and from a low base



Source: EEI

- How much is actually new transmission capacity versus rehabilitation?

Some economic issues in network expansion

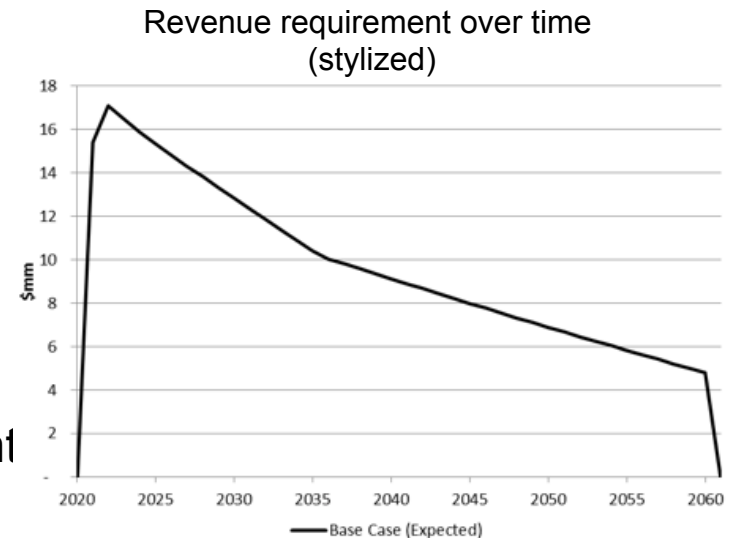
- Economies of scale – lumpiness of investment
- Scope for output reducing additions in uncontrollable (e.g. power) networks
- Cost allocation issues

Economic regulation of gas pipeline investment

- No national gas grid – competing pipeline companies and developers
- “Contract carrier” model
- FERC regulates rates and licenses new pipeline
 - Demonstrate need with LT shipper contracts
- All costs allocated to pipeline developer and its contract customers
 - Strong alignment of costs and benefits
- Pressure on pipeline developers to create projects for which customers will contract

Economic regulation of electric transmission investment

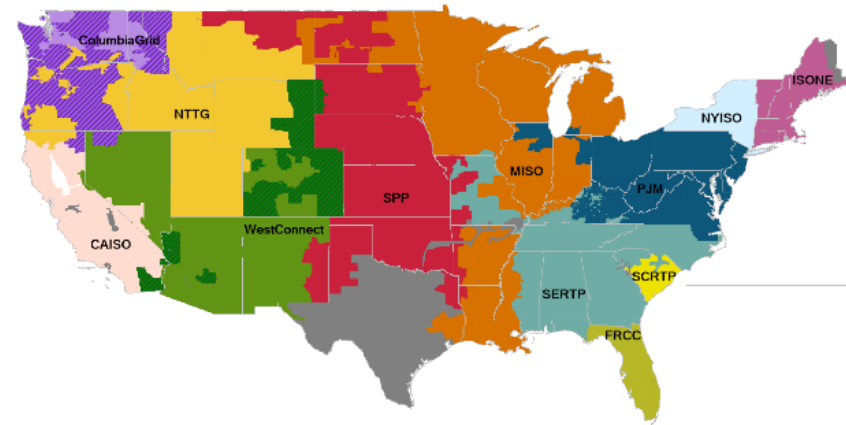
- Transmission systems operated by individual utilities
- Transmission planning by ISO or regional group
- Open access model to regional grid
- New build costs rolled into transmission ratebase
- Benefits may vary widely between different users of the grid
- Cost allocation in regions an issue
- Pressure by states to control rate increases



FERC policies to encourage transmission investment

- *Energy Policy Act of 2005*
 - Incentive equity “adders” for certain projects
 - Larger FERC role in siting
- Order 1000 (issued 2011)
 - All regions must develop a regional transmission plan
 - Coordinate across regions
 - Develop cost allocation methods
 - Eliminate incumbent right to build – some competition in transmission new build
 - Cost allocation must be “roughly commensurate” with benefits

Transmission Planning Regions



So why has the gas pipeline sector been so fast and flexible with investment?

Gas Pipelines	Electric Transmission
Decentralized contract model of new pipelines	Regional centralized planning
Strong alignment of contracted benefits and costs	Regional cost allocation issues
Minimal or no cost impact on other users	All users rates can be affected – rate shocks
LT contracts as signal for economic need for new capacity	Complex cost-benefit tests
Competitive entry from the start	Introducing rules for competitive regulated projects under Order 1000

Lessons for policy

- Gas can work on a simpler contract model
- For power need to identify the economic issues early
 - Planning – who does it?
 - Cost allocation – need to be prescriptive?
- Competition in electric transmission new build may bring benefits, BUT
 - Developing evaluation processes will be slow
 - Implementation can be contentious