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

Seabron Adamson

*Charles River Associates and Boston College*

*Boston, MA USA*

sadamson@crai.com
seabron.adamson@bc.edu

*The views expressed are solely those of the author and may not be those of CRA, its affiliates, staff or clients*
New shale supply rapidly increased demand for gas transportation

Source: DrillingInfo
New interstate gas pipelines entering service since 2006

Source: Author analysis and PointLogic
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

- 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

![Revenue requirement over time](stylized)
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
So why has the gas pipeline sector been so fast and flexible with investment?

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