Deregulation of the Electric Utilities: California Comparisons

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Why Deregulate?

- Societal perspective: Competition increases efficiency
  - Under regulation, return on investment is set at a fixed rate; no incentive to cut investment costs
  - Under regulation, operating costs (supplies, fuel, labor) are passed through to the customer; no incentive to cut operating costs
Why Deregulate?

Utility perspective: Opportunity to increase profits
- If I can operate better than my competitors, I can make more money.

Customer perspective: Opportunity to decrease costs
- If I can shop around for my supplier, I can find a better deal.
What has Changed

- Recent advances in generator technology has made it possible for smaller natural gas fired generators to compete with larger coal fired generators.

- The federal government has required utilities to allow other companies to use their transmission lines.
Why not Deregulate?

- Increased opportunities for participants to abuse the market (i.e., price gouging)
- Exposes the customer to price volatility
  - Not storable
  - Long time for new construction
  - Essential service
  - Most customers cannot react to price increases by reducing their usage
What Happened in California?

“Perfect Storm” / Murphy’s Law

- Just about everything that could go wrong, did go wrong.

Demand

- High growth
- Customers did not see price increases

Supply

- Little new capacity
  - Lack of incentives
  - Opposition
- Reduced hydro capacity

Transmission

- Network less dense
- Wildfires destroyed some lines
More from California

Operating costs increased dramatically
- Natural gas went from $2 to over $10 per million Btu.
- Pollution credits went from under $4 to around $50 per pound

Local utility companies exposed to market
- Forced to sell generating units and buy from the market
- Not allowed to pass high costs to customers
- Lost billions of dollars
California - Winter/Spring 2001

- Price caps imposed to reduce prices, but they also reduce incentive for new supply.
- The state government attempts to keep the utilities solvent.
- The California Power Exchange closes shop.
- PG&E declares bankruptcy.
California - Summer 2001

- New generating capacity becomes operational
- Conservation efforts reduce demand
- Shortages disappear
- Natural gas prices return to normal
- Wholesale electricity prices are lower
California - Fall 2001

- State government locked into high priced, long-term contracts - attempting to renegotiate
- California Public Utility Commission suspends retail choice
Midwest - Summer of 1998

- June heat wave
- Large number of generators out of service
- Interruptible contracts exercised
- Calls for voluntary reductions

- Some utilities close to “rolling blackouts”
- Some marketers unable to meet commitments
- High spot market prices ($7500 per MWh)
Midwest - Summer of 1999

- Extended heat wave (July/August)
- Interruptible contracts exercised
- Calls for voluntary reductions
- Close to rolling blackouts
- Cinergy unable to meet commitments
- High spot market prices ($9000 per MWh reported)
Midwest - Summers of 2000 & 2001

- No severe heat
- New merchant capacity operational
  - 1881 MW in Indiana
- Utilities negotiate more interruptible contracts
- Utilities reduce their exposure to the spot market
- No significant price spikes
What is Happening in the Midwest?

- Some states are in various stages of deregulation
  - IL, MI, OH
- Others are not
  - IN, KY, WI
Generation Characteristics

- Midwest relies heavily on coal
  - Lower price volatility than natural gas
  - Less drought sensitivity than hydro
  - Increased sensitivity to environmental regulations
New Generation in the Midwest

<table>
<thead>
<tr>
<th>State</th>
<th>New/Proposed</th>
<th>Existing (1998)</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois</td>
<td>11909</td>
<td>32493</td>
<td>37 %</td>
</tr>
<tr>
<td>Indiana</td>
<td>11859</td>
<td>21808</td>
<td>54 %</td>
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<tr>
<td>Kentucky</td>
<td>4815</td>
<td>16007</td>
<td>30 %</td>
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<tr>
<td>Michigan</td>
<td>14537</td>
<td>24634</td>
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<tr>
<td>Missouri</td>
<td>1915</td>
<td>16389</td>
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<tr>
<td>Ohio</td>
<td>18448</td>
<td>27095</td>
<td>68 %</td>
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<tr>
<td>West Virginia</td>
<td>7635</td>
<td>15065</td>
<td>51 %</td>
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<tr>
<td>Wisconsin</td>
<td>4771</td>
<td>12759</td>
<td>37 %</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>75889</strong></td>
<td><strong>166250</strong></td>
<td><strong>46 %</strong></td>
</tr>
</tbody>
</table>

Sources
New/Proposed: SUFG database (November 2001)
Existing (1998): Energy Information Administration
Indiana Peak Demand

- 1997: 16004 MW
- 1998: 16521 MW
- 1999: 17591 MW
- 2000: 16505 MW

Interruptible loads have doubled since 1998 to ≈ 1000 MW
California (a year ago) to Midwest Comparison

<table>
<thead>
<tr>
<th></th>
<th>California</th>
<th>Midwest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td>Hydro/gas</td>
<td>Coal</td>
</tr>
<tr>
<td>Hedging</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>New plants</td>
<td>Few</td>
<td>Many</td>
</tr>
<tr>
<td>Transmission constraints</td>
<td>Serious</td>
<td>Some</td>
</tr>
<tr>
<td>Price response</td>
<td>Little</td>
<td>Some</td>
</tr>
<tr>
<td>Price caps</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Other States

❖ Fifteen states (plus DC) have some form of retail competition
❖ Three more start in January
  • MI, TX, VA
❖ Six states have chosen to delay implementation
  • AR, NV, NM, OK, OR, WV
❖ Several others no longer considering retail competition at this time