EXPERIENCE IN ELECTRICITY MARKET RESTRUCTURING: THE BAD, THE UGLY AND THE NOT SO BAD

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In a nutshell...

- Expectations generally not met
- California crisis and Enron scandal halted and, in some cases, reversed reforms; effects persist
- Highly regulated, “protectionist” approach to retail electricity pricing, compared to other retail industries
- Numerous challenges to implementing rational, “end state” market design
- Despite structural impediments and ’01 crisis, substantial growth in customer participation and new entry has occurred
Evolving Retail Market Models

Default service is the single most important driver of customer participation and supplier competition.

Wholesale, vertical auctions and RFPs have become the favored model as initial transition periods expired.
Customer Participation

U.S. markets on the whole have experienced substantial increases in customer participation. However, growth in participation is concentrated in a few states.

- As of August 2005, ~365 TWh annualized (or ~69 GW of peak load) is served competitively
  - 1,400 TWh eligible
  - 3,700 TWh total
- As of August 2005, 3.7 million accounts switched
- ~15% of total switched load and ~80% of switched accounts are residential

Source: KEMA, State government agencies
Customer Participation by State

Annual energy sales served by alternative suppliers and by incumbent utilities

- TX ERCOT
- OH
- PA
- NY
- IL
- MI
- VA
- NJ
- MD
- MA
- Other

TWh

- 2001
- 2002
- 2003
- 2004
- 2005
- 2005 Default
Price Impacts

To assess price impacts we must answer: What would prices have been under a regulated market compared to prices in a competitive market?

Fundamental problem: all markets, except Texas > 1 MW, are still subject to price controls.

- Average annual price increases from 1990 to 2005
  - “Open” states: 1.3 %
  - “Closed” states: 1.0 %
- No empirical evidence of unregulated price impacts exists – any cost-benefit analysis of U.S. retail deregulation would be flawed

Monthly Historical Prices, Weighted Average Revenue per kWh for “Open” and “Closed” States, Jan. 1990 to May 2005

Source: Department of Energy, Energy Information Administration
Innovation Impacts

• Diverse range of products, pricing, promotions & perks. Choices rooted in:
  • Price
  • Risk management and price certainty
  • Simplicity and convenience
  • Demand management
  • Rewards programs
  • Supplier brands, perceived stability, channels, etc.

• Substantial cost cutting and widespread efficiency improvement programs among incumbents

"We've learned more about our customers in the last year than in the last 100 years. Prior to deregulation, there was no incentive."

Brian Tulloh, Vice President of Strategy for TXU Energy
(Source: Star-Telegram, January 21, 2005)
Who are the players?

Large number of diverse enterprises comprise the field of competitors. High concentration of customers and sales among regulated utility affiliates/incumbents

<table>
<thead>
<tr>
<th>Business Markets</th>
<th>Residential Markets</th>
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<tbody>
<tr>
<td><strong>Top 5 Suppliers</strong></td>
<td><strong>Top 5 Suppliers</strong></td>
</tr>
<tr>
<td>Constellation NewEnergy</td>
<td>TXU Energy</td>
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<tr>
<td>Reliant Energy</td>
<td>Reliant Energy Retail</td>
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<tr>
<td>TXU Energy</td>
<td>Centrica North America</td>
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<td>Strategic Energy</td>
<td>Green Mountain Energy</td>
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<td>Suez Energy Resources</td>
<td>Energy Savings Income Fund</td>
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<table>
<thead>
<tr>
<th>Peak MW Served</th>
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<tbody>
<tr>
<td>15,600</td>
<td>2,150,000</td>
</tr>
<tr>
<td>8,600</td>
<td>1,650,000</td>
</tr>
<tr>
<td>5,700</td>
<td>950,000</td>
</tr>
<tr>
<td>3,500</td>
<td>600,000</td>
</tr>
<tr>
<td>3,200</td>
<td>425,000</td>
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- Top 5 comprise ~55% of total market
- Top 20 comprise ~85% of total market
- Concentration increasing slightly
- 13 companies serve over 1,000 MW
- ~75 firms serve business markets
- ~250 licensed to serve
- 35 out of Top 50 operate in Texas

- 13 companies serve over 100k power customers
- ~45 firms serve residential markets nationwide
- ~200 licensed to serve nationwide
- 45% of accounts served competitively in Texas
- Centrica serves 5.1 M accounts (power, gas, services)