Reforming Power Markets: Lessons from Five Developing Countries

presented at:
IAEE North American Conference
Mexico City, 21 October 2003

David G. Victor
Program on Energy and Sustainable Development
Stanford University
http://pesd.stanford.edu/
From State-Centered to Market-Centered…

- **Organization**
  - Unbundling; fragmentation
- **Ownership**
  - Privatization, IPPs
- **Financing**
  - Market finance replaces “soft budgets”
- **Governance and Accounting**
  - External shareholder accountability
- **Oversight**
  - From the state to independent regulators
<table>
<thead>
<tr>
<th>Country</th>
<th>Populat’n</th>
<th>Income (GDP/cap $, PPP)</th>
<th>GDP (billion US$)</th>
<th>Power Supply (Twh)</th>
<th>Gen. Capacity (Gw)</th>
<th>Dominant Fuel</th>
<th>New Fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>170m</td>
<td>7625</td>
<td>595</td>
<td>332</td>
<td>69</td>
<td>Hydro (88%)</td>
<td>Gas (0.2%)</td>
</tr>
<tr>
<td>China</td>
<td>1262m</td>
<td>3976</td>
<td>1079</td>
<td>1240</td>
<td>294</td>
<td>Coal (78%)</td>
<td>Gas (0.4%)</td>
</tr>
<tr>
<td>India</td>
<td>1016m</td>
<td>2358</td>
<td>456</td>
<td>527</td>
<td>108</td>
<td>Coal (75%)</td>
<td>Gas (6%)</td>
</tr>
<tr>
<td>Mexico</td>
<td>98m</td>
<td>9023</td>
<td>575</td>
<td>192</td>
<td>39</td>
<td>Oil (47%)</td>
<td>Gas (18%)</td>
</tr>
<tr>
<td>South Africa</td>
<td>43m</td>
<td>9401</td>
<td>126</td>
<td>200</td>
<td>40</td>
<td>Coal (93%)</td>
<td>Gas (0%)</td>
</tr>
</tbody>
</table>
Main Results

1. Key Reform Driver: Finance Constraints
2. No “textbook” restructuring
3. Creation of “hybrid markets”
   - Partially state-controlled
     • Financing; tariffs
       – “Equity squeeze” for IPPs in slack markets
   - Partially market
     • Project and concession bidding
     • Brief market experiments
       – Orissa; wet hydro in Brazil
4. Regulators: replacement for government
Why No Textbook Restructuring?

• Interlocking Reforms Required
  – Judicial
    • Mexico; India
  – Corporate Governance and accounting
    • China; Brazil; Mexico
  – Finance
    • China
  – Contrast w/ OECD
    • reform with “rule of law” systems already in place
Hybrid Markets

• Fragmented Ownership and Control
  – Isolated pockets of profitability: listed corporations
  – Pervasive under-performing: retained by the state

• Hybrid financing
  – Hard debt; equity squeeze; soft loans; pervasive state “safety nets”

• Hybrid governance
  – “JV model” survives