Overview of Restructuring Models

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Step 1
Know Goals And Constraints

 Goals
- Reduce electricity costs?
- Attract private capital?
- Maximize public revenues?
- Create more efficient sector?

 Constraints
- Price changes?
- Employment?
- Use of local resources?
Overview of Models

We picked three models that span a wide range

1 - Competitive acquisition of new plants

2 - Fully competitive wholesale model

3 - Full retail competition
Requirements for Effective Competition

- No buyer or seller influences price
  - May need market mechanisms to facilitate trading
- Arm's length deals
- Equal access to transmission at non-discriminatory prices
- All costs internalized
Unlimited Options

- These are but three of many options
- All options share
  - Competitive (unregulated) generation
  - Regulation of monopoly parts of the business
  - Arms-length dealings between regulated and unregulated businesses
  - Governmental requirements imposed in market-based and competitively neutral fashion
Model 1

- Existing generation and all T&D are regulated
- All new generation is sold to existing utilities
- Generation is subject to competitive bidding
- Generation sold under long-term contract
Important Conditions

- Single buyer, captive customers means larger role for regulator
  - Create competitive conditions
  - IRP considerations
  - Risk allocation
  - Risk reduction
  - Sanctity of contracts
  - Creditworthy buyers
Price and Other Criteria

- Contract price structure (capacity, energy, index)
  - Best if contract structure reflects the cost structure of the facility
  - Dispatch probably based on contract
- Risk allocation
  - Generally, assign risks to those best able to respond
- Siting/locational preference
Pros and Cons

- Incremental competition
- New sources of private capital
- Improved options for utility
- Risks distributed fairly between utility and developer
- Integrated resource planning advantaged
- Fails to achieve efficiencies for existing plant
Model 2

- Fully competitive wholesale model
  - All generation, new and existing, is competitive
  - New and existing generation compete and receive market prices
- The utility, T&D, is a monopoly service and is regulated
- No affiliation between utility and generators
- Utility remains the sole buyer
Major Issues

- Still a single buyer
  - Regulation of disco's generation cost
  - Who bears what risks and benefits
- Need to create a market
  - Implications for new plant additions
- Transition for existing plant
Market prices, not cost, are the sole means of cost recovery

- Market prices bear no clear relationship to costs

Comparing US and UK style power pools illustrate the key difference
Cost Based (US) POOL

System marginal cost

Demand

Capital cost recovered through regulation

Cents per kWh

Each supplier gets its own energy cost

Power Plants

- Capital cost
- Energy cost
Market Based POOL

Each supplier gets system marginal cost

Capital cost recovered only to the extent of marginal cost

Power Plants

- Capital cost
- Bid Price

Demand
Why Existing Plant

- Increase incentives for efficient operation
- Reallocation of risks
- Raise capital needed for other purposes
Transition for Existing Plant

- Asset valuation based on market price
- Amounts above and below market borne by customers, govt. or both
- Transition contracts may substitute for market pricing
Regulation of Disco

- Disco costs
  - Cost of service
  - PBR

- Generation costs
  - Market price flow through
  - PBR
  - Other
<table>
<thead>
<tr>
<th>Market</th>
<th>PBR</th>
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<tbody>
<tr>
<td>Market price needs to be</td>
<td>Benchmark must be</td>
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<tr>
<td>defined e.g. POOL price</td>
<td>established</td>
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<td>Full Disco discretion</td>
<td>Greater opportunity to set</td>
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<td></td>
<td>generation mix goals</td>
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<td>Probably less risk to Disco</td>
<td>More price stability</td>
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<td>and more price volatility on</td>
<td>Probably easier to finance</td>
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<td>customers</td>
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<td>More difficult to finance</td>
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<td>new plant</td>
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Financial Environment

- New resources will be financed on the basis of contracts
  - With utility, but backed up by customer contracts or enforceable exit/entry conditions
  - With customers
- Spot market
Winners and Losers

- **Likely Winners**
  - High fuel/low capital
  - Existing units

- **Possible Losers**
  - Baseload
  - DSM
  - Renewables
  - R&D
  - Other capital-intensive stuff
Issues

- Price volatility
  - Spot prices tend to be volatile

- Market driven reliability
  - In purest version generation built based on spot market prices
  - Reliability (reserves) could be determined in several ways

- Is this structure best suited for rapid expansion of infrastructure?
More Issues

- Impact of risks on resource choices
  - Greatest uncertainty with pure spot price model
  - PBR/IRP model more easily fits long-term contracting and current structure of private power market

- Role of government
  - Likely input on reliability
  - Fuel diversity
  - Price volatility
  - Siting
Conclusion

- Privatizing existing (non-nuclear) plants can yield benefits
- Wide range of choices within Model 2
Model 3

- All generation is competitive
- Utility, T&D, has obligation to connect
- Transmission:
  - Open access transmission -- comparability of service
  - Independent system operator or National grid or Transco
- Customers buy generation from supplier of their choice
Regulatory Issues

- Focus on market-established price, not cost
- Reasonable rate of return set by market, not regulators
- Little regulation in generation sector
- Regulatory roles
  - Ensure open transmission, back-up
  - Protect against market power of seller
ISO v Transco

- ISO is an unnatural entity created in US to deal with constraints
- ISO role may be met with national grid or Transco
- Transco PBR
  - Create incentives to balance congestion and construction
  - Create incentive to price well
  - Rev cap based on COS plus anticipated congestion costs
Pros and Cons

➤ Aggressive competition: wholesale and retail efficiency
  - Most gains will come from wholesale
➤ Innovative service offerings for customers
➤ New sources of private capital
➤ Cost shifting issues among customer classes
➤ Market allocates risks among utility, power suppliers, marketers, retail companies, demand aggregators, customers