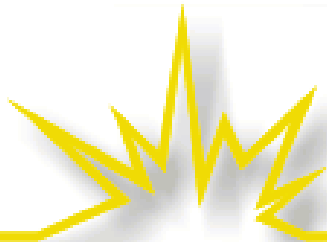


Overview of Restructuring Models

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Step 1

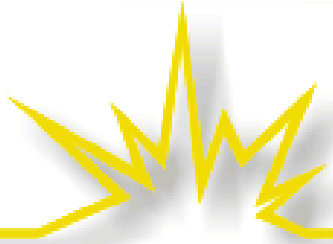
Know Goals And Constraints

➤ 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

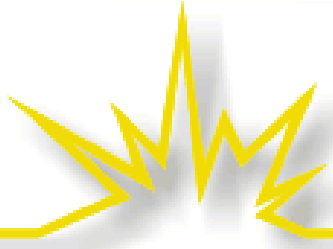


- These are but three of many options
- All options share
 - Competitive (unregulated) generation
 - Regulation of monopoly parts of the business
 - Arms-length dealings between regulated and unregulated businesses
 - Governmental requirements imposed in market-based and competitively neutral fashion



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/location 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

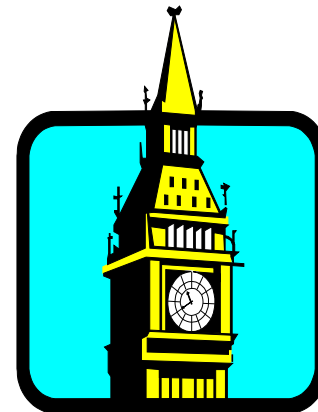
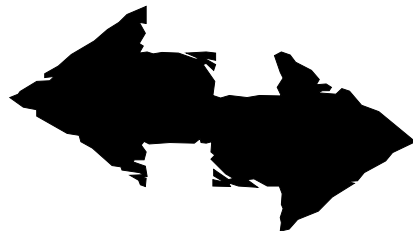


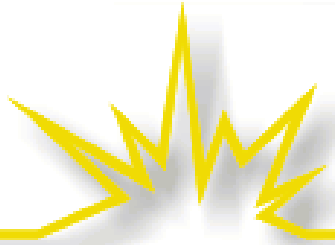
Major Issues

- 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

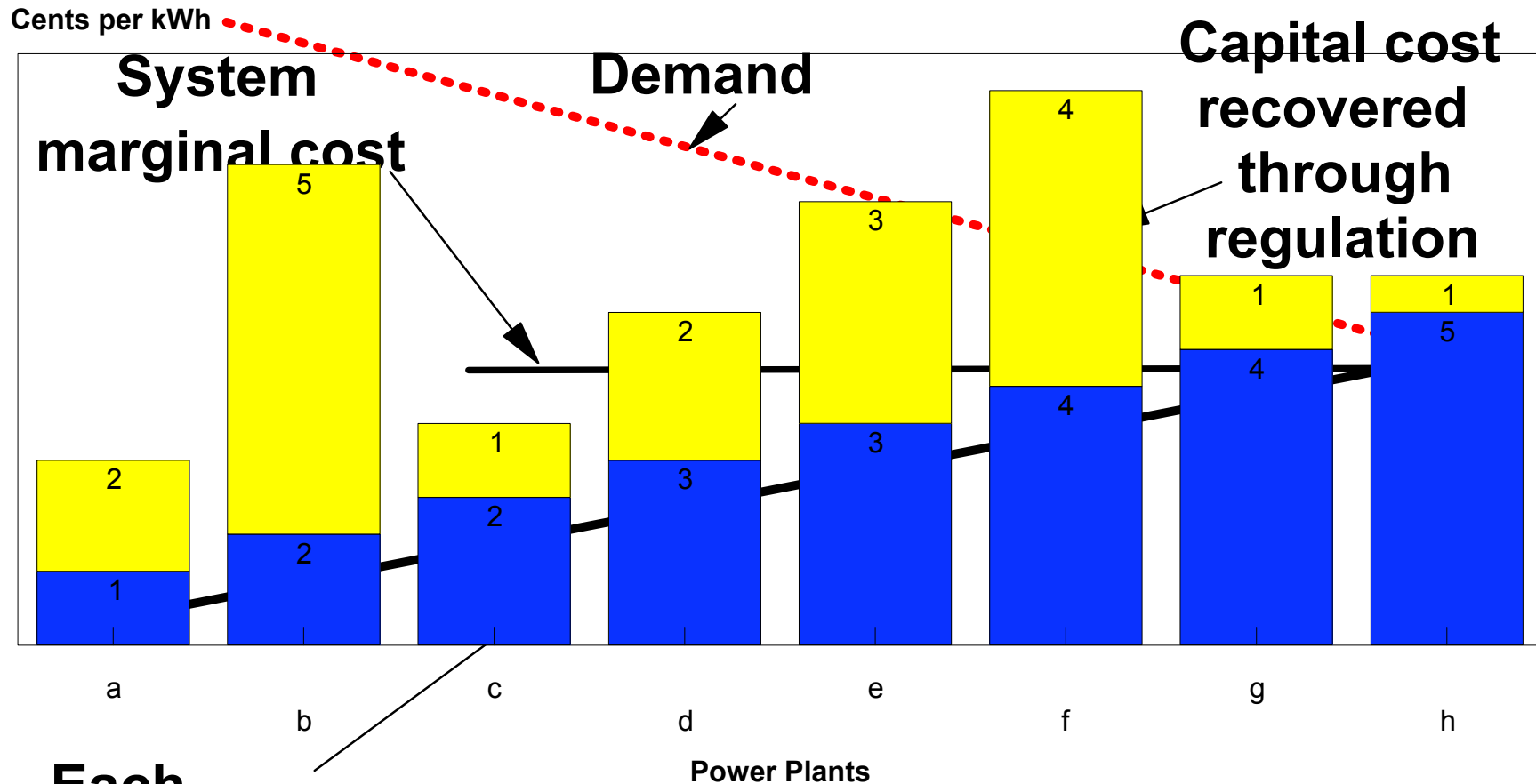
Cost vs. Value

- 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





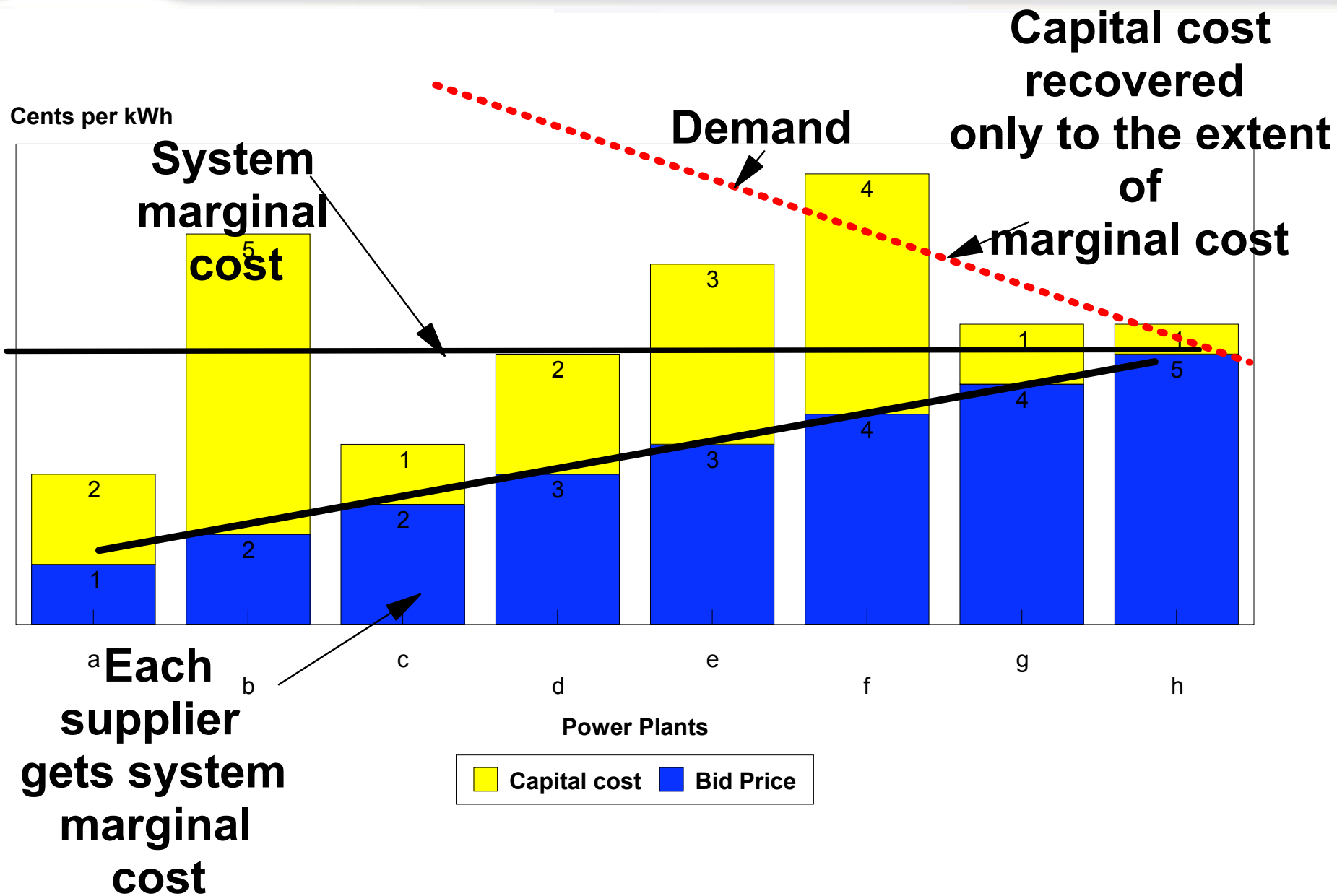
Cost Based (US) POOL

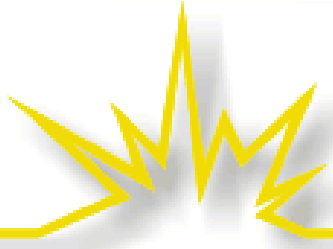


Each supplier gets its own energy cost



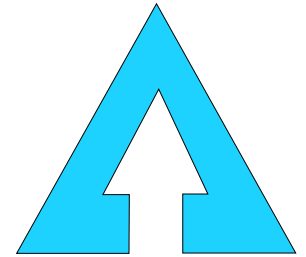
Market Based POOL



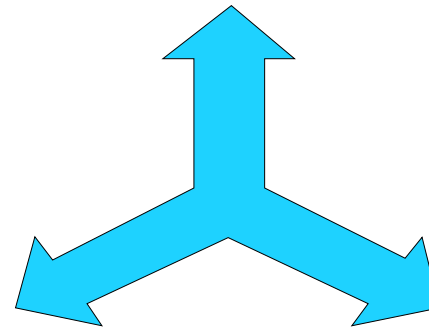


Why Existing Plant

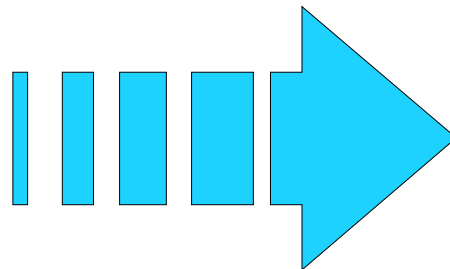
➤ Increase incentives for efficient operation



➤ Reallocate risks



➤ Raise capital needed for other purposes





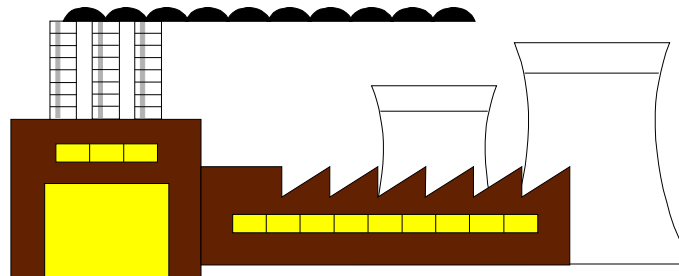
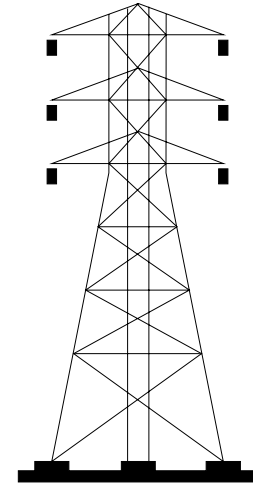
Transition for Existing Plant

- 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





Market or PBR

➤ Market

- Market price needs to be defined e.g. POOL price
- Full Disco discretion
- Probably less risk to Disco and more price volatility on customers
- More difficult to finance new plant

➤ PBR

- Benchmark must be established
- Greater opportunity to set generation mix goals
- More price stability
- Probably easier to finance new plant



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

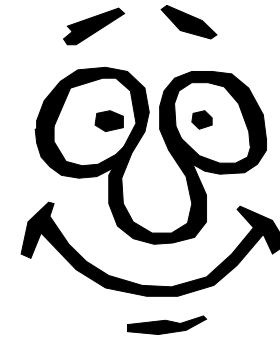




Winners and Losers

➤ Likely Winners

- High fuel/low capital
- Existing units

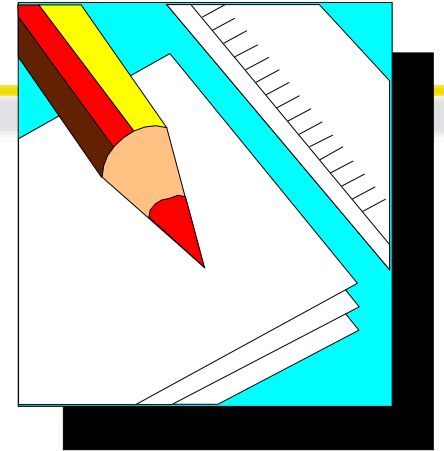


➤ Possible Losers

- Baseload
- DSM
- Renewables
- R&D
- Other capital-intensive stuff



Issues

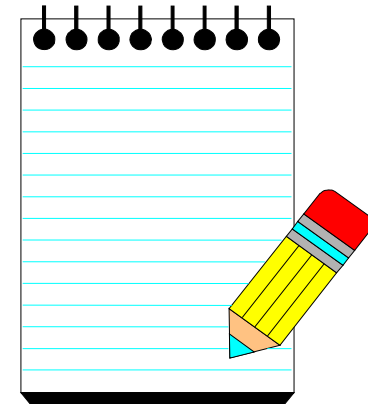


- Price volatility
 - Spot prices tend to be volatile
- Market driven reliability
 - In purest version generation built based on spot market prices
 - Reliability (reserves) could be determined in several ways
- Is this structure best suited for rapid expansion of infrastructure?



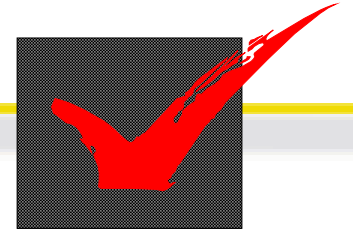
More Issues

- 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