Challenges in Deregulating Electricity: Drawing Lessons from the California Experience

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California assessment

- **Basic explanations for California crisis seem clear**
  - **Supply/demand crunch**
  - **Bankruptcy when utilities had to buy high, sell low**
  - **Political paralysis: Who pays**
- **But are popular lessons the right ones?**
  - **"California's deregulation was a disaster"**
  - **"California didn't deregulate enough"**
  - **"Generators 'gamed' PX auction"**
  - **"Too little real-time metering, not enough incentive to conserve"**
  - **"Long-term contracting limited"**
  - **"Generators exercised market power"**
  - **"Wholesale price-caps a temporary fix"**

Fundamental issue:

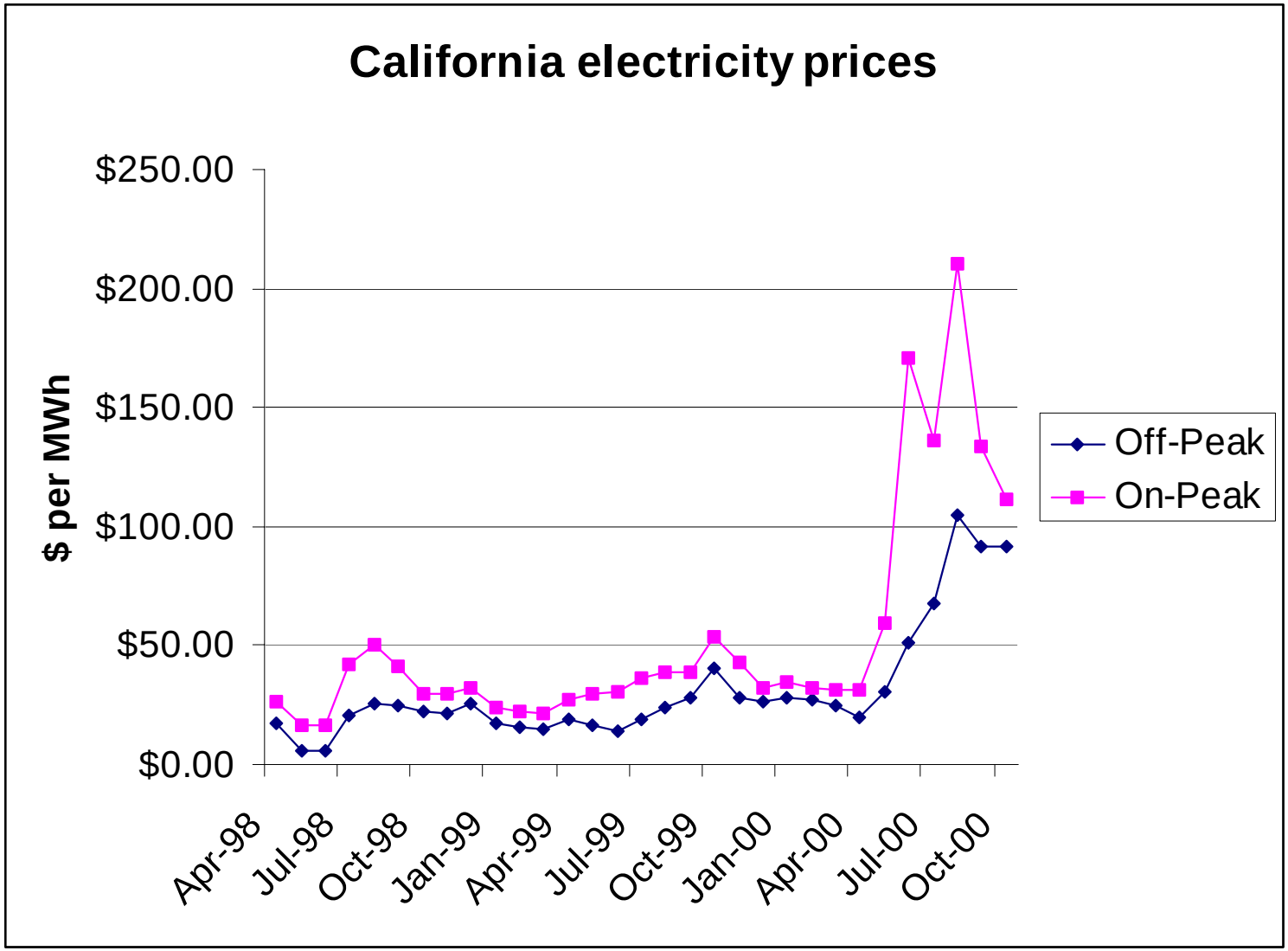
"But for California's mistakes, electricity markets work"

- **Reliability: the crucial challenge**
- **California debacle a distraction from fundamental questions**
- **Is "Markets or not?" fact or ideology**
- **Is electricity on the other side of the line?**

What makes electricity unique—three combined factors

- **Crucial to the economy**
  - **2-3% of US GDP an understatement**
  - **The "e" in e-commerce**
  - **Infrastructure industry—economic development tool (US rural electrification, LDCs)**
- **Vulnerability from load imbalances**
  - **Keeping supply and demand *always* in line**
  - **Prohibitive storage costs**
- **Inter-relatedness**
  - **Perhaps forgotten in the rush to open markets**
  - **One company's load imbalance can bring down the system**
  - **Varying degrees of central control**

"California wasn't always a disaster"



"California didn't deregulate enough"

- **In some ways, regulation a clear problem**
  - **Retail rates held down while wholesale rates rose**
  - **PG&E bankrupt; others close, getting bail-outs**
- **But limits to deregulation**
  - **Local distribution physical natural monopoly**
  - **Transmission – loop flow externalities**
  - **Only solution: distributed generation**
- **Need to separate regulated control from unregulated service ownership**
  - **Cross-subsidization, discrimination**
  - ***US v AT&T* precedent**
  - **ISO, "TransCo," RTO, Independent Transmission Administrator: Separate transmission from generation**
  - **Separate retailing from distribution?**

"Generators 'gamed' PX auction"

- **Markets worked through May, 2000, over 2 years**
- **Auction could hurt when supplies tight**
  - **All get market clearing price**
  - **Bid in supply curves, offer quantity at high price?**
  - **Small loss, big upside**
  - **Car dealership contrast**
- **Problems**
  - **Free-riding**
  - **No minimum equilibrium quantity**
- **Mitigation strategies**
  - **Pay only bid price – leads to high strategic bidding**
  - **Minimum quantity bids, raise losses from high bids not taken**
- **Why have a central auction?**

"Too little real-time metering"

- **Important incentive to conserve**
  - **Conventional metering allows only average pricing**
  - **No incentive to reduce or shift use at peaks**
  - **Very high price differentials (10X or more)**
- **Is this a policy issue? What is the externality?**
  - **Incentive for those who buy high, sell low to pay consumers to install meters**
  - **Do we mandate real-time pricing in restaurants?**
  - **Benefits of real-time pricing finite**
- **Possible rationales**
  - **Obligation to serve, no externality**
  - **Possible externality with inefficient rationing (blackouts)**
    Also, in electricity, blackouts not localized
  - **Third party benefits from reducing the queue**
  - **Market power mitigation?**

"Long-term contracting would be a big help"

- **Huge effect in hindsight, but going forward?**
  - **Like "should've bought fire insurance" after house burns**
  - **But does insurance construct more houses?**
- **Did lack of contracts discourage supply in 2000? Probably not**
- **Past price effect misleading; contract price equals expected spot price (less willingness to pay to avoid risk)**
- **More entry would depress price off-peak; all capital recovered on-peak (resort hotels)**
- **Problems with long-term contracts**
  - **Moral hazard: Too much consumption at low price**
  - **Distributor-generator linkages cross regulated-unregulated boundary**

"Generators exercised market power"

- **Crying wolf: Accusations when prices only 20%, not 400+% above prevailing levels**
- **Collusion possible, but unlikely and illegal (210 defendants)**
- **Unilateral**
  - **Dominant firm, oligopoly models predict high price-cost margins with small market shares**
  - **Legal, at least under US antitrust law**
- **Empirical price-cost margin studies confirm, but problems**
  - **Price one gets, not price one sets: buyer bankruptcy risk**
  - **Price does not equal marginal (average variable) cost at peak periods under competition**
  - **Resort hotels, again**

"Wholesale price caps an effective, temporary response"

- **Efficiency effects**
  - **With competition, caps would reduce supply, lead to blackouts, rationing**
  - **With monopoly, gaming, caps would increase supply**
- **Distributional issues huge motivator**
  - **On peak huge rent transfer with deregulation**
  - **Peak capital recovery perhaps 100 times baseload per hour**
  - **Can politicians wait for new entry to depress off-peak prices down to zero profit overall level?**
  - **Do equities outweigh efficiencies, if price "high enough" to induce entry?**
  - **Could long-term contract flexibility accelerate benefits from future efficiencies?**
- **Implementation difficulties**
  - **Highest average variable cost not appropriate standard; FERC error**
  - **Are they "temporary," if invoked anytime peak demand approaches (predictable) capacity constraint?**

"But for California mistakes, deregulation really works"

- **California "troubles" distract attention from core problem**
  - **Market power, environmental problems we know how to solve**
  - **Antitrust, regulation, taxes and permits**
  - **CA mistakes give false sense of security**

- **"Importance," "vulnerability," inter-relatedness" => Reliability**
  - **Unique combination of electricity attributes**
  - **Outages largely local, but could they become regional or national?**
  - **Industry-wide response may be required**

- **My expected "killer" wasn't price, but finger-pointing when the lines went down**

Can we make reliability compatible with markets?

- **Competition vs. cooperation, regulation, or planning – THE big issue**
  - **Will competitors cooperate? *Should* they cooperate?**
  - **Grid responsibility vs. generator liability**
  - **How much centralized control do we need?**
- **Jurisdictional issues**
  - **US: Interstate reliability, super-Regional Transmission Operators**
  - **Canada: The role of provincial regulatory authorities**
- **International governance**
  - **Canada and the US: Merging FERC and the National Energy Board?**
  - **EU, Asia issues**
- **Have markets met their match?**
  - **Is electricity the exception to our rules?**
  - **Is advocacy based on facts, theory, or ideology?**
  - **Might market advocacy be more effective if exceptions conceded?**