ELECTRICITY RESTRUCTURING AND STANDARD MARKET DESIGN

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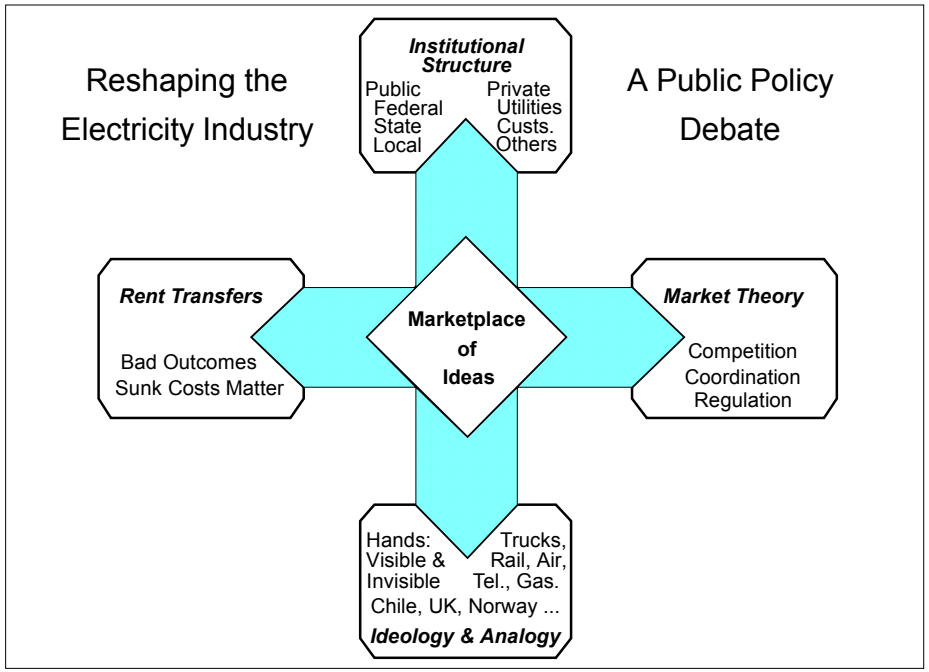
ELECTRICITY MARKET — Electricity Restructuring

Like other efforts from airlines to telecoms, electricity restructuring is a complex, elite-driven process. The public policy debate over time and space reflects many interests and issue frames.

Proposition: competitive markets with people spending their own money would provide better incentives for investment and innovation.

Fundamental to electricity restructuring in the United States is a shift of jurisdiction from the states to the federal level. The usual multitude of perspectives interacts with an unusual technological foundation that requires a change of paradigm for market design.



Successful electricity markets require new institutional infrastructure, with a visible hand to support competition. Regulators and the industry have been learning this the hard way. Learning by doing can be difficult, but it appears to be even harder to learn from the mistakes of others. The costs of mistakes have been high.

Is electricity restructuring too hard? What is the alternative?

The electricity restructuring public policy debate reflects an interplay familiar from other settings.

Sheila Jasanoff on biotechnology policy in Europe:

> "Policy making in Brussels therefore remains a deeply (though not transparently) political undertaking, not only because its legitimacy is frequently at stake, but because it helps to constitute an emergent European politics to which it then responds." (Draft, October 2002, Designs on Nature, with permission)

A similar iterative process is present in the development of electricity policy in the United States.

Paul Krugman, on economic policy advice for Latin America:

> "Why hasn't reform worked as promised? That's a difficult and disturbing question. I, too, bought into much though not all of the Washington consensus; but now it's time, as Berkeley's Brad DeLong puts it, to mark my beliefs to market. And my confidence that we've been giving good advice is way down." (NYT, OP Ed August 15, 2002)

The high cost of bad policy dictates a reconsideration of the basic proposition for electricity markets.

The electricity public policy debate has reached a stage of backlash and counterrevolution.

Anonymous, once-confident-but-now-doubting designer/promoter of competitive electricity markets:

> "… maybe competition in electricity was not a good idea at all. Whatever the economic arguments for it, if political and regulatory institutions cannot handle the kind of competition that is feasible in electricity, perhaps it is not worth doing. Eliminating economic regulation in electricity is different from eliminating it in eggs and trucks and airlines -- and maybe even gas and telecoms -- because in the latter the government really can just walk away and let "the market" work, while in electricity there will always be a need for a central dispatch/market process that will have to be designed, governed, regulated, modified, etc. The counterpart of "regulatory capture" in the old regulated utility model is "special interest capture" of the ISO/RTO rules and governance processes. … Maybe the "right" way to set up and run these markets will become so obvious and well-understood that it will happen and persist naturally. But it seems at least as likely to me that there will be a constant effort to distort the rules and processes for the benefit of a few special interests, and those interests will be the only ones with the time, resources and interest to stay involved in the governance process in the long run. This is a scary prospect." (private communication, July 27, 2002, with permission)

The backlash notwithstanding, the Federal Energy Regulatory Commission advanced an ambitious restructuring agenda in its Standard Market Design Notice of Proposed Rulemaking (SMD NOPR).[1]

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[1] Federal Energy Regulatory Commission, *Remedying Undue Discrimination Through Open Access Transmission Service and Standard Electricity Market Design*, Notice of Proposed Rulemaking, Washington, DC, August 29, 2002.

The public policy debate over reshaping the electricity industry confronts major challenges in balancing public interests and reliance on markets.

Enron memos. 'Ricocheting' off the 'Death Star'. The smoking gun of market manipulation or collateral damage of bad electricity market design?

> "The Enron memos reveal one an important fact about the behavior of electricity suppliers that was strongly disputed by many observers of competitive electricity markets but is a maintained assumption for economists studying these markets. That is, sellers intend to make as much money as possible and will use all available strategies to achieve this goal."[2]

Why do we need any market design, much less good market design? The three top reasons are:

1. Incentives
2. Incentives
3. Incentives

Once parties have choices, it is critical to get the incentives to reflect the effects of the choices. In the case of electricity, the market cannot solve the problem of market design.

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[2] Frank A. Wolak, Statement before the Senate Committee on Commerce, Science and Transportation, Washington D.C., May 15, 2002. p. 3.

There is an underlying premise in many prior market design proposals that the functions of the independent transmission provider (ITP, aka ISO) can be largely separated from the operation of a wholesale spot market. This is a mistake.[3]

A False Goal

Minimize the role of the ITP: In an attempt to have a small footprint for the ITP, there is a common argument that the ITP functions should be restricted to reliability and separated from the operation of the spot market. In practice, the lack of an efficient spot market and efficient pricing drives the ITP to intervene ever more, but without the tools of the market. The ITP ends up large and intrusive, and the market works badly or not at all.

Better to

Recognize the minimum requirements of an ITP: There are certain functions that only the ITP can perform, and these should be done both efficiently and to support a competitive market. Done right, the result is healthy bilateral trading, liquidity, and ease of entry.

It is not good public policy to intentionally design the ITP functions to be inefficient. If we do so, we will succeed, and the ITP will not be able to provide the services that the market needs to handle the complexity of the electricity system. A well designed ITP, operating a spot market, providing price signals, and supporting transmission hedges, results in the smallest footprint possible.

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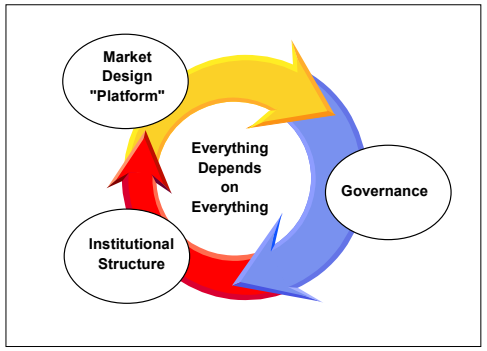
[3] W. Hogan, "A Wholesale Pool Spot Market Must Be Administered by the Independent System Operator: Avoiding the Separation Fallacy," The Electricity Journal, December 1995, pp. 26-37.

Cycles around the loop take months to years when it is only talk. Once implemented, cycles take years or forever.



- **Don't Assume It is Easy to Muddle Through.** Errors are costly. Bad market design leads to serious disruption itself (PJM-1997, NE-1999) or helps make bad problems worse (California-2000). Bad governance structures make all problems more difficult.
- **Get the Prices Right.** When a monopoly that makes all the decisions, the details matter less. But whenever market participants are given a choice, it is critical that they see the right prices. Market participants will respond to incentives. That after all, is the foundation for restructuring. Opportunity cost pricing supports efficient behavior. Otherwise, the system operator and regulators will be forced to intervene with non-market mechanisms that negate the broader purpose.
- **Recognize that the Market Can't Solve the Problem of Market Design.** There are too many moving parts that must move together. Absent strong public oversight, the complex interactions and the competing interests provide a textbook case for sacrificing the public interest and sinking to the least common denominator.
- **Face Squarely the Mandates of Order 2000.** If FERC means what it says, the Order goes a long way in defining how a wholesale electricity market must be organized. But it is too timid and indirect. "If it looks like a duck and walks like a duck, it must be a duck." In the SMD NOPR, FERC makes clear what it means. If it follows through, there can be a workable market.

The failures of electricity restructuring have ranged from the embarrassing to the negligent. Public officials and market participants are at a crossroads. But the road to take depends on the diagnosis of the failures and the identification of the needed corrections.

- **Go Back.** Can markets work well in the case of electricity? If not, then the old model of monopoly and regulation may be the best choice. But has too much happened since EPAct of 1992? It would be both difficult and expensive to go back, and the delay would create even more crises.

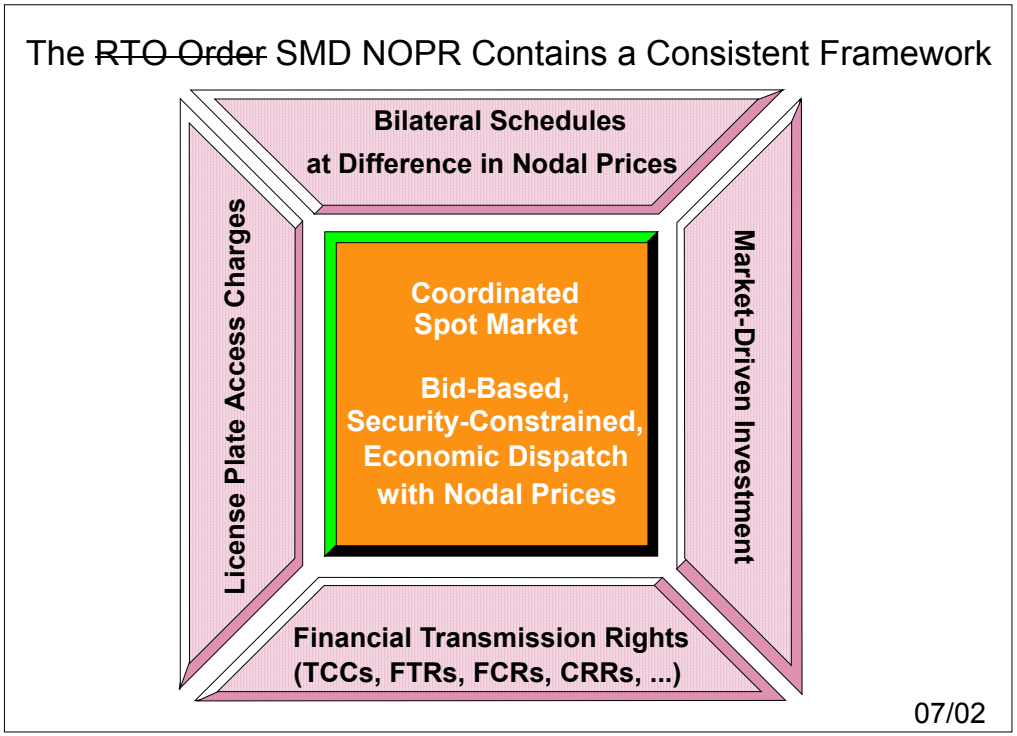
- **Stand Still.** Can we simply stay where we are and fix a few leaks, letting the regulators go home early? The rules are in turmoil and market institutions are fragile. The ostrich strategy is an invitation to continued surprises, and this should be no surprise.

- **Go Forward.** Can we go forward, put good markets in place, and treat the costs of the mistakes as the sunk costs of an expensive education? This requires leadership by the regulators, in Washington and in the states. We know what we must do:

  - Regional Transmission Organizations.
  - Standard Market Design.
  - Significant Demand Participation.
  - Market Power Mitigation.

ELECTRICITY MARKET — A Market Framework

The ~~Regional Transmission Organization (RTO) Millennium Order (Order 2000)~~ Standard Market Design (SMD) Notice of Proposed Rulemaking (NOPR) contains a workable market framework that is working in places like New York and the PJM Interconnection in the Mid-Atlantic Region.



Poolco…OPCO…ISO…IMO…GO/SO…Transco…RTO… ITP…: "A rose by any other name …"

In the SMD NOPR of 2002, the FERC covers a great deal of ground beyond the basics of coordinated spot markets and financial transmission rights. At a high level, it gets an A for the basic proposal.[4]

- **Mandatory Independent Transmission Providers:** Everyone under FERC jurisdiction would have to implement the SMD with a single transmission tariff. Those not under FERC jurisdiction would be profoundly affected or swept along.
- **Coordinated Spot Markets:** The greatest strength is in the clear instructions for coordinated real-time balancing markets, and integrated day-ahead markets with financial transmission rights. Here the design has many gears that have to mesh, and the FERC SMD builds on the best experience. The details matter, but we are close.
- **Market Power Mitigation:** There is no perfect answer. The FERC SMD offers a compendium of tools for market power mitigation that may be the best of a bad lot.
- **Resource Adequacy Requirement:** The prize for the newest idea goes to the attempt to design a short-term system for long-term resource adequacy. This replacement for installed capacity requirements will produce many comments with struggles to understand what is proposed and how it might work.
- **Governance:** The Achilles heel of the SMD NOPR may be in the huge political fight over governance, now underway. The rhetoric of states' rights and the reality of the detailed rules both threaten collateral damage to the progress on market design.

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[4] John D. Chandley and William W. Hogan, "Initial Comments of John D. Chandley and William W. Hogan on the Standard Market Design NOPR," Center for Business and Government, Harvard University, November 11, 2002. (available at www.whogan.com)

ELECTRICITY MARKET Too Hard?

Regulating a system part competitive and part monopoly is difficult. Is restructuring beyond the capability of regulators? Are the institutional requirements too demanding? Is reform too hard?

- **Substance:** The SMD is a sophisticated package with full embrace of the new paradigm including coordinated spot markets, nodal pricing, financial transmission rights, unit commitment and multi-settlement systems, market monitoring and market power mitigation, and so on. For more, see the HEPG web page. The FERC has moved a long way.

- **Jurisdiction:** The SMD proposal met with strong support in some regions (Midwest and Northeast) and provoked strong objections elsewhere (West and Southeast). Many of the objections make little sense on their substantive merits. The underlying argument of the opposition is in effect a rejection of EPAct and the principles of open access and non-discrimination.

- **Counterrevolution:** The expensive mistakes have shaken the foundations of reform. The forces of counterrevolution are organizing. Congress could act through an energy bill to derail FERC's initiatives with seemingly innocuous provisions (native load protection) that strike at the core of the reforms. Would we in effect repeal EPAct?

- **Implementation:** Can FERC follow through and oversee implementation of the many details in the many regions, faced with outright opposition and the "constant effort to distort the rules and processes for the benefit of a few special interests"?

This is an open question. An affirmative answer depends on a critical mass of market participants and regulators who are smart, have a vision, and act in the public interest. If not, what is the alternative?

Will FERC be able to follow through? The political pressure is enormous, but the Commission has the responsibility, authority, vision, and more than a little courage.

"Since issuing the proposed rule in July, we have explored the details of market platforms and mechanisms through workshops and through several RTO filings proposed by market participants in each region, so we're looking at what really works, not just what sounds like a good idea. This review has shown me that successful power markets have certain core design features in common. These include:

- Independent grid operator
- Long term bilateral contract market
- Voluntary short term spot market with transparent prices
- Regional transmission planning
- Locational price signals
- Transmission rights
- Mitigation rules to ensure generator bids reflect costs and scarcity not market power.

A platform designed with these core features serves customers better over the long run than any other platform."[5]

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[5] FERC Chairman Pat Wood, III, CERAWEEK 2003 Luncheon Address, Houston, Texas, February 13, 2003, p. 5.

ELECTRICITY MARKET Too Hard?

Will Congress and the states support the Standard Market Design?

Pressure on the FERC has been building

- Opposition from states in the Southeast and Northwest.
- FERC "White Paper" on the Wholesale Market Platform on April 28, 2003.
- Two days after the White Paper, Senate Energy Committee votes 13-10 to impose a two year moratorium on the Standard Market Design.
- Department of Energy simultaneously produces a cost-benefit study generally supportive of the Standard Market Design. The House energy bill contains no such restriction.
- FERC then announces it will wait until it sees the outcome of the energy bill, but continues with regional hearings on the wholesale market platform.

Will FERC be able to follow through? Or will it take another long period of expensive experimentation?

Supporting papers and additional detail can be obtained from the author. William W. Hogan is the Lucius N. Littauer Professor of Public Policy and Administration, John F. Kennedy School of Government, Harvard University and a Director of LECG, LLC. This paper draws on work for the Harvard Electricity Policy Group and the Harvard-Japan Project on Energy and the Environment. The author is or has been a consultant on electric market reform and transmission issues for Allegheny Electric Global Market, American Electric Power, American National Power, Avista Energy, Brazil Power Exchange Administrator (ASMAE), British National Grid Company, California Independent Energy Producers Association, Calpine Corporation, Comision Reguladora De Energia (CRE, Mexico), Commonwealth Edison Company, Conectiv, Detroit Edison Company, Duquesne Light Company, Dynegy, Edison Electric Institute, Electricity Corporation of New Zealand, Electric Power Supply Association, El Paso Electric, GPU Inc. (and the Supporting Companies of PJM), GPU PowerNet Pty Ltd., ISO New England, Mirant Corporation, Morgan Stanley Capital Group, National Independent Energy Producers, New England Power Company, New York Independent System Operator, New York Power Pool, New York Utilities Collaborative, Niagara Mohawk Corporation, Pepco, PJM Office of Interconnection, Public Service Electric & Gas Company, Reliant Energy, San Diego Gas & Electric Corporation, Sempra Energy, TransÉnergie, Transpower of New Zealand, Westbrook Power, Williams Energy Group, and Wisconsin Electric Power Company. The views presented here are not necessarily attributable to any of those mentioned, and any remaining errors are solely the responsibility of the author. (Related papers can be found on the web at http://www.ksg.harvard.edu/whogan).