ELECTRICITY RESTRUCTURING: PUBLIC PURPOSES, MARKETS, AND INSTITUTIONAL DESIGN

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A broad international program is underway, experimenting with new institutional designs for electricity systems.

- **Privatization of state owned and operated entities.**

  Privatization is important outside United States. Chile (1982), UK (1989) and more …

- **Reliance on markets to coordinate electricity operations and investment.**

  Chile (1982), UK (1989), Norway (1991), US (1992) and more ….

The new policy requires new institutions to pursue public purposes through markets. How do we recognize, design, create, promote, develop, nurture, modify, support, tolerate ... the new institutions?

- **Experiments in the laboratories of democracy.**

  Evolutionary approaches for gradual improvements in the efficiency of institutions.

  This approach has produced crisis and backlash. **Think Enron**. But also California, Mid-Atlantic region, New England, UK, Texas, Brazil, New Zealand.

  "…I abandoned the efficiency view of institutions." (Douglass C. North, Institutions, Institutional Change and Economic Performance, Cambridge University Press, 1990, p.7.)

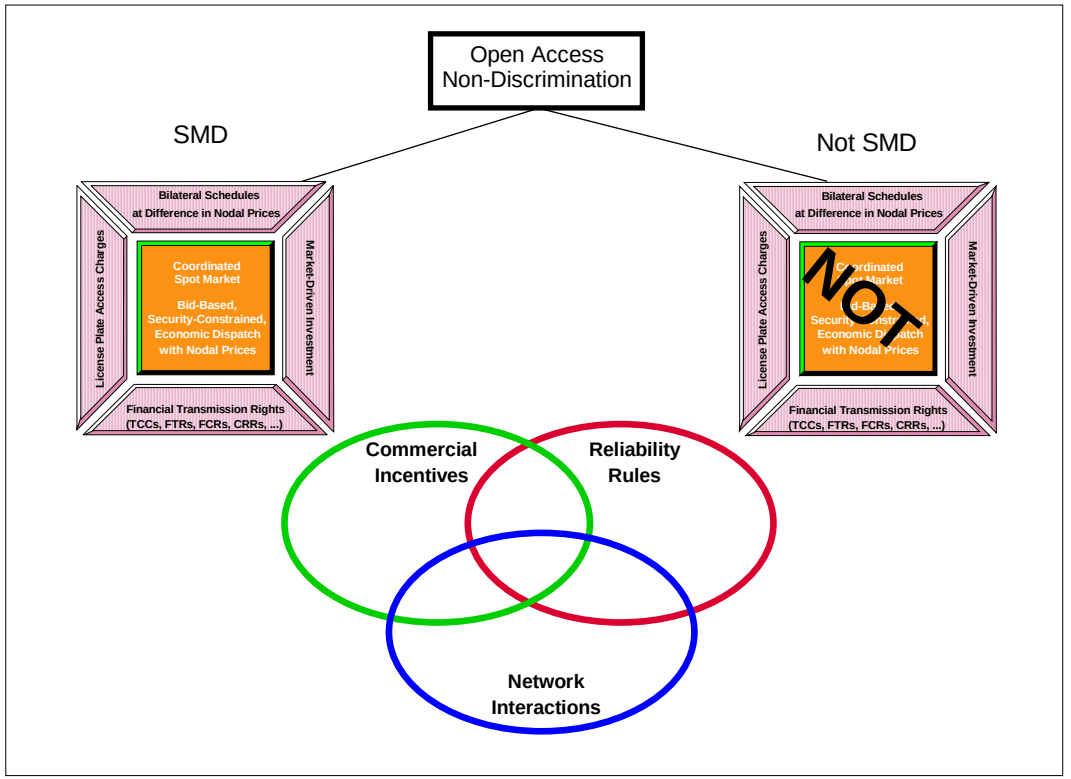
- **Gradualism with a purpose.**

  Choose a path in a path-dependent world.

  Where you end up depends on how you get there.

  Avoid bind alleys. Cross the occasional chasm in one large step, not many small steps.

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



"The need for additional attention to reliability is not necessarily at odds with increasing competition and the improved economic efficiency it brings to bulk power markets. Reliability and economic efficiency can be compatible, but this outcome requires more than reliance on the laws of physics and the principles of economics. It requires sustained, focused efforts by regulators, policy makers, and industry leaders to strengthen and maintain the institutions and rules needed to protect both of these important goals. Regulators must ensure that competition does not erode incentives to comply with reliability requirements, and that reliability requirements do not serve as a smokescreen for noncompetitive practices." (Blackout Task Force Report, April 2004, p. 140.)

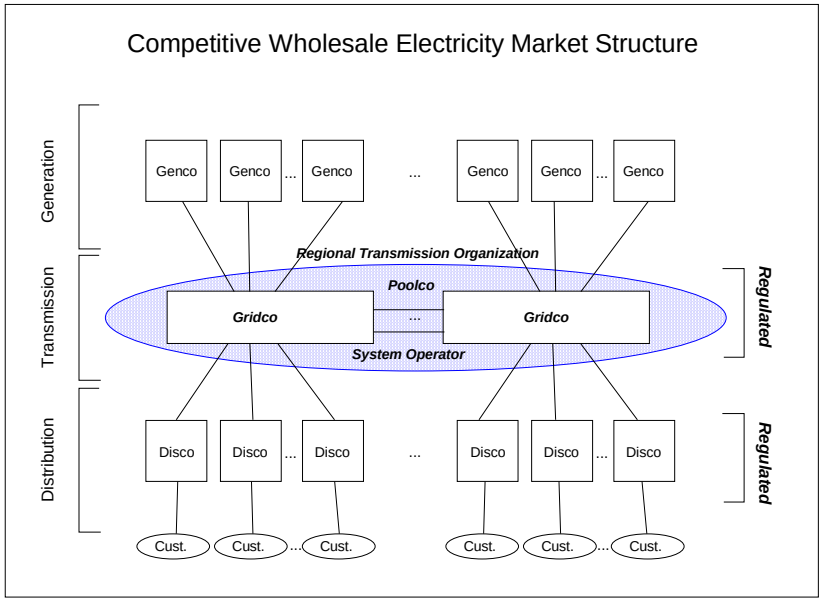
The evolution of electricity restructuring contains a thread of issues related to counterintuitive market design requirements requiring coordination for competition.

Markets for Power, 1983. Joskow and Schmalensee.

> "The practice of ignoring the critical functions played by the transmission system in many discussions of deregulation almost certainly leads to incorrect conclusions about the optimal structure of an electric power system."[1]

The Open Access Rule of Order 888 followed from a lengthy debate about the many details of electricity markets.

> "Today the Commission issues three final, interrelated rules designed to remove impediments to competition in the wholesale bulk power marketplace … . The legal and policy cornerstone of these rules is to remedy undue discrimination in access to the monopoly owned transmission wires that control whether and to whom electricity can be transported in interstate commerce." (FERC, Order 888, April 24, 1996, p. 1.)



[1] Paul L. Joskow and Richard Schmalensee, Markets for Power: An Analysis of Electric Utility Deregulation, MIT Press, 1983, p. 63.

ELECTRICITY MARKET Order 888 and the Contract Path

Under Order 888 the FERC made a crucial choice regarding a central complication of the electricity system.

> "A contract path is simply a path that can be designated to form a single continuous electrical path between the parties to an agreement. Because of the laws of physics, it is unlikely that the actual power flow will follow that contract path. … Flow-based pricing or contracting would be designed to account for the actual power flows on a transmission system. It would take into account the "unscheduled flows" that occur under a contract path regime." (FERC, Order 888, April 24, 1996, footnotes 184-185, p. 93.)

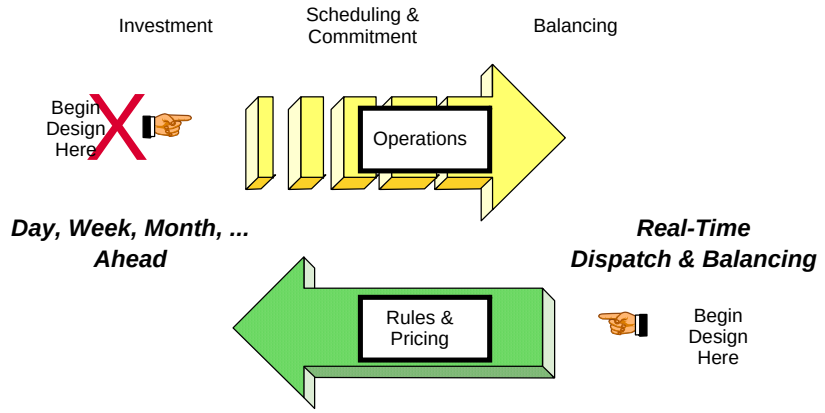
> "We will not, at this time, require that flow-based pricing and contracting be used in the electric industry. In reaching this conclusion, we recognize that there may be difficulties in using a traditional contract path approach in a non-discriminatory open access transmission environment, as described by Hogan and others. At the same time, however, contract path pricing and contracting is the longstanding approach used in the electric industry and it is the approach familiar to all participants in the industry. To require now a dramatic overhaul of the traditional approach such as a shift to some form of flow-based pricing and contracting could severely slow, if not derail for some time, the move to open access and more competitive wholesale bulk power markets. In addition, we believe it is premature for the Commission to impose generically a new pricing regime without the benefit of any experience with such pricing. We welcome new and innovative proposals, but we will not impose them in this Rule." (FERC, Order 888, April 24, 1996, p. 96.)

Hence, although the fictional contract path approach would not work in theory, maintaining the fiction would be less disruptive in moving quickly to open access and an expanded competitive market!

ELECTRICITY MARKET — Focus on Balancing Markets First

Good design begins with the real-time market, and works backward. A common failure mode starts with the forward market, without specifying the rules and prices that would apply in real time.

False Starts for the Electricity Market

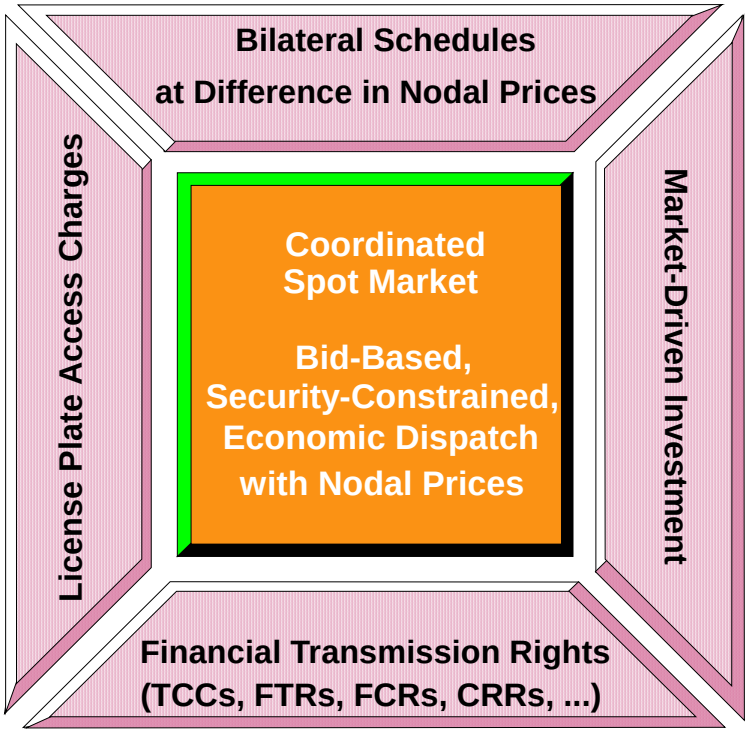


Market expectations determine incentives. Start at the end. Work backward, not forward, in setting market design.

ELECTRICITY MARKET — Successful Market Design (SMD)

The core elements of successful market design follow from the basic principles of ideal competitive markets.

The ~~RTO Order~~ SMD NOPR Contains a Consistent Framework



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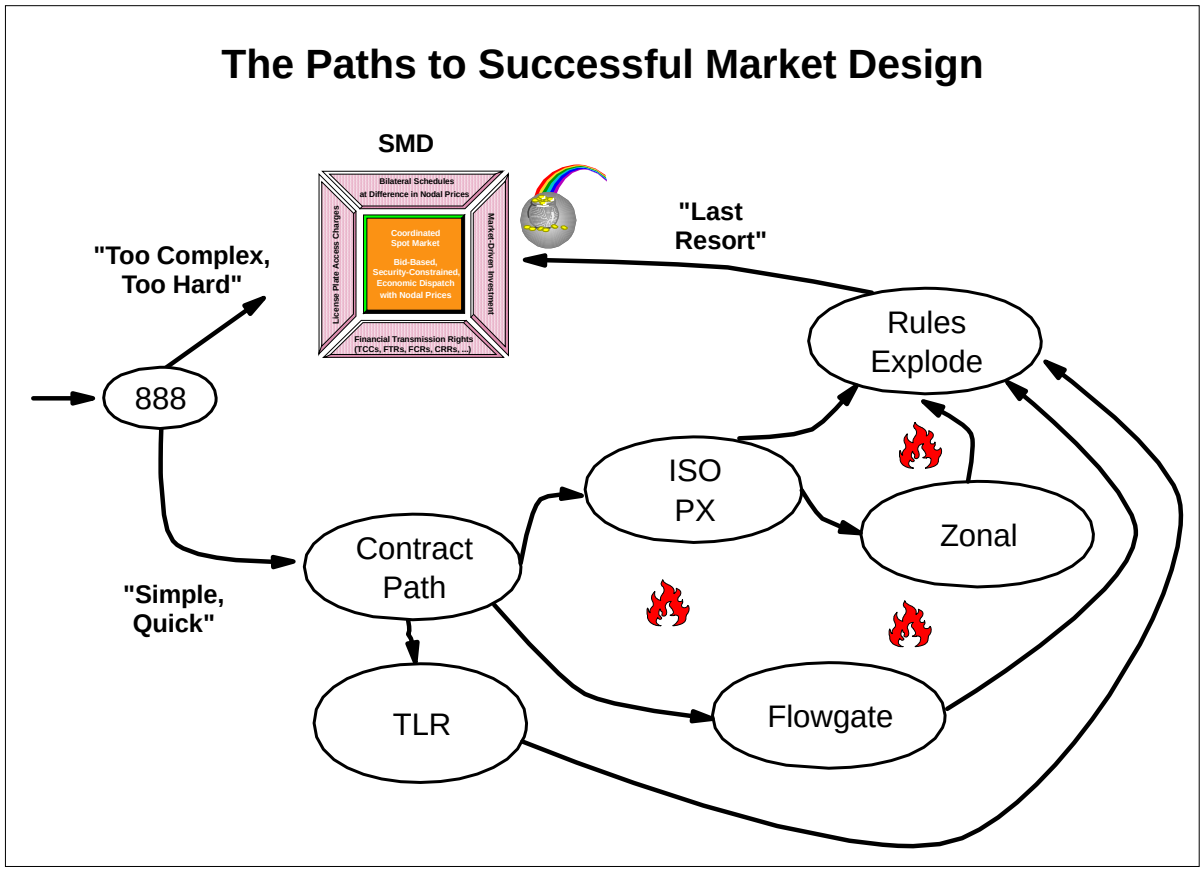
Turning away from SMD is either turning away from open access, or embarking on a painful and circuitous route. With its core elements, SMD is the only design that works both in theory and in practice.



ELECTRICITY MARKET SMD is Not Yet Sufficient

The core SMD elements provide the necessary foundation for open access and wholesale electricity markets. However, the core elements by themselves are not yet sufficient. The challenge is to build on the foundation:

- Better demand response.
- Scarcity pricing in practice as well as in theory.
- Energy limited facilities.
- Seams across the integrated grid.
- Long-term financial transmission rights.
- Transmission investment.
- Make power mitigation.
- Resource adequacy.
- Long-term incentives for Regional Transmission Organizations.
- **...**

For the international experiment in using electricity markets for public purposes, ultimate success is an open question.

From Down Under

"Plans for desperately needed new power generation are up in the air again. … [The New Zealand Labour Government's move] has the potential to up-end the electricity industry and turn back the clock to central planning. Electricity transmission is already centrally planned by state-owned Transpower.

"'The question is, should you centrally plan the alternatives,' Mr Hemmingway [Electricity Commission chairman] says. 'Do you give companies a leg-up in the form of a subsidy to undertake the alternatives? And, how would a package of centrally implemented alternatives distort the market?

"'How far we go down this slippery slope back toward central planning is a central question here. It's the key to our deliberations. We are aware of the slippery slope danger but we are also aware that if there are alternatives out there that are less expensive than the transmission line we ought not let them go to waste.'" (The Press, Christchurch, New Zealand, April 30, 2005.)

From Washington DC

"After holding its draft transmission pricing policy statement for more than two years, the federal Energy Regulatory Commission now says it will issue a final statement in two months…. The policy statement should address which customers pay for transmission expansion, [Commissioner Suedeen] Kelly said. The more expansively costs are spread, the more transmission will be built, she added, indicating that the approach called 'participant funding' should be reserved for projects with isolated benefits. 'I don't really want to use the word 'socialization,' because I think there is an argument to be made that all those people [on the grid] benefit.'" (Power Markets Week, May 2, 2005, p. 9.)

ELECTRICITY RESTRUCTURING Policy Debate

The Harvard Electricity Policy Group includes participants from the spectrum across business and government, across interests and ideas. The discussions are off the record, but there is wide dissemination of the ideas.

Web Results **1** - **10** of about **30,900,000** for **electricity policy**. (**0.28** seconds)

Harvard **Electricity Policy** Group

On-line access to publications on **policy** topics related to the transition to a more competitive **electricity** market in the US.

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The immediate discussion topics address issue from six months to two years over the horizon. The research activities have a longer view and deal with core analytical issues at the center of the interaction between business and government.

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, Australian Gas Light Company, Avista Energy, Brazil Power Exchange Administrator (ASMAE), British National Grid Company, California Independent Energy Producers Association, California Independent System Operator, Calpine Corporation, Central Maine Power Company, Comision Reguladora De Energia (CRE, Mexico), Commonwealth Edison Company, Conectiv, Constellation Power Source, Coral Power, Detroit Edison Company, Duquesne Light Company, Dynegy, Edison Electric Institute, Edison Mission Energy, Electricity Corporation of New Zealand, Electric Power Supply Association, El Paso Electric, GPU Inc. (and the Supporting Companies of PJM), GPU PowerNet Pty Ltd., GWF Energy, Independent Energy Producers Assn, ISO New England, Luz del Sur, Maine Public Advocate, Maine Public Utilities Commission, Midwest ISO, 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, NRG Energy, Inc., Ontario IMO, Pepco, Pinpoint Power, PJM Office of Interconnection, PP&L, Public Service Electric & Gas Company, Reliant Energy, Rhode Island Public Utilities Commission, San Diego Gas & Electric Corporation, Sempra Energy, SPP, Texas Utilities Co, TransÉnergie, Transpower of New Zealand, Westbrook Power, Western Power Trading Forum, 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 the web at www.whogan.com).