

Acting in Time on Energy Policy

Electricity Market Structure and Infrastructure

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Electricity Restructuring

The short term financial crisis and long term energy policy provide a context with a rapidly changing view of the role of government.

- Financial Crisis Presents Conflicting Diagnoses
 - “Deregulation, or the failure of regulators to keep up with fast-moving markets, can become unbelievably costly, as we have seen.” Francis Fukuyama, “The Fall of America, Inc.,” *Newsweek*, October 13, 2008, p. 32.
- Going Green Implies a Major Transformation of the Electricity Sector
 - Climate change policy and the expanded focus on renewables present a fast moving array of subsidies, regulations and mandates. Focus on transmission expansion and the smart grid.
- Electricity Restructuring is not Electricity Deregulation
 - Electricity markets with Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs), the North American Electric Reliability Corporation (NERC), State Public Utility Commissions (PUCs), Public Power Authorities, and the Federal Energy Regulatory Commission (FERC) are highly regulated entities. But “failure of regulators to keep up with fast-moving markets, can become unbelievably costly, as we have seen.”

The challenge of “keeping up” emphasizes the dynamic nature of the problems and the importance of understanding the fundamentals of first principles.

IEA Key Messages

- Governments must ensure a stable and competitive investment framework that sufficiently rewards adequate investments in a timely manner.
- Governments urgently need to reduce investment risks by giving firmer and more long-term direction on climate change abatement policies.
- Governments should pursue the benefits of competitive markets to allow for more efficient and more transparent management of investment risks.
- Governments need to ensure that independent regulators and system operators establish transparent market rules that are clear, coherent and fair.
- Governments must refrain from price caps and other distorting market interventions.
- Governments must implement clearer and more efficient procedures for approval of new electricity infrastructure.

New Conventional Wisdom

- Put a Price on Carbon.
- Promote Energy Efficiency and Renewable Supply.
- Provide Bigger and Smarter Grids.

Old Controversial Wisdom

- Expand Regional Transmission Organizations (RTOs).
 - Open Access
 - Bid-Based, Security-Constrained, Economic Dispatch
- Adopt Smarter Pricing for Smarter Grids.
 - Dynamic Pricing
 - Reliability Pricing Impacts
- Develop Hybrid Transmission Expansion and Cost Allocation Framework.
 - Regional Scope
 - Beneficiaries Pay

Expand RTOs

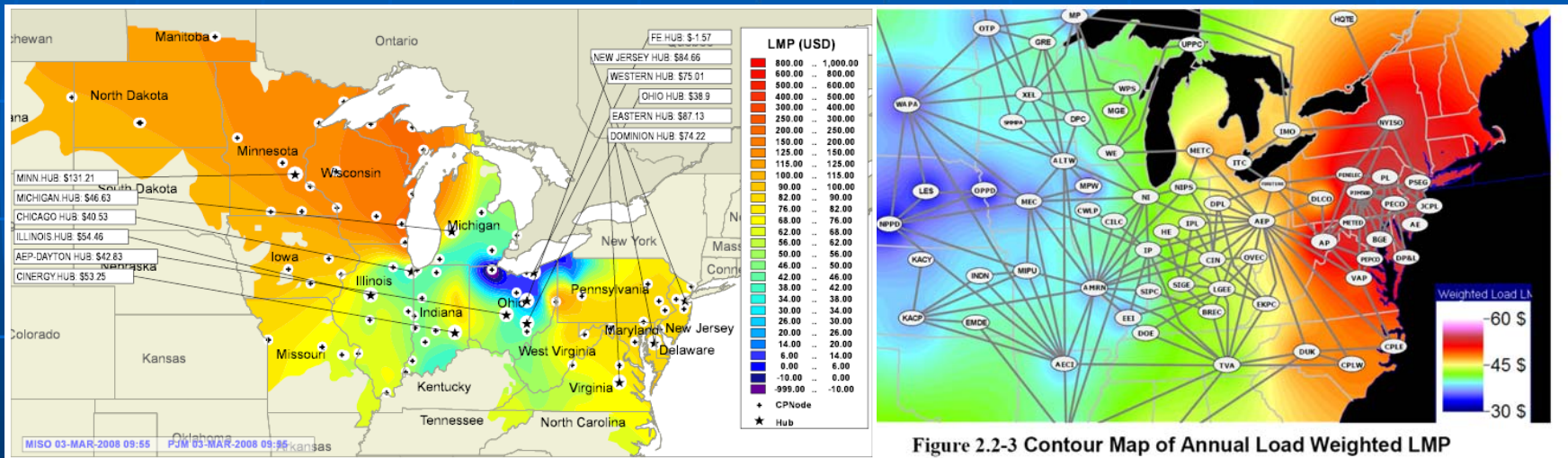
“What provisions might a Federal Power Act of 2009 contain?”

- [Federalize transmission] ...
- **[Mandate Regional Transmission Organizations]** The key provisions of FERC Order 2000 should be put into law. This would require the creation of RTOs that manage the operation of large regional transmission networks, implement FERC’s transmission access, pricing, and planning regulations, and operate voluntary wholesale markets for electric energy, ancillary services, capacity and transmission rights. There is abundant evidence (a) that RTOs are needed to support efficient competitive markets, (b) that expanding the geographic expanse of RTOs and improving the market designs for energy, ancillary services and capacity lead to efficiency improvements, (c) and that wholesale market designs built around what is generally referred to as the “standard market design,” augmented by capacity obligations and capacity markets, promote economic efficiency.
- [Unbundle generation and distribution] ...
- [States determine retail access] ...
- [Limit generation subsidies to merchant investments] ...
- [Allocate any free CO2 allowances to electricity consumers] ...
- [State regulatory jurisdiction continue over distribution facilities] ...”

Paul Joskow, “Challenges For Creating A Comprehensive National Electricity Policy,” Technology Policy Institute Keynote Speech, Washington DC, September 26, 2008. (available at <http://www.hks.harvard.edu/hepg/>).

Dynamic Pricing

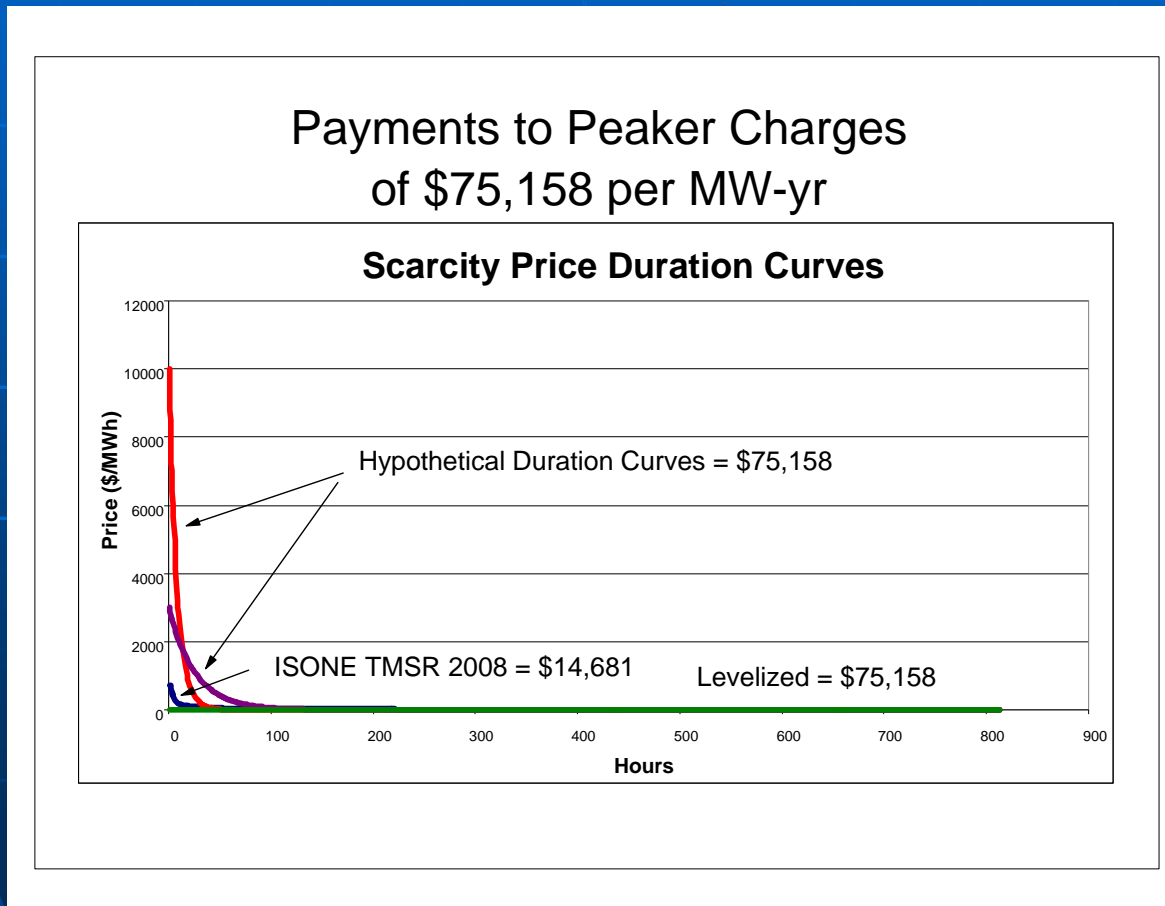
Locational spot prices for electricity exhibit substantial dynamic variability and persistent long-term average differences. Both have a material impact on the value of energy, especially from intermittent resources.



From MISO-PJM Joint and Common Market, <http://www.jointandcommon.com/> for March 3, 2008, 9:55am. Projected 2011 annual average from 2006 Midwest ISO-PJM Coordinated System Plan.

Reliability and Scarcity Pricing

Low spinning reserve prices reflect inadequate scarcity pricing and create the missing money problem.



Transmission Expansion

What to Build, Where to Build it, and Who pays?

- “We know where the wind blows. We know where the loads are going to go. We know absolutely beyond the shadow of a doubt what the RPS standards are. Yet we want to design these [lines] one at a time and build a spaghetti network that’s both inefficient and ineffective, where we could just make the calculation.” Joseph Welch, ITC, in PUF, March 2009, p. 24.
- “In May 2007, the Arizona Corporation Commission unanimously rejected SoCal Ed’s proposed [line] between Arizona’s Palo Verde hub and Southern California. ... ACC commissioners, in part, were concerned that California would reap the benefits of Arizona’s generating capacity, while Arizona ratepayers would be stuck with higher costs.” “Southern California Edison officials said Friday that the utility will ... cease efforts to develop ... the project has become uneconomic. ... Changes in the economic picture include an increase in expected renewable resources, reduced differences between Arizona and California fuel supplies, and a drop in California electricity demand, due to the economic downturn, [Pedro] Pizarro said.” Megawatt Daily, May 18, 2009, p. 7.

Transmission Cost Allocation

What to Build, Where to Build it, and Who pays?

- "...Wellinghoff asked the lawmakers to clarify FERC's authority 'to allocate such transmission costs to all load-serving entities within an interconnection or part of an interconnection where it is appropriate to do so.'" [Electric Transmission Week](#), June 22, 2009, p. 3.
- "National Grid, LPPC [Large Public Power Council] Hit Broad Allocation of Transmission Cost." [Headline, The Energy Daily](#), June 12, 2009, p. 1.
- "The proposed cost allocation mechanism is based on a 'beneficiaries pay' approach, consistent with the Commission's longstanding cost causation principles. ... Beneficiaries will be those entities that economically benefit from the project, and the cost allocation among them will be based upon their relative economic benefit. ... The proposed cost allocation mechanism will apply only if a super-majority of a project's beneficiaries agree that an economic project should proceed. The super-majority required to proceed equals 80 percent of the weighted vote of the beneficiaries associated with the project that are present at the time of the vote." [New York Independent System Operator, Inc Docket No. OA08-13-000, "Order No. 890 Transmission Planning Compliance Filing," Cover Letter Submitted to Federal Energy Regulatory Commission, December 7, 2007, pp. 14-15.](#)

False Goals and Flawed Policies

- Energy/Oil Independence.
 - For oil and carbon, the problem is global.
- Renewable Portfolio Standards.
 - Given carbon caps, technology standards raise costs without increasing benefits.
 - Focus on learning, not market penetration.
- Environmental Dispatch.
 - Given a carbon price, non-economic dispatch creates higher costs and perverse incentives.
- Transmission Closed Access.
 - Been there, done that.

Acting in Time on Energy Policy

- Address Market Failures Before Mandating Solutions.
 - Uncertainty
 - Incentives and Learning
- Put a Price on Carbon.
- Promote Energy Efficiency and Renewable Supply.
 - RD&D
 - Market Design
- Provide Bigger and Smarter Grids.
 - Expand Regional Transmission Organizations (RTOs).
 - Open Access
 - Bid-Based, Security-Constrained, Economic Dispatch
 - Adopt Smarter Pricing for Smarter Grids.
 - Dynamic Pricing
 - Reliability Pricing Impacts
 - Develop Hybrid Transmission Expansion and Cost Allocation Framework.
 - Regional Scope
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