

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

**Conference on Competition
In Wholesale Power Markets**

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Prepared Remarks of Professor Paul L. Joskow¹

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Mr. Chairman and members of the Commission, thank you for giving me the opportunity to participate in this Conference on Competition in Wholesale Power Markets.

The competition reforms that have been transforming the U.S. electricity sector represent the last chapter in three decades of restructuring, deregulation and regulatory reforms affecting many important industrial sectors of the U.S. economy that were historically subject to price and entry regulation. They include airlines, trucking, railroads, oil, telecommunications, cable television, and natural gas production and transportation. Some of these initiatives have been easier to bring to fruition than others and have taken varying times to be completed. Most of them have been opposed by various interest groups, especially by regulated incumbents and in a number of cases by state regulators.

In some ways the electricity sector has proven to be the most challenging sector to reform both technically and politically. Nevertheless, the Commission's efforts to create well functioning competitive wholesale markets for electricity will have and will continue to yield significant benefits to the U.S. economy.

Of course, this Commission played a central role in the reforms of the natural gas sector and should recall that these reforms were controversial and took a significant amount of time to be fully realized. However, as a result of this Commission's efforts we now have an integrated North American natural gas system that operates smoothly, efficiently, and reliably. There are lessons to learn from the experience with the natural gas sector reforms. I hope that the Commission reflects on that experience as it considers the state of wholesale electricity markets and what policy reforms it can adopt going

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forward to sustain the progress that has been made and to remove remaining market and institutional imperfections.

The motivation for restructuring and deregulation reforms have been similar in all of the regulated sectors that I identified earlier. Competition yields more efficient outcomes than price and entry regulation in all but a few situations where supply truly has natural monopoly characteristics and effective competition is infeasible. Competition stimulates operating and capital cost reductions; it spurs innovation in processes and products; it properly aligns prices with marginal costs to provide efficient price signals to consumers and producers; it shifts the costs of inefficient production and construction cost overruns to investors and away from consumers, providing high-powered incentives for operating and construction cost efficiencies; it gives buyers and sellers opportunities to manage price and quantity risk, quality and reliability of supply to match their preferences; by increasing transparency it undermines efforts by interest groups to use the regulatory process to pursue social agendas and to pay for them via taxation by regulation.

The electricity sector is no different qualitatively in this regard from the other previously regulated sectors that have been reformed over the last three decades. The good old days were not nearly as good as some would have us believe. Too many utilities had operating costs that were higher than best practice, experienced enormous construction cost overruns, exhibited poor generator availability, built generating units of sub-optimal scale, were slow to adopt new technologies and exhibited persistent excess generating capacity. The organization of the nation's transmission grid with nearly 150 control areas, poor coordination between them, and limited access to transmission service, led to inefficient utilization of the existing stock of generating capacity, increased the cost of meeting reliability criteria, and created barriers to entry for independent generators.

The bills for these costly inefficiencies were sent to retail consumers. Moreover, retail prices did not properly reflect the marginal costs of generating electricity and provided poor incentives for demand side management and energy efficiency.

It is important to remember that the pressure for restructuring to support wholesale and retail competition came from consumer groups, primarily large industrial consumers who were tired of paying for the excessive costs of regulation, as well as from municipal utilities and independent power producers who wanted to open up access to competitive wholesale and retail markets where they thought they would be treated more fairly. In reality, it appears that what some of these early proponents of competition really wanted was the opportunity to have the lower of the regulated price or the market price, free riding on smaller residential and commercial customers. In competitive markets prices go up and down as supply and demand conditions change. A framework where customers get to opt for competitive prices when supply and demand conditions yield temporarily low market prices and for regulation when supply and demand conditions yield temporarily high market prices is unsustainable.

While there is still much to do, a lot of progress has been made in stimulating wholesale competition and delivering the kinds of benefits to our economy that were expected when competition, restructuring and regulatory reform programs accelerated in the 1990s. This is especially true in the organized markets in the Northeast, Midwest and Texas, as well as in other countries that have implemented comprehensive competition and regulatory reforms of their electricity sectors --- the UK, the Nordic countries and the Netherlands in particular provide excellent examples of how well designed electricity sector market reforms and incentive regulation programs for transmission and distribution networks can yield significant benefits for society over the long run. The U.S. has now fallen behind the European Union in the speed with which wholesale and retail market reforms are moving forward.

Let me mention briefly what I see as the most important accomplishments of the last decade of wholesale market reforms so far and then turn to what I think still needs to be done. Here I must distinguish between the organized markets in the Northeast, the Midwest and Texas from most of the rest of the country that continues to rely primarily on regulated vertically integrated monopolies.²

1. The markets in the Northeast and Midwest organized around an LMP model and managed by an Independent System Operator (ISO) now work very well in almost all dimensions.

a. These markets are extremely competitive under almost all contingencies. The wise use of independent market monitors and thoughtful market power mitigation mechanisms have largely mitigated potential market power problems when the few remaining contingencies arise. No market is textbook perfectly competitive and it is unreasonable to set that goal as a standard for wholesale electricity markets to meet.

b. The wholesale markets for energy and ancillary services are highly transparent, support more efficient generator dispatch for energy and operating reserves, and facilitate entry of new generating capacity developed by independent merchant suppliers.

c. Scarce transmission capacity is allocated fairly and efficiently and non-discriminatory access to transmission networks has been enhanced by turning administration of regional transmission tariffs over to the ISO.³

d. Open access to transmission networks, fair and efficient transmission service prices, market incentives, and coordination agreements between RTO/ISOs have led to an expansion of wholesale trading areas and facilitated least cost generator dispatch over wider geographic areas than was the case in the past.

² It is hard to know how to characterize the situation in California. Let's just call it a hybrid model.

³ It has been and remains my view that regional transcos that own, maintain, and operate a regional transmission network represent a superior organizational form. However, the ISO/RTO model appears to be a pragmatic (i.e. politically feasible) and reasonably effective alternative in the U.S. at the present time.

e. Wholesale market prices reflect the marginal cost of generating electricity over time and space, including the costs of congestion and losses, except under extreme scarcity conditions, when prices are too low for a variety of reasons.⁴ These prices are the foundation for stimulating good demand side response programs and for providing good incentives to consumers to use electricity wisely.

f. Generating unit availability has improved considerably, especially for the divested (now merchant) nuclear plants.

g. Generating unit non-fuel operating costs have declined and heat rates have improved.

h. Retail customers have not been forced to pay for construction cost overruns and excess generating capacity as was frequently the case in the “good old days.”

i. Significant progress is being made in deploying well-designed demand side programs to reduce the need for new generating capacity, to help to meet reliability criteria efficiently, and to use the existing fleet of generating plants more efficiently

j. These markets are well adapted to getting the most out of cap and trade programs for controlling emissions of criteria pollutants like SO₂ and NO_x and perhaps ultimately CO₂.

k. These markets have provided an outstanding economic and administrative infrastructure to support the renewable energy portfolio standards that many states have now adopted in a cost effective manner and to guard against double counting of renewable energy production.

l. The introduction of the capacity market and payment mechanism in New England is stimulating renewed activity on the generation investment front. Note that this is a region in which roughly 10,000 Mw of new merchant generation was completed soon after the organized market was created. This in turn led to a temporary excess capacity situation, excess capacity that led to wholesale prices lower than their long run equilibrium levels. As the market has tightened, wholesale prices naturally have risen. This is the dynamic property of markets that stimulates new investment in generation and demand side response at the right times and places.

m. The evolution of a robust transparent transmission investment planning processes, especially in the New England ISO and PJM, are now supporting needed investment in new transmission capacity.

⁴ This issue is discussed in more detail in my paper “Competitive Electricity Markets and Investment in New Generating Capacity,” *The New Energy Paradigm* (Dieter Helm, editor), Oxford University Press, forthcoming 2007. http://econ-www.mit.edu/faculty/download_pdf.php?id=1348 .

n. These wholesale market provide an excellent platform to support retail competition in those states that have chosen to give retail customers the opportunity to go to the market to choose their retail supplier and the terms and conditions of the associated retail supply arrangements.

There is still some work to be done to improve wholesale markets in those regions that have adopted an organized market model managed by an ISO. However, we are a long way down the path to completing the reform vision on the wholesale market side. What are the priorities?

a. Do no harm! The Commission should resist efforts to make dramatic changes in the organized market designs in the Northeast and Midwest. Drastic market redesign will not lead to lower wholesale prices, though it may lead to discriminatory prices that benefit some large consumers and burden smaller consumers. Wholesale prices have risen significantly in the last couple of years because deregulated natural gas and oil prices have risen significantly, not because of design failures in wholesale markets. That's how markets work. Should we re-regulate natural gas prices because they have risen so much in the last couple of years? As fuel prices come down wholesale electricity prices will come down as well.

b. Continue to support the ISOs' implementation of robust demand side programs, including more use of priority rationing contracts triggered by scarcity prices rather than administrative reliability rules. Payments for demand response should be equivalent to the full price paid for generating capacity that operates for only a few hours each year to meet peak demand and dispatchable demand should be integrated fully into wholesale markets. Asymmetries between the marginal cost of an additional megawatt of reserve capacity and the prices paid for demand response continue to exist. Indeed the difference may be as much as two orders of magnitude!

c. Continue to support well designed capacity obligation and supporting capacity and reserve market mechanisms such as those in New England, New York and proposed for PJM to serve as safety valves to harmonize market incentives with engineering reliability criteria.

d. As demand response grows, relax the wholesale price caps that were put in place years ago, as is being done in Texas, and harmonize enhanced scarcity pricing for energy and ancillary services with the design of capacity payment mechanisms as is encompassed in the forward capacity market mechanism in New England via its scarcity rent credit provisions.

e. Continue to encourage the ISOs to adopt transparent transmission planning processes that integrate reliability and economic considerations.

f. Work with the ISOs to develop effective performance based regulation programs for transmission facility maintenance costs, reliability, and capital enhancements small and large

g. Work with the states to harmonize retail competition and retail procurement rules with the design and operation of wholesale markets.

Turning now to the rest of the country where there are not organized wholesale markets and where there are not ISOs or RTOs. In these regions there is much more work to do to create real wholesale markets that can support both efficient operation of existing generating capacity and competitive entry of new generating capacity.

Now that the Commission has completed its reforms of Order 888 I suggest that it turn its attention to reexamining and implementing key provisions of Order 2000. There is much wisdom in Order 2000 and well functioning wholesale markets for electricity that have good short run (economic regional dispatch) and long run (investment) properties will only be realized if some of the concepts embodied in Order 2000 are implemented. I would give highest priority to the following:

a. All transmission-owning utilities should be required to join a regional RTO/ISO that meets the kinds of criteria for independence, geographic scope, and services provided that are specified in Order 2000. The ability of utilities to threaten to move in and out of RTOs can undermine the independence of the existing RTO/ISOs as they seek to pander to the interests of their existing and potential members, rather than pursuing the public interest, to keep them from exiting.

b. High voltage transmission service should be fully unbundled and subject to FERC rate and service quality regulation. All buyers and sellers of power should take service off of the same transmission tariff under the same terms and conditions. Historical rights to the economic value of transmission capacity can be easily accommodated through the initial allocation of long-term tradable financial transmission rights. This is the only way that FERC can regulate transmission rates effectively and adopt good incentive regulation mechanisms. It will also eliminate de facto discriminatory prices for transmission service that have potentially anticompetitive consequences. (This unbundling requirement should apply to the organized RTO/ISO markets as well in those situations where full unbundling has not yet been implemented)

c. All buyers and sellers in all wholesale markets must have access to transparent competitive balancing markets for energy, transparent competitive markets for ancillary services, non-discriminatory transparent mechanisms for allocating and pricing scarce transmission capacity efficiently, and the right to compete for short-term and long-term transmission rights.

d. There should be independent market monitors in each of the RTO/ISO regions to monitor market behavior and performance and to implement Commission approved market power mitigation programs.

These reforms will go a long way to removing barriers to the evolution of efficient wholesale markets across the country.

Let me conclude with a couple of observations. At the present time, the greatest impediment to investment in new generating capacity is political and regulatory uncertainty that is being produced by calls for “re-regulation” and calls for altering dramatically wholesale market designs that have evolved in positive directions and work well. Accordingly, I urge the Commission to reaffirm its commitment to competitive wholesale markets, its rejection of calls dramatically to redesign yet again the organized markets in the Northeast and Midwest that work so well, and to continue to support states that have chosen to adopt retail competition programs and/or competitive wholesale procurement programs to provide electricity to retail consumers.

I also urge the Commission to do what it can to support the independence of state regulatory agencies and the credibility of regulatory bargains struck in the past. Representatives of the United States government go all over the world telling other countries that they should adopt our system of independent regulation and credible regulatory commitments. Events in some states in the last year are undermining the independence and credibility of our regulatory system. If this trend continues it will discourage investment in the electricity sector and accrue to the disadvantage of our economy in the long run.

Thank you.