

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

**Conference on Competition
In Wholesale Power Markets**

Docket No. AD07-7-000

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The Origin of Competitive Wholesale Power Markets

In 1991, the George H.W. Bush Administration published its National Energy Strategy. With respect to electricity generation and use, the Strategy “calls for legislative and regulatory actions to permit more competition in the industry, reduce consumer costs, and promote flexibility and efficiency in the way electricity is produced and used.”¹ Passage of the Public Utility Regulatory Policies Act in 1978 had led to limited competition among a small group of wholesale suppliers. This PURPA experience suggested “strongly that greater competition among wholesale suppliers is both feasible and likely to be beneficial. Electricity would cost less, and utilities would have more flexibility in dealing with uncertainty in the pace of electricity demand growth.”²

Accordingly, the Strategy recommended amendment of the Public Utility Holding Company Act “to allow businesses to build, own and operate powerplants for wholesaling electricity in more than one geographic area. This will help develop electricity supplies and stimulate competitive market efficiencies that are not available under the traditional single-supplier approach.”³ In addition, the Administration voiced its support for full utilization of DOE and FERC authorities to encourage more open access to electric transmission facilities.

Why the endorsement of competitive wholesale power markets in this 1991 National Energy Strategy? There were two fundamental reasons:

- 1) The status quo was not working particularly well to supply needed power at reasonable cost.
- 2) Experience with “deregulation” of other industries suggested that more competitive electricity markets would benefit consumers.

* I wish to thank Irwin Stelzer for his interest and ideas related to this project. The views expressed herein, however, are solely my own and should not be attributed to Dr. Stelzer nor to any client of my firm.

¹ P. 33.

² P. 34.

³ Id.

Let me briefly discuss each of these in turn. Following that, I will offer my perspective on what the competitive wholesale power markets envisioned in the 1991 National Energy Strategy, the Energy Policy Act of 1992, and FERC Orders 888 and 2000 have accomplished for consumers, where they may be falling short and why. Finally, I will suggest what the Commission can do to achieve more competitive wholesale electricity markets and greater benefits for consumers.

I. THE GOOD OLD DAYS WEREN'T SO GOOD

The 1980s in the power industry were marked by a fraying, or downright unraveling, of the “regulatory compact” that had governed utilities since the 1930s. Simply put, under that compact, utilities had monopoly supplier status in specified territories. In exchange, utilities were required to serve all electricity needs in those territories at regulated rates that allowed a fair return on prudent investments made to serve those “native loads.” Huge cost overruns for utility-built power plants in the 1980s, particularly nuclear power plants, stretched this compact to the breaking point. Regulators began disallowing recovery of significant utility investments, reducing the industry’s credit quality and making it more difficult for utilities to raise the capital necessary to build new generation. This is not the place to allocate blame: let me just say that there was a combination of bad planning, construction inefficiency, moving goalposts and regulation by hindsight.

Meanwhile, and contrary to conventional wisdom, natural gas prices plummeted and supply ballooned, just as General Electric and others developed from jet engine technology natural gas fired electric generation technology that was efficient, clean, quicker to build and easier to site than large coal or nuclear plants. However, having been directed by Congress as recently as 1981 NOT to use natural gas for electricity because we were running out of it, and turning as a result to alternative technologies, utilities largely were uninterested in this new technology. This was not the case for non-utility power suppliers, many of whom were drawn into the industry by PURPA and who perfected financial mechanisms such as project finance to fund new generation.

As a result of these developments, some utilities stopped building new generation entirely and adopted a “buy, not build” strategy. Others, with the encouragement or direction of state regulators, embarked on integrated resource planning programs or “least cost procurement” strategies. Some states set administrative avoided costs for purposes of PURPA at levels far above actual utility avoided costs (New York’s six cents law, e.g.). While some of these programs were successful in diversifying generation technologies and introducing demand side management as a resource, the complexity of these programs and their cost soon bogged down resource procurement and increased consumer rates to a degree that was difficult to reconcile with the cost of electricity produced from natural gas turbines fueled by \$2 (or less) natural gas.⁴ At the same time, non-utility generators longed to move beyond the role of cogeneration and small power

⁴ The average wellhead price of natural gas in 1990 was \$1.71 per Mcf. according to data from the Energy Information Administration.

suppliers provided by PURPA. The demands for change were reflected in the 1991 NES and the Energy Policy Act of 1992.

II. IF COMPETITION AND OPEN ACCESS WORK FOR OIL, NATURAL GAS, TRUCKS, TELECOMMUNICATIONS, TRAINS AND PLANES, THEY SHOULD WORK FOR ELECTRICITY

The 1980s saw a “deregulation” movement of profound sweep. Price and allocation controls for petroleum were terminated. The sale of natural gas was decontrolled. The regulation of railroads was fundamentally overhauled, as was the regulation of planes, telecommunications and trucks. By virtually all objective measures, the “deregulation” of these industries was a success. Supplies improved, prices fell, service was better and innovators brought consumers new products and services. Surely, a dose of competition and “deregulation” could produce similar results for electricity consumers.

The natural gas model was particularly powerful as electricity policy makers set about crafting a reform agenda in the early 1990s. Thanks to deregulation, technology innovation and FERC initiatives to open up access to natural gas transportation on a nondiscriminatory basis, supplies of natural gas had gone from critically short to abundant, even a glut. Prices declined to levels that were unthinkable just a few years earlier.⁵ And, with open access to pipeline transportation, industrial customers, in particular, but also local distribution companies, were able to shop for lower-priced supplies and reap the benefits of the competitive wellhead natural gas market.

III. WHAT WENT RIGHT; WHAT WAS MISSED

Competitive wholesale electricity markets have produced benefits for consumers. The vast majority of the generation constructed since 1990 has been constructed by non-utility generators. They and their shareholders and lenders have borne the easily discernible risks of cost overruns and missed estimates of demand and/or fuel prices, not utility rate payers. As the bankruptcy experience of Calpine, Mirant and others has demonstrated, these risks are considerable.

In addition, competitive wholesale markets have spurred greater productivity and efficiency in the generation of electricity. From 1990 to 2005, U.S. nuclear power plant output increased from 576.9 billion kwh to 782.0 billion kwh. That is the equivalent of 26 new 1000-megawatt power plants. Part of this increase was driven by vastly improved operating performance (from 70% capacity factor to nearly 90%). The remainder was driven by incremental capacity expansions at existing plants. At the same time, nuclear electricity production costs in 2005 cents per kwh dropped from 2.46 in 1995 to 1.80 in 2003.⁶ Capacity factors in coal plants also have increased substantially, from about 55% in 1990 to more than 60% in 2005, according to EIA data.

⁵ In 1984, the average wellhead price was \$2.66 per Mcf, with “new”, decontrolled natural gas selling for amounts double and even triple that price.

⁶ Nuclear Energy Institute data

There are three important things, however, that have not gone as expected: 1) natural gas supply and price; 2) transmission investment; 3) generation supply.

1. **Natural Gas Supply and Price**

With respect to natural gas supply and price, there was a view throughout much of the 1990s that technology improvement would provide a virtually inexhaustible supply of natural gas at \$3 or less. Esteemed geology professors espoused this. Entire companies were built on this premise. Pipeline executives sported buttons touting the 30 Tcf economy. We were wrong. You know what natural gas prices are today.⁷ You may not know, however, that fully 50% of the natural gas being produced today in the U.S. comes from wells that entered production in the last *three* years. Despite the increased drilling elicited by higher natural gas prices, we are barely holding U.S. production constant because the new wells coming on are barely replacing the decline in production from existing wells. Meanwhile, Canadian imports are declining as their own resources mature and domestic consumption rises, in part to fuel projects such as the Alberta tar sands.

Natural gas fired generation accounts for about 20% of our generation on a national basis, so you might wonder why I dwell on this. I do so because the way that competitive electric markets are structured magnifies the importance of natural gas prices and because the vast majority of the generation brought into service since 1990 is fueled by natural gas. In the many markets where natural gas generation sets the marginal price, and where single price auctions are employed, electricity prices rise (or fall) with the natural gas price tide. When today's competitive electricity markets were organized, many expected natural gas generation to exert downward pressure on prices, thus "stranding" utility investment in coal and nuclear generation. That is not what has happened. It is investment in natural gas generation that has been "stranded" and owners of nuclear and coal fired powerplants operating under market based rates have done well, indeed.

Perhaps this is necessary for economically efficient markets. I leave that question to the eminent economists appearing here. As a lawyer (a profession not noted for its attention to efficiency), let me speak to equity and practical regulatory policy; and let me suggest that no regulatory policy, no matter how elegant in its economic formulation, can long survive if it is deemed inequitable, impractical or impolitic. Since those in the industry who must make the investments we need know this, they will view a policy aimed purely at efficiency with no regard to equity as providing little guide to the future. They will hesitate to invest, or will at least demand a higher risk premium for so doing if the rules of the game do not seem sustainable.

2. **Transmission Underinvestment**

The Commission is well aware of the chronic underinvestment in transmission since the 1980s. There are a number of reasons for this. In simplest terms, when utilities

⁷ The average wellhead price in 2005, according to EIA data, was \$7.33 per Mcf.

stopped building new baseload generation, they stopped building transmission. No one stepped in to fill the void. Put another way, with the disaggregation of vertically integrated utilities in many places and the dispersed ownership of generation, the coordinated long-term planning of generation and transmission was disrupted. It is difficult for a utility to know where and how much transmission to build, if it does not know where and how much generation will be built, and what customers that generation will serve. To make matters worse, the time frames for generation and transmission projects are not the same, with significant transmission projects taking longer to plan and construct than it takes to get a new natural gas plant in service.

Electric policy makers in the 1990s had the view (and I will include myself in this) that transmission would still be built in more competitive generation markets, just as natural gas pipelines were still being constructed in more competitive natural gas markets, even though the pipelines, themselves, were taken out of the business of buying and selling natural gas. We were wrong because we overlooked four things: 1) the economic incentives of a transmission owner to benefit its own generation by restricting access to transmission (an incentive generally not present for natural gas pipeline owners); 2) the difficulty of siting transmission lines; 3) the challenge of transmission rate design (who pays and how is this determined); and 4) the role of states in regulating transmission rates, a role they do not play with respect to interstate natural gas pipeline rates.

This Commission has made substantial progress in addressing the first issue. Congress in EPACT 2005 sought to address the second, giving this Commission backstop siting authority in “National Interest Transmission Corridors.” It remains to be seen how successful this effort will be, but I would urge FERC and the Department of Energy to pay more attention to the barriers that federal agencies impose for new transmission, particularly for remote and renewable resources, as Congress intended when it enacted section 216h of the Federal Power Act in EPACT 2005. The Commission continues to grapple with transmission rate design. Natural gas follows contract paths. With rare exception, we know what pipelines are being used by a particular shipper. This is not the case in the context of a free-flowing grid where electrons follow laws of physics, not contracts. Adding a transmission line rearranges that flow, but the entity making the investment may have no ability to collect for the benefits of that “rearrangement.”⁸

As difficult as transmission rate design is, it is state regulation of transmission rates that may be the biggest factor inhibiting transmission investment, and which prompts me to make what undoubtedly will be a controversial recommendation below.

⁸ In an interview published in an American Bar Association publication, former Chairman Pat Wood III was asked what he most regretted having left undone at FERC. His response is worth noting:

Getting streamlined, regional transmission rate recovery mechanisms in place all over the country. ...If transmission owners have a clear path for recovery of their investment from customers, they will build transmission. And if a robust transmission grid is built, the country is more secure – economically and physically.” “Infrastructure,” Vol. 45, No. 4, Summer 2006, p. 10

Without adequate transmission, the promise of competitive wholesale markets cannot be achieved. Congestion, market power and opportunities for market manipulation grow rampant in transmission constrained markets. The Commission is working to police these symptoms of inadequate transmission, but progress must be made on the underlying affliction, which is insufficient transmission to enable the purchase of electricity from multiple, competing suppliers.

3. Adequate Generation

One thing that competitive wholesale markets seemed to be providing was adequate generation supply. In the aftermath of Enron's collapse, however, project financing is all but dead. Without a rate base or long term contract, it is not clear how one builds a new base load plant, particularly one using innovative technology. Yet, in markets with retail access, there is no firm load. Load serving entities in those markets cannot reasonably enter into long term contracts or build capacity for load that may or may not be there. While a number of new coal and nuclear plants have been announced, these generally are located in states without active retail access programs and/or involve full or partial ownership by municipal or cooperative utilities who continue to have, effectively, exclusive retail franchises. Building projects jointly can spread risks and pool demands, but this may not be feasible in all cases. Financial firms are aggregating power from generators and providing it to load-serving entities via short-term auctions, but it is not clear that these firms are ready to step up and invest in building significant new generation.

I applaud the renewal of the FERC-NARUC dialogue on resource procurement. Basic questions need to be revisited and resolved, such as who is responsible for resource adequacy, particularly in markets operated by RTOs/ISOs, and how will these decisions be made.

IV. RECOMMENDATIONS

1. Given the volatility and level of natural gas prices, FERC should consider whether single price auctions for electricity are appropriate, or whether some other mechanism, such as "as bid" auctions could provide greater benefits to consumers while sustaining competitive wholesale power markets. In this, I suggest adding to what the distinguished economists recommend a dash of the practical and equitable.

2. FERC should exercise its rate authority over transmission in interstate commerce as confirmed in *New York v. FERC*⁹ for the transmission component of bundled retail sales. All users of transmission in interstate commerce should pay the FERC-approved rates for that transmission, regardless of whether transmission and electricity sales are bundled or not. Electricity transmission costs should be a pass-through item in retail customer rates, just as interstate gas pipeline transportation costs are in retail natural gas rates. This simple step will divorce transmission rates and cost recovery from state retail rate freezes and will provide encouragement for investment in

⁹ *New York, et al. v. FERC*, 535 U.S. 1 (2002).

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transmission that now is lacking. If we continue to tolerate a system in which 90% of the revenue requirement for FERC jurisdictional transmission is subject to state rate determinations (as it is with a majority of integrated utilities), the Commission's efforts to encourage transmission investment, including deployment of new technology, can have no more effect than trying to wag the dog with the tip of his tail.

3. As part of the resource procurement dialogue with NARUC, FERC should explore with the states and large consumers mechanisms to encourage long-term contracts and provide market certainty sufficient to enable investment in new resources. Capacity markets may be part of the answer. Perhaps it would make sense for load-serving entities to own peaking resources and charge cost-of-service rates for these resources, since these are most difficult to justify economically in competitive power markets, unless we are willing to allow the owners of "peakers" to charge prices on peak that we thus far have been unwilling to do. California has developed a resource procurement plan that enables load-serving entities there to sign long-term contracts for supply by shifting some of the risks of those contracts to consumers, even consumers that may obtain power from non-utility suppliers. That program may offer some useful lessons.

I offer these suggestions as ways to improve competitive wholesale power markets, not to replace them. It would be neither feasible nor wise to seek to restore "the regulatory compact." We must be willing, however, to confront the ways in which current competitive electricity markets may be deficient, including from the standpoints of equity, practicality and sustainability, and why. We cannot store electricity. It does not follow contract paths. Demand fluctuates dramatically during the course of a day and from season to season. For these reasons, competitive electricity markets are harder to construct and maintain than those for the other products and services on which electricity competition was modeled. The fact that competitive electric markets are harder to construct, however, does not mean that we should abandon the effort. Instead, we need to learn from our experience and make the necessary adjustments, reflecting the problems that have brought us to these hearings.

Thank you for inviting me to assist in this important and challenging task. I hope my views have been helpful.