

**Testimony on Electricity Policy Issues
Before the Subcommittee on Energy and Power,
House Committee on Energy and Commerce**

by

Paul L. Joskow

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TESTIMONY OF PAUL L. JOSKOW*

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I. INTRODUCTION

Mr. Chairman, and members of the Subcommittee, it is a pleasure to appear before you today to discuss the changing structure of the electricity industry and some of the public policy issues that are associated with these changes. I have been asked to keep my prepared remarks brief so that there is plenty of time for questions from the Subcommittee. Brevity does not come easily to a university professor who is used to speaking to a captive audience in time units of 60 or 90 minutes. Nor is it possible to address fully in a few minutes the many important and complex regulatory and organizational issues that are associated with the recent and possible future changes in the structure and regulation of the electric power industry. The best that I can do is to discuss my perspective on a selected set of structural and regulatory changes and make myself available for questions from the

*Paul L. Joskow is Professor of Economics at Massachusetts Institute of Technology (MIT). Professor Joskow's teaching and research have focused on issues associated with the organization of industry, government regulation of industry, and antitrust policy. He has published three books and over 60 scholarly articles in these areas. A great deal of his research has been devoted to problems associated with the organization, behavior, and regulation of the electric power industry, its fuel suppliers, and its customers. Professor Joskow is a member of the Management Committee of the MIT Center for Energy Policy Research, a Special Consultant to National Economic Research Associates, Inc., and a member of the Board of Directors of the New England Electric System. He has served on the Advisory Council of the Electric Power Research Institute, as a Public Member of the Administrative Conference of the United States, and as a member of the Economics Task Force of President Carter's Commission for the Review of the Antitrust Laws and Procedures. He is the Chairman of the Research Advisory Board of the Committee for Economic Development and is a member of the Environmental Protection Agency's (EPA) Acid Rain Advisory Committee. The views expressed here are his own and do not necessarily reflect the views of any of the organizations with which he is associated.

Subcommittee on policy issues related to these and other changes in the electricity industry. I have attached some additional written materials to my testimony that provide more detailed discussions of the structure, behavior and performance of the electric power industry, the regulatory environment in which it operates, the ways in which both are changing, and my views on several important electricity policy issues.

Economical and reliable supplies of electricity are essential for providing the quality of life that Americans have come to expect. We depend on electricity for lighting, heating, cooling, telecommunications, computer-based technologies in homes and offices, and a wide variety of manufacturing processes. The increases in productivity and the rising standard of living that our nation has achieved in the last century would not have been possible without the availability of an abundant supply of electricity which, until relatively recently, was available at rapidly declining real costs. On average, electricity in the United States still costs significantly less than it does in Japan and most of Western Europe and helps U.S. firms to compete more effectively in world markets. And in the United States and other developed countries, the use of energy has gradually shifted toward electricity from other fuels. Thus, the changes taking place in the electric utility industry have important implications for the well-being of all individuals and business firms in the economy.

Electricity is, of course, not free. American consumers spend roughly \$170 billion per year on electricity to pay for the capital, fuel, and labor resources required to produce and distribute electricity. Electricity now accounts for about 36 percent of primary energy consumption, and its share is projected to increase in the future. The production of electricity also has significant impacts on many dimensions of the environment. Concerns about the effects of electricity production on the environment have led to tightened environmental regulations that have both

constrained the amount of pollution associated with the production of electricity and increased the cost of electricity. The Clean Air Act of 1990 increases these constraints and will inevitably increase the costs of electricity as well. We all hope that the increased costs of environmental control will be more than compensated for by the value of improvements in the quality of the air we breath, the water we drink, and the land that we use.

Unlike most of the U.S. economy, the electric power industry is subject to pervasive regulation of prices and entry by state and federal regulatory authorities. At least since the introduction of state commission regulation before World War I, followed by the expansion of federal regulation during the 1930s, and continuing to this day, the presumption has been that the distribution, transmission, and generation of electricity has economic characteristics that are not conducive to effective competition. As a result, rather than relying on unregulated competitive markets to govern pricing and production decisions, electricity suppliers were given de facto monopoly franchises to provide electricity to retail customers within specific geographical areas. In return for exclusive franchises, electricity suppliers took on a public utility obligation to stand ready to provide reliable supplies of electricity to all retail customers located within these geographical areas at reasonable rates determined by state regulatory agencies. A complex regulatory environment, relying primarily on state rather than federal regulation, has emerged to control the organization of electric utilities, the costs and reliability of electricity, and the prices that consumers are asked to pay for it.

These historical assumptions--about the appropriate domains of regulated, legal electricity monopolies, their vertically integrated structure, and the performance of the regulatory environment in which supply and pricing decisions are made--have been subject to questions and criticisms for many years. And in the last decade legislative, regulatory and economic developments have fostered changes

in both the structure and regulation of the industry, at least partially in response to these questions and criticisms. Several significant steps have been taken by Congress, the Federal Energy Regulatory Commission (FERC), and some state public utility commissions to increase the role of competitive market forces in the supply and pricing of power sold to utilities for resale to ultimate customers. Regulatory reforms, designed to promote more effective regulation of electricity costs and prices and to encourage utilities to get much more aggressively involved in helping consumers use electricity more wisely, have been initiated as well. Many of these initiatives are quite controversial.

This kind of structural and regulatory ferment has not, of course, been limited to the electric power industry. It has affected all of the industries that became subject to economic regulation during the first half of this century. Nor is this ferment limited to the United States. Exactly the same kinds of criticisms and questions are being asked and similar reform proposals are being made about the organization of the electric power industries in developed and developing countries around the world. The general trend appears to be a movement away from public enterprise toward private enterprise combined with efforts to make maximum use of competitive market forces and to experiment with alternatives to traditional cost-of-service/rate-of-return regulation.

II. POLICY OBJECTIVES

How does one make sense of all of these changes and the conflicting proposals to accelerate or reverse them? It seems to me that it is impossible to evaluate sensibly alternative regulatory and legislative reform proposals for the electric power industry without having a coherent set of objectives in mind and an understanding of the potential conflicts between these objectives. We will not be able to make good policies for getting from here to there unless we understand

where we are, how we got here, and where we are trying to go. As you consider the numerous reform proposals that will no doubt be pressed on you, I suggest that you keep the following set of simple (perhaps deceptively simple) objectives in mind:

1. We want a set of institutional arrangements that provides a reliable supply of electricity at the lowest possible cost consistent with technological, resource, and environmental constraints.

2. We want a set of institutional arrangements that provides electricity consumers with the opportunities, information, and incentives to use electricity in a cost-effective manner to provide the heating, cooling, lighting, and industrial process services that they desire.

3. We want a set of institutional arrangements that equitably allocate the reasonable costs that utilities incur to meet their service obligations to those consumers responsible for them.

This set of policy objectives provides a consistent framework for evaluating the electricity policy issues that you will no doubt be hearing a lot about over the next couple of years. At the same time, it is important to recognize that the perfect is often the enemy of the good. The test should not be whether reform proposals achieve some abstract ideal, but whether they represent the best that we can do in an imperfect world.

III. A SHORT MENU OF ELECTRICITY POLICY ISSUES

A. Competitive Entry and Pricing in Wholesale Power Markets

The creation and growth of a competitive independent power producer (IPP) sector necessarily raise important questions about whether and how the electricity industry can accommodate these developments consistent with the objective of providing a reliable supply of electricity at least cost. Proponents of expanding opportunities for competitive entry and pricing in the supply of bulk power services

view increased reliance on competing wholesale power suppliers as providing a better way to meet the nation's electricity needs. Opponents argue that these developments will increase costs and reduce reliability.

As with all such debates, a reasonable interpretation of what we know factually about IPPs probably lies somewhere between these two extreme positions. IPPs are neither the greatest thing since sliced bread as portrayed by proponents nor the unfettered evil portrayed by opponents. Furthermore, exactly what will be the effects of increased competition depends critically on exactly how we go about incorporating IPPs into the electric power system.

So far, our limited experience with expanded opportunities for competitive entry and pricing of wholesale power supplies has been reasonably favorable. It is clear that independent power suppliers can provide economical supplies of electricity to utilities to meet at least some fraction of their needs. Utilities that issue requests for proposals (RFPs) typically receive offers from numerous suppliers that, in the aggregate, far exceed their incremental supply needs. A significant fraction of these offers provide credible competitive alternatives to utility construction under traditional financing and regulatory arrangements. Initial problems that were encountered with the implementation of the Public Utility Regulatory Policies Act (PURPA) have also led some utilities and some state commissions to develop new and better generation procurement mechanisms that rely on competitive solicitations for needed capacity. Experiments with alternative procurement approaches and changes in procurement policies in response to past mistakes are ongoing.

It is easy for an economist who generally favors market solutions over regulatory solutions to get carried away by the apparent success associated with

recent developments in the independent power sector. However, it is important to remember several facts:

- o Independent power producers account for only about 5 percent of the nation's generating capacity.
- o Very little generating capacity selected pursuant to competitive bidding and solicitation systems is now operating.
- o Regulatory rules for the treatment of power supplied from IPP facilities that do not satisfy PURPA's technology, size and fuel restrictions are still evolving at FERC.
- o Very little independent power capacity is fully dispatchable.
- o The performance of long-term contractual arrangements governing the sale of power to utilities has not yet met the tests of time, especially shocks to fuel markets, shocks affecting the demand for electricity, and the aging of independent power production facilities.

Although developments in the independent power sector have been very promising, I do not think that it would be prudent at this time to bet on a system that relies entirely on IPPs to meet future supply needs. Many important issues remain to be resolved in order to ensure that appropriate power supply planning, procurement and regulatory institutions are in place to enable utilities to meet their obligations to supply retail customers economically and reliably. Among the unresolved questions are: How can utilities best solicit, evaluate and contract for power from third parties? How can utility-owned and third-party generation be effectively compared and integrated from a planning and operating perspective in a way that takes account of differences in the allocation of risks associated with IPP and utility-owned generating capacity? What are the long-run implications of a much larger IPP industry built on highly leveraged financial arrangements? Can efficient and credible long-term contractual arrangements be developed for fully

dispatchable generating facilities? What regulatory barriers to the entry of efficient suppliers of bulk power services exist, and how can they best be removed?

The fact that there remain questions to be answered does not mean that we must wait until all of the answers are in before proceeding to expand, perhaps cautiously, opportunities for competitive entry and pricing and to introduce procurement and regulatory changes that provide utilities with incentives to pursue these opportunities when it is in the interests of their customers to do so. These questions can only be resolved with more experience, experimentation, and ongoing evaluation of alternative approaches to competition. In this regard, the evolutionary path that we are currently following is a very reasonable one. I favor continuing down this path in the following way:

1. FERC has made substantial progress in creating a regulatory environment in which competitive suppliers of wholesale power can enter the market. I would encourage FERC to continue to refine its rules and regulations governing competitive pricing and contracting arrangements for wholesale power transactions. FERC should give utilities flexibility to select among reasonable alternative procurement approaches and should not mandate a particular competitive bidding model. Competitive supply opportunities and pricing could also be enhanced if FERC brings its analysis of competitive market conditions into conformity with contemporary antitrust principles regarding the definition of relevant markets and the analysis of market power.¹

2. I would encourage the use of more flexible procurement mechanisms that allow all supply sources to compete based on a full range of price and non-price attributes, that properly value fully dispatchable generating facilities, and

¹In particular, the analytical framework that FERC recently adopted to evaluate market power associated with oil pipelines could be applied to bulk power markets. See Buckeye Pipe Line Co., Opinion No. 360, 53 F.E.R.C. 61,473 (1990).

that allow utility-owned or affiliated capacity and IPP capacity to be evaluated on a consistent basis reflecting all of the risks associated with alternative ownership and regulatory arrangements.

3. I would give careful consideration to regulatory reform proposals that are targeted at removing significant barriers to the entry of potentially efficient suppliers of power. In doing so, I would continue to remember that the perfect is the enemy of the good.

B. Transmission Access and Pricing

As many of you have no doubt learned, mentioning the "T" word is a sure-fire way to get the attention of everyone associated with the electric power industry. Current debates about transmission access and pricing are closely related to alternative visions about the future role of a competitive generation sector² and have important implications both for the evolution of competitive bulk power markets as well as for the long-term cost and reliability of electricity supplies. While I do not think that transmission problems have been a significant barrier to the development of a competitive independent power sector so far, significant problems may emerge in the future in the absence of sound policy reforms. I do not intend to present you with my proposals to solve the transmission access and pricing debate today. What I do want to emphasize is that reasonable policies can be devised for providing non-discriminatory access to transmission service at reasonable prices to competing bulk power buyers and sellers. However, reasonable

²Although the "T" word inevitably brings out of the woodwork interest groups whose concerns lie in other areas. When the transmission train leaves the station, everyone tries to jump on. The train gets very crowded and moves very slowly, often backwards. This suggests that if you do not absolutely have to tackle transmission issues and want to make speedy progress on electricity policies, it probably pays to take another train.

policies are not likely to be forthcoming unless the nature and tone of the debate change to embody the following considerations:

1. Any new obligations placed on utilities to provide transmission service to third parties must be accompanied by a clear set of pricing and contracting principles, including appropriate notice provisions, that ensure that transmission service customers fully compensate the utilities and their native load customers for the costs and risks associated with taking on these obligations and providing the associated services. It is impossible to talk intelligently or productively about "transmission access" without simultaneously identifying symmetrical price and non-price terms and conditions of transmission service arrangements that will go along with it to compensate the supplier fully for the economic costs of providing such access.

In this regard, I think it is about time for FERC to move forward with a rulemaking process aimed at adopting sound economic principles that can be used to guide the development of efficient pricing and contractual arrangements for transmission services of different types that properly reflect the economic costs and risks born by different types of customers, and the regulatory and contractual obligations utilities have to these customers. FERC has provided a clear signal that it will pursue aggressively non-discriminatory access to transmission service for bulk power buyers and sellers. However, absent a symmetrical pricing and contracting framework, including creative approaches for compensating "losers" and allocating scarce transmission capacity efficiently, little progress will be made toward a comprehensive transmission policy that can work smoothly through positive decentralized incentives rather than episodic and uncoordinated regulatory coercion.

2. The primary problems associated with access to existing transmission facilities and the development of new transmission facilities to serve the needs of third parties do not, in general, reflect efforts by utilities or their state

commissions to exercise market power. Instead, they largely reflect the balkanized character of the electric power industry, the absence of regulatory institutions that can accommodate the planning and certification of transmission facilities to serve the needs of third parties efficiently, and an absence of appropriate pricing and contracting regulations to support, fairly and efficiently, the costs associated with providing diverse services using these facilities.³ Proceeding under the erroneous assumption that utilities and their state commissions routinely act in concert to block access to or expansion of transmission facilities for private gain will inflame rather than resolve transmission expansion, access, and pricing controversies.

C. Alternatives to Traditional Rate-of-Return Regulation of Wholesale and Retail Rates

Traditional cost-of-service/rate-of-return regulatory practice is becoming increasingly incompatible both with the three primary objectives that I outlined earlier and the changes that are taking place in the way the electric power industry

³The existing organization of the electric power industry and existing state and federal regulations governing transmission are not ideally suited to the development of transmission facilities for the use of third-party buyers and sellers. With a few notable exceptions, transmission facilities have been planned, built and paid for by individual utilities, sometimes in cooperation with one another, to serve the needs of their native load customers economically and reliably. These utility-owned facilities are subject to certification by the individual states where the utilities provide service. Retail ratepayers currently bear the risks associated with transmission line costs. Utilities do provide substantial transmission service to third parties; however, this service is provided either from transmission capacity that is excess to the needs of native load customers or through joint venture-type arrangements in which all buyers or sellers with entitlements have obligations to support the costs of the associated facilities over a long period of time. While FERC has regulatory authority over the rates charged by one utility to another for transmission service, it has no authority and plays no role in transmission system planning or certification. FERC has also generally insisted on pricing firm transmission service at average embedded cost, a pricing policy that is unfair and provides poor incentives to potential suppliers and potential buyers of transmission service. While this system has worked remarkably well in the past, the development of competitive generation markets populated by large numbers of diverse competing buyers and sellers raises serious questions about whether it will continue to work well in the future.

is organized to achieve them. Utilities are buying more of their power from third parties and are being asked to weigh carefully the costs of purchasing against the costs of building and owning their own facilities. Purchased power costs are typically passed through to customers on a dollar for dollar basis if they are deemed to be prudent. Thus, utilities have no opportunity to profit from good procurement behavior and at least some probability of losing money. On the other hand, prudent costs associated with the facilities a utility owns are allowed to earn a return, creating at least some prospect for making a real profit if the utility can operate its facilities in a superior manner. This situation hardly provides a strong positive incentive for utilities to buy rather than build and makes it necessary for regulators to spend additional scarce resources evaluating make or buy decisions.

As I have already discussed, utilities are also being asked to expand opportunities for third parties to use their transmission systems to engage in purchases and sales with other utilities. However, when transmission service is priced at embedded cost, there may be little positive incentive to offer excess capacity to third parties. And when embedded costs are below the economic value of scarce transmission capacity to a utility's native load customers, there is a strong disincentive to make it available to third parties. When the economic value to third parties exceeds the economic value to native load customers, efficient use of transmission resources is necessarily frustrated by inefficient regulatory pricing rules. The results of the Western Systems Power Pool (WSPP) experiment suggest that more flexible pricing which reflects changing supply and demand conditions can lead to a significant increase in efficient bulk power transactions compared to the status quo. The WSPP experiment also demonstrates how progress can be made when we do not allow the perfect to become the enemy of the good.

Utilities are also being asked to expand programs designed to encourage consumers to use energy more efficiently so as to reduce the total cost of end-use

electricity services and the rate of growth in electricity demand. Utilities are therefore in the very unusual business position of being asked to spend money to reduce the demand for their product while at the same time increasing the price that they charge for it in order to recover the costs they incur to induce selected customers to conserve. Under current regulatory arrangements they often face either no positive incentives or distinct disincentives to encourage cost-effective customer conservation in a manner that minimizes the burden of increased prices placed on their customers as a group.

Finally, the Clean Air Act of 1990 creates an innovative market mechanism designed to make it possible for utilities to meet SO₂ constraints in a cost-effective manner. Regulatory rules for the recovery of costs associated with alternative compliance strategies will be the single most important factor determining whether the tradeable allowance system created by the Act will work efficiently. Traditional ratemaking procedures, combined with uncertainty about how these ratemaking procedures will accommodate both the accounting costs and the uncertain but very real opportunity costs associated with SO₂ allowances, appear to me to be the biggest threat to the success of this program.

The best way to get a utility to make decisions consistent with the objectives that I discussed earlier is to create and apply incentive regulation mechanisms that align financial rewards and penalties with performance norms based on these objectives. The time is right to encourage state commissions to accelerate experimentation with alternatives to traditional cost-of-service/rate-of-return regulation that provide better incentives to utilities to acquire and operate their facilities at least cost, to meet environmental constraints at least cost, and to encourage consumers to use electricity wisely.

IV. CONCLUSION

Time does not permit me to discuss several other important electricity policy issues. These include utility efforts to encourage consumers to use energy more efficiently, the future of nuclear energy (a supply source that produces no CO₂, SO₂, NO_x, CH₄, or other troublesome air pollutants), mechanisms for integrating energy and environmental policies, and energy-related R&D policies. I have previously burdened this Subcommittee with my views on the best ways to promote cost-effective conservation⁴ and see little reason to do so again. Despite being beaten up unmercifully since then for my support of decentralized least-cost planning rather than centralized utility planning approaches, for my faith in consumers' abilities to make intelligent energy conservation decisions when confronted with the right prices, service options, information, and financing options, for my concerns about cross-subsidies, taxation by regulation and related efforts to hide the ball from consumers, and for my radical position that supply and demand are not the same thing, my views are largely unchanged.⁵ I look forward to the opportunity to discuss these other energy policy issues with you on another occasion.

Thank you for your time and attention.

⁴Testimony before this Subcommittee on March 31, 1988.

⁵I am in complete agreement with the analysis of these issues provided by the Council of Economic Advisors in the Economic Report of the President, February 1991, pages 107-108.

Note: The "attached material" mentioned on page 2 refers to Professor Joskow's paper *Regulatory Failure, Regulatory Reform, and Structural Change in the Electrical Power Industry*, Brookings Papers: Microeconomics 1989, pp. 125-208 (CEPR Reprint No. 75)