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A SYNOPSIS OF THE ENERGY POLICY ACT OF 1992: NEW TASKS FOR STATE PUBLIC UTILITY COMMISSIONS

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EXECUTIVE SUMMARY

On October 24, 1992 President George Bush signed into law the Energy Policy Act of 1992 (EPAct). The Act passed the scrutiny of Congress after years of debate over a myriad of wide-ranging topics relating to a national energy policy and the effects of energy use on the environment. The passage of the Act illustrates the consensus for a new federal role in the energy sector. This new role will include both promoting competitive forces and embracing more governmental involvement.

On the one hand, the Act attempts to enhance competition in the electric power industry by lifting legal barriers in generation markets. On the other hand, it gives support to an integrated resource planning process that, in many ways, is antithetical to the new competitive forces that are likely to emerge. As an example of an expanded governmental role, EPAct provides tax incentives and other subsidies to generation technologies that are environmentally clean and potentially cost efficient. These provisions in the Act reflect a general public policy shift toward energy efficient and environmentally benign technologies that, in many states, started about a decade ago.

As its most important effect, EPAct will stimulate a more competitive and less vertically integrated electric power industry. Amendments to the Public Utility Holding Company Act of 1935 (PUHCA) lift barriers to the development of wholesale power facilities by both traditional vertically-integrated utilities and independent power generators. Changes in the Federal Power Act (FPA) greatly expand the Federal Energy Regulatory Commission's (FERC) authority to order wheeling under a wide range of conditions. Since it is likely that competition will permeate through the industry, state public utility commissions, at some point, will be faced with tough decisions regarding such issues as pricing, stranded investment, and the obligation of utilities to serve customers.

While FERC will immediately have to grapple with complex and highly contentious issues surrounding transmission pricing and the required conditions for

mandatory wheeling, the states will have their turn. Electric utilities will soon compete fiercely with other utilities and independent power generators in different regional wholesale markets and later in retail markets. This new competition means both opportunities and risks for state-regulated electric utilities.

As a more immediate concern, EPAct requires the state commissions to consider new standards specified by the Public Utility Regulatory Policies Act of 1978 (PURPA). It requires state commissions to hold public hearings and make a determination within the next year and one-half on new standards relating to integrated resource planning for both electric and gas utilities, and regulatory incentives for promoting energy efficiency, and by no later than October 23, 1993 on new standards relating to wholesale power purchases.

Finally, EPAct supports the development of alternative fuel vehicles. It prohibits FERC from regulating the sale or transportation of vehicular natural gas under most circumstances. The Act also requires the U.S. Department of Energy by October of this year to issue guidelines on incentives that states can offer in accelerating the commercialization of alternative fuel vehicles. In addition, EPAct provides federal guidance, technical assistance, and financial incentives to states, and in some cases local governments, to encourage a more rapid development and use of alternative fuel vehicles.

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FOREWORD

This report is one of several efforts by NRRI in 1993 to assist our regulatory clientele in understanding and complying with the Energy Policy Act of 1992. Earlier, we published a "White Paper" on the key provisions of the law which require certain state commission actions by 1993. In July we are holding two implementation seminars co-sponsored with the U.S. Department of Energy. For FY94 we will be doing further work on the mid-and longer-term aspects and implications of this landmark legislation.

The present report is a synopsis of the main titles of the Act and considers some of the opportunities and conflicts that attend the expected transition to a more competitive and more disintegrated electric power industry, to more benign and efficient energy technologies, and to more comprehensive resource planning with government participation.

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CHAPTER 1

INTRODUCTION

On October 24, 1992 President George Bush signed into law the Energy Policy Act of 1992 (P.L. 102-486) (EPAct). EPAct represents comprehensive energy legislation that will have a significant effect on the state-regulated energy industries, in particular the electric power industry. Its major provisions that are of paramount importance to the state public utility commissions (PUCs) include amendments to the Public Utility Holding Company Act of 1935 (PUHCA), the Federal Power Act (FPA), and the Public Utility Regulatory Policies Act of 1978 (PURPA). Table 1-1 lists the major sections amending these three important pieces of federal legislation.

EPAct contains thirty titles covering over 400 pages, many of which have a direct effect on electric utilities and local gas distributors. As discussed later, some provisions of the Act bolster competition in the electric power industry while other provisions involve more government intervention. By liberalizing transmission access and entry into the wholesale power markets, the Act encourages more competition. By requiring consideration of integrated resource planning (IRP) and utility-funded, demand-side programs, the Act reinforces an institutional arrangement that in practice has relied heavily on command-and-control procedures. The Act also supports government subsidies for a wide array of new and innovative technologies.

It should not be surprising that a bill as comprehensive as the Energy Policy Act of 1992 contains inconsistencies. The Act, after all, represents a political compromise that attempts to accommodate in varying degrees the different interest groups that participated in the multiyear debate over new U.S. energy legislation. The fact that the Act was passed suggests that it did not completely ignore any politically powerful interest group.

From the perspective of public utility commissions, the Act will have the most effect on the electric power industry: new power generators, including both utilities and nonutilities, will have an opportunity to sell within region-wide markets where they have

TABLE 1-1

MAJOR CHANGES TO FEDERAL LEGISLATION

PURPA	PUHCA	FPA
• Integrated resource planning - electric utilities (sec. 111)* - gas distributors (sec. 115)	• Creation of exempt wholesale generators (EWGs) (sec. 711) - Definition - Financing by registered holding companies - Protection against self-dealing abuses - Authority over spinoffs of existing rate-based plants as EWGs	• FERC transmission-access orders (sec. 721)
• "At least as profitable" rates with *ex post* evaluation of energy savings - electric utilities (sec. 111) - gas distributors (sec. 115)	• Ownership of PURPA-qualifying facilities by registered holding companies (sec. 713)	• Transmission rates (sec. 722)
• Supply side investments by, electric utilities in cost-effective, energy-efficient improvements (sec. 111)	• Investment in foreign utilities (sec. 715)	• Retail wheeling and sham transactions (sec. 722)
• Small-business effect considerations (sec. 111)		• Information requirements (sec. 723)
• Wholesale power purchase standards (sec. 712)		• Abusive self-dealing EWG sales (sec. 711)
		• PUC access to books and records (sec. 714)

* Sections refer to the Energy Policy Act of 1992 (P.L. 102-486).

no exclusive franchises. It is widely recognized that the Act should have important repercussions for the future structure and performance of the electric power industry. Specifically, it has opened the way for nonutilities to more actively participate in the wholesale power market and utilities to participate outside of their retail service areas. In the not too distant future, these generators may be allowed to sell directly to retail markets. Some states, California, Michigan, New Mexico and Texas, have already begun considering proposals for retailing wheeling.

The Act confers on state commissions explicit authority in important areas that will affect the future structure of the electric power industry. For example, the Act gives the state commissions discretion over self-dealing transactions involving exempt wholesale generators (EWGs) and spinoffs of existing generating facilities to the status of EWGs.[1] For many utilities, the best prospects for earnings growth may lie with establishing affiliated power generation companies outside their traditional service areas. Overall, the Act should expand the role of wholesale generating facilities in meeting future electricity requirements throughout the United States.

As a major matter for the state commissions, the Act imposes new PURPA standards. Although the Act allocates federal expenditures to assist the states in considering these standards, it is unclear at the time of this writing that Congress will appropriate these monies. Consequently, the state commissions along with the utilities under their jurisdiction may have to expend substantial resources over the next year and a half to satisfy the new PURPA requirements. Perhaps the most important effect of the PURPA standards will be the acceleration of the consideration of IRP for local gas distributors and of regulatory incentives for utility demand-side activities. Table 1-2 lists the major issues that state commissions will likely confront in considering the new PURPA energy-efficiency standards.

In trying to promote both the development and commercialization of new environmentally clean technologies, the Act's goals coincide with those of many state

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[1] The Act also allows the formation of a hybrid facility where part of the facility can be owned by a EWG and the remainder is part of a utility's rate base.

TABLE 1-2

MAJOR QUESTIONS RELATING TO
NEW PURPA ENERGY-EFFICIENCY STANDARDS

- Likelihood of available federal monies to PUCs for PURPA proceedings?
- Procedure for, and cost of, DSM monitoring and verification?
- Determination of "at least as profitable" standard?
- Compatibility of IRP with PURPA objectives?
- Effect of utility involvement in DSM services on private providers of similar services?
- Applicability of IRP to local gas distributors?

commissions who are encouraging electric utilities to at least consider these technologies under the purview of IRP. The Act, for example, gives incentives for the development of a wide range of new and innovative technologies. It attempts to stimulate the development and commercialization of renewable energy technologies through incentives and federal funding for development and demonstration activities. Coal-based technologies also will be helped by federal funding for development and demonstration and the encouragement of technology export. With regard to existing nuclear power, the Act attempts to revive or maintain its presence in the electric power industry. Provisions pertaining to one-step licensing, authorizing funding for the development of advanced nuclear reactors, and resolving the debate over high-level nuclear waste all are intended to improve the future prospects of nuclear power. It is unlikely, however, that for the foreseeable future new nuclear power capacity will be seriously considered by either electric utilities or independent power producers.

As a way to improve the balance of trade, EPAct encourages and, in some instances, lifts regulatory barriers to the export of U.S. generating technologies and other

electric-power services to other countries. U.S. utilities may consider foreign markets attractive in view of their high demand growth and the privatization initiatives in many countries. The U.S. Department of Energy (DOE), together with the Agency for International Development (AID), is required to develop a program that would provide support for export of U.S. clean coal technologies to other countries. The Act also requires the Securities and Exchange Commission (SEC) to promulgate "no substantial adverse impact" rules that would exempt U.S. registered holding companies investing in foreign utilities from PUHCA and, thus, SEC approval.[2] While EPAct attempts to facilitate the entry of U.S. utilities in foreign markets, state commissions will play a crucial role in defining the ground rules for utilities (except for registered holding companies) wanting to participate in foreign markets.

EPAct, in various ways, encourages the commercialization of alternative fuel vehicles (AFVs). For example, it stipulates that state commissions can only regulate vehicular natural gas when a local gas distributor sells directly to end-use customers within its own service area. The Act also requires DOE, by October of this year, to issue guidelines regarding incentives that states should consider in accelerating the commercialization of AFVs. Although state commissions would typically not be the lead agency responsible for working together with the federal government to encourage the accelerated use of AFVs, they may play an important role in the development of a state action plan.

On the environmental front, EPAct contains no direct environmental provisions requiring specific actions by utilities or state commissions. Commissions, however, can affect the environment by their policies and actions pertaining to IRP and renewable sources of energy. The Act takes a rather cautious approach to the control of greenhouse gas by requiring DOE to report to Congress regarding the feasibility and implications of stabilizing U.S. greenhouse gas emissions or reducing them by 20 percent by the year 2005. DOE will also report on different policies for reducing greenhouse gas emissions. The Act also attempts to expedite the reduction of the problem of high-level

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[2] Proposed rules were put forth by the SEC in April and met with substantial opposition. See "SEC Proposal Hits the Mark, Irritates Everyone," *The Energy Daily* (April 16, 1993), 2, 5.

nuclear waste disposal by directing the U.S. Environmental Protection Agency to contract with the National Academy of Sciences for a study that will recommend public health and safety standards for the highly controversial Yucca Mountain nuclear-waste repository. Where state commissions may have more immediate interest, EPAct establishes a national electromagnetic field (EMF) research and public information program. Most of the monies to be expended will go toward research that will attempt to produce more conclusive information on the health effects of EMF.

In sum, EPAct imposes new responsibilities for state commissions, the Federal Energy Regulatory Commission (FERC), and the SEC (see Tables 1-3, 1-4, and 1-5).

TABLE 1-3

PUC RESPONSIBILITIES AND AUTHORITY
UNDER THE ENERGY POLICY ACT OF 1992

- Consideration of existing plant spinoffs to EWG status (sec. 711)
- Consideration of self-dealing transactions involving EWGs (sec. 711)
- Consideration of wholesale-power-purchases standards (sec. 712; PURPA requirement with one-year deadline)
- Certification to SEC of its authority and ability to protect ratepayers from acquisition of foreign utility subsidiary (sec. 715)
- Recommendations to SEC regarding registered holding company's relationship to foreign utility (sec. 715)
- Access to books and records of electric utilities, EWGs, and their affiliates (sec. 714)
- Consideration of energy-efficiency standards (sec. 111 and 115; PURPA requirement with two-year deadline)

TABLE 1-4

FERC RESPONSIBILITIES AND AUTHORITY
UNDER THE ENERGY POLICY ACT OF 1992

- Certification of EWGs (sec. 711; G.O. 550-A)
- Transmission capacity and constraints information (sec. 712; FERC order forthcoming later this year)
- Ordering of utilities to transmit electricity to qualified parties (sec. 721)
- Hydroelectric matters (sec. 1701, 2402, 2403)
- Setting of economically efficient transmission prices (sec. 722)

TABLE 1-5

SEC RESPONSIBILITIES AND AUTHORITY
UNDER THE ENERGY POLICY ACT OF 1992

- Issuance of securities by registered holding company for financing foreign utility (sec. 715)
- Protections against financing of EWGs by registered holding company (sec. 711 "no substantial adverse impact" standard; six-month deadline for promulgation of rule)
- Acquisition of interests in foreign utility by registered holding company (sec. 715)
- Authority to require public utility to file reports pertaining to associated foreign utility (sec. 715)

State commissions have new responsibilities under PURPA as well as authority over foreign investments by utilities under their jurisdictions. Much work lies ahead for FERC in dealing with transmission issues (see Table 1-6). As Table 1-7 shows, however, state commissions will play a crucial role in determining the performance of the electric transmission sector. Finally, the SEC has responsibility for protecting utility investors and ratepayers from foreign investments and the financing of EWGs by registered holding companies.

TABLE 1-6

MAJOR TRANSMISSION ISSUES FACING FERC

- Role of regional transmission groups (RTGs)
- Long-term rate design
- Conditions for requiring access
- Meaning of "comparability of service"

TABLE 1-7

AREAS OF PUC INVOLVEMENT IN TRANSMISSION

- Siting authority
- Retail rates
- Participation in regional transmission groups (RTGs)
- Intervention at FERC
- Retail wheeling
- Concerns over reliability and protection of native-load customers
- Concern over EMF and other environmental effects

The following chapters will focus on those provisions of EPAct that will both directly and indirectly affect state public utility commissions. Chapter 2 discusses the new PURPA standards regarding their obligations for state public utility commissions. Chapter 3 examines the Title VIIB provisions of EPAct relating to open transmission access and transmission pricing. Chapter 4 discusses the new amendments to PUHCA and their implications for enhancing competition in the power generation sector. Chapter 5 outlines the provisions of EPAct directed at promoting different power generation technologies. Chapter 6 discusses how EPAct attempts to accelerate the commercialization of alternative-fuel vehicles. Finally, Chapter 7 summarizes the major environmental provisions of EPAct.

CHAPTER 2

NEW PURPA STANDARDS

Overview

The Energy Policy Act of 1992 (EPAct) amends sections 111 and 303 of the Public Utility Regulatory Policies Act of 1978 (PURPA). Section 111 requires state public utility commissions to consider specific energy-efficiency and wholesale-power-purchase standards for electric utilities that are compatible with the three purposes of PURPA Title I.[1] The three purposes specified in section 101 of PURPA are to encourage: (1) conservation of energy by electric utilities, (2) more efficient use of facilities and resources by electric utilities, and (3) equitable rates to electricity consumers. State commissions have the discretion to reject a standard if it is contrary to state law. Commissions can also reject a standard if it is determined that the standard would not carry out any of the three purposes of Title I.

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[1] Specifically, section 111(d)(7) pertains to the adoption of integrated resource planning (IRP); section 111(d)(8) to the adoption of rates charged by electric utilities that permit demand-side investments to be "at least as profitable" as supply side alternatives; and section 111(d)(9) to the adoption of rates that encourage electric utilities to invest in cost-effective methods in energy efficiency for generation, transmission, and distribution.

If the first two standards are adopted by a commission, it shall consider the effects on small businesses that provide demand-side management (DSM) services. The purpose of requiring consideration of small-business effects is to assure that any state actions would not provide energy utilities with unfair competitive advantages over other entities engaging in DSM-related services.

To determine whether a standard is appropriate, a state commission must issue a public notice and conduct a public hearing.[2] A commission's determination must be in writing, based on the evidence presented at hearings, and made available to the public.

Section 303 of PURPA requires state commission consideration of specific energy-efficiency standards for local gas distribution companies (LDCs).[3] The three purposes of Title I specified above for electric utilities apply to gas utilities. The procedural requirements under section 111 also apply to gas utilities.[4]

Other parts of PURPA sections 111 and 303 include: (1) a grandfathering provision applicable to the efficiency standards of EPAct Title I (the EPAct section 712 standard pertaining to wholesale power purchases, in contrast, has no grandfathering provision); (2) a utility-by-utility consideration and determination of the standards by a state commission; (3) a determination by a state commission that it is appropriate to partially adopt or phase-in adoption of the standards when immediate full adoption would impose a hardship on ratepayers; (4) the requirement of a public hearing, defined in such a way that exhaustive full-scale adjudicatory hearings are not necessarily involved; and (5) the requirement that a state commission must hold public hearings within the time limits specified.

The PURPA amendment that requires the most prompt state action is the wholesale power purchase standards. The Act requires that state commission consider and make a determination on the appropriateness of the standards by no later than

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[2] A commission has several procedural options at its disposal. For example, it can initiate either a formal rulemaking process such as a Notice of Inquiry or an informal collaborative procedure such as a workshop, working group, or task force to identify the key issues.

[3] Specifically, section 303(b)(3) pertains to IRP and section 303(b)(4) to the "at least as profitable" standard. Consideration of small-business effects also apply to gas utilities.

[4] Section 112 of EPAct authorizes the U.S. Department of Energy to provide grants up to $250,000 to individual state regulatory authorities such as public utility commissions for the purpose of encouraging electric and gas utilities to adopt DSM measures. At the time of this writing it is uncertain whether Congress will appropriate the necessary monies.

October 23, 1993. For these standards, EPAct allows no grandfathering of proceedings. Specifically, the standards require states to consider: (1) the potential changes in a utility's cost of capital and retail rates from purchasing long-term wholesale power supplier in lieu of constructing new generating facilities; (2) whether EWGs that employ proportionally greater amounts of debt than a utility jeopardize reliability or give EWGs an unfair competitive advantage over utilities; (3) regulatory procedures for preapproval of wholesale power purchases by utilities; and (4) whether fuel supply adequacy should be a condition for the preapproval of wholesale power purchases.

Title I: Integrated Resource Planning and Regulatory Incentives

When PURPA was first passed in 1978, it represented the culmination of the federal government's inaugural interest in promoting energy efficiency. Its overarching perspective was that inefficient rate structures should be changed to rate structures that promote more optimal patterns of electricity consumption. This perspective led the architects of PURPA to enthusiastically support cost-of-service ratemaking. It also led them to accept time-of-day, seasonal and interruptible rate structures, and to reject declining block rate structures. Overall, a major objective of the original PURPA was to induce energy efficiency and conservation through price changes.

With regard to electric utilities, Title I of EPAct contains three energy-efficiency standards that amend PURPA section 111. The first standard requires consideration of IRP by comparing supply and demand-side options on a systematic and comparable basis. The second standard requires consideration of cost-recovery procedures for utility conservation and other DSM activities that will make these activities at least as profitable as traditional supply side investments. The third standard requires consideration of incentives for investments in cost-effective improvements in the energy efficiency of power generation, transmission, and distribution. With regard to gas utilities, EPAct amends PURPA sections 302 and 303 by adding two new standards pertaining to IRP and regulatory incentives for the encouragement of conservation and other DSM activities.

The passage of EPAct abates PURPA's original emphasis on pricing. None of the three new energy efficiency standards contained in this law suggests a new rate structure that is expected to induce the more efficient use of electricity. The "resource-planning standard" (now subsections 111(d)(7) and 303(b)(3) of PURPA for electric and gas utilities, respectively) requires that IRP be considered for both electric and gas utility planning. The "equal-treatment standard" (now subsections (111(d)(8) and 303(b)(4) of PURPA) and the "incentive-compatible standard" (now subsection 111(d)(9) of PURPA for electric utilities only) emphasize the types of investment that a utility should consider during the planning process.[5] Although the adoption of the new energy efficiency standards may eventually affect the prices of electricity services, these effects are byproducts of an energy efficiency policy founded on planning and investment incentives.

The new legislative guidance in the area of national energy efficiency policy is found in EPAct's Title I. The first four of its seven subtitles discuss efficiency standards for residential and commercial buildings (subtitle A), electric and gas utilities (subtitle B), household appliances and other electric equipment (subtitle C), and industrial uses (subtitle D). Subtitle E describes procedures that the federal government will use to assist states that want to improve the energy efficiency of buildings owned and operated by state or local governments. Subtitle F provides federal agencies with energy and water conservation guidelines. It also contains information on conservation training, practices, and audits. Finally, subtitle G discusses the collection of information on the effectiveness of three antipollution technologies.[6]

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[5] This last standard attempts to eliminate all investment disincentives, and would create incentives for investment in energy-efficient generation and delivery of electricity.

[6] Subtitles A, C, D, E, F, and G will not be discussed any further in this report because of their peripheral connection to state or federal regulation of energy utilities.

Only subtitle B is expected to have a direct effect on the regulation of electric utilities.[7] Sections 111 and 112 of this subtitle encourage investment in conservation and energy efficiency. Subsection 111(a) of this subtitle contains the resource-planning, equal-treatment, and incentive-compatible standards.

Integrated Resource Planning

A definition of IRP is found in subsection 111(d) of EPAct. This definition is important because it provides direction with respect to the interpretation of IRP. Accordingly, IRP is a multidimensional planning vehicle that yields the best mix of technologies for meeting the needs of electricity or gas consumers. It is multidimensional because the best mix of technologies reflects the output of a process that evaluates the full range of energy supply and demand-side alternatives. These alternatives can include power purchases, energy conservation, energy efficiency, cogeneration, renewable resources, district heating and cooling, and traditional generating capacity and sources of gas supplies.

EPAct's definition of IRP indicates that this process is set-up to integrate supply side and demand-side resources in a way that minimizes "system cost."[8] Utility planners are asked to design a generation, transmission, and distribution system, or a gas system, using energy resources from a list of energy alternatives that meet load diversity and dispatchability requirements. When these energy resources are conservation and energy efficiency, one of the new PURPA standards requires utility planners to verify any

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[7] The adoption of EPAct's energy efficiency standards by builders, industrial firms, and appliance manufacturers is expected to lower the growth rates of electricity consumption and peak demand. This conservation effect, in turn, is expected to induce lower investment in power plants and equipment by electric utilities. Changes in these investments are expected to affect their profitability and operation. Therefore, subtitles A, C, and D may be characterized as having indirect effects on the regulation of electric utilities.

[8] This means that a utility should invest in energy efficiency when the cost is lower than investing in new power system capacity.

estimated savings, as well as assess the durability of these verified savings. Utility planners, as a matter of good practice, should also take into account system reliability and other risk factors.

Achieving the objectives of IRP is computationally much more demanding than when utilities considered only supply side resources. Verification procedures for conservation and energy efficiency savings are not well-established and therefore, not standardized. This implies that different computational methods for verifying energy savings will be competing for the approval of regulators.

The solution of the IRP problem also has some conceptual difficulties. Some analysts may prefer to use a net benefits approach to obtain the lowest system cost. This approach is based on the belief that cost and benefits are not the analogues of each other. Costs are incurred when a decision is made to build and operate an energy supply source, whether traditional supply resources or conservation. These costs may be divided into different categories. For example, there are the costs of investing in traditional supply resources or conservation, and the costs of operating and maintaining these resources or conservation technologies. Benefits are realized after the energy supply technology is in place. These are measured by the consumer's willingness to pay for kilowatthours or therms, pollution abatement, and reliable energy. The cost-benefit solution is the one that yields the maximum net benefits realized as the firm selects technologies for meeting a forecasted peak demand. Other analysts, however, may prefer to use an avoided-cost approach (that is, a cost-effectiveness test). It can be applied by searching for the least expensive way to meet forecasted peak demand in a reliable fashion. The least-cost requirement is met by first comparing the costs of different energy supply technologies and then choosing the set of technologies with the least cost.

The avoided-cost approach is more likely to be favored for addressing the IRP problem. Currently, it is the most commonly used method and one that state commissions, whether rightly or wrongly, have found most acceptable. The avoided-cost method also is most easily reconciled with the definition of system cost contained in subsection 111(d) of EPAct:

> The term "system cost" means all direct and quantifiable net costs for an energy resource over its available life, including the cost of production, distribution, transportation, utilization, waste management, and environmental compliance.

The costs of production, distribution, transportation, waste management, and environmental compliance, and changes in plant utilization are measurable in the context of avoided cost. The analyst estimates each of these costs for different resource options, and selects the least expensive option on the rationale that more costs are avoided by selecting the least expensive option.

The issue remains, however, as to whether this solution fulfills any or all of the three purposes of PURPA. First, state utility commissions will have to determine whether the rates and charges flowing from an IRP process are equitable to all customers. Supporters of IRP will likely argue that conservation and energy efficiency technologies will be part of the best mix of technologies, for example, because these technologies are less polluting and hence less costly, from a society-wide perspective, than traditional supply technologies. This suggests that a conservation or energy efficiency technology may have been chosen over a traditional supply technology simply because a significant portion of the avoided cost is an externality adder, which in theory should measure the dollar value of damages associated with pollutants emitted by an energy technology.[9] In terms of minimizing a utility's revenue requirements, there is no problem when the cost of the conservation or energy efficiency technology is less than the cost of traditional generation, excluding an externality adder. In that case, selection of the conservation or energy efficiency technology would reduce total costs for an electric utility.

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[9] While it should be noted that the new PURPA standards do not require state commissions to consider the inclusion of externality adders in the IRP process, IRP proponents will likely pressure state commissions to do so.

An equity problem, however, may emerge even when this condition is not met: a utility's prices may be higher than what they would otherwise be because of revenue losses that exceed any decline in system cost. These net revenue losses translate into higher prices. Everyone therefore pays these higher prices, but only those ratepayers investing in conservation or energy efficiency benefit. Therefore, when this condition occurs the selection of the conservation or energy efficiency technology is neither what economists call Pareto-neutral or Pareto-superior, since some ratepayers have been made worse off even when additional energy conservation is cost effective. Such a condition may violate the purpose of PURPA section 101 to encourage "equitable rates." Consequently, PURPA may require a state commission to consider whether it is appropriate for utilities to charge prices higher than what they otherwise would be to pay for conservation investments that benefit only some ratepayers.

Second, IRP must increase a utility's technological efficiency to be considered suitable under PURPA. Technological efficiency, for example, may be interpreted to incorporate some environmental performance criteria. Under this interpretation, it may be possible to argue for the early retirement of existing generation plants because they excessively pollute. If such arguments are accepted by state public utility commissions, then it might be the case that currently used-and-useful facilities would be replaced by conservation, energy efficiency, and renewable energy technologies. This suggests that the total costs of the electric utility may rise and rising total costs implies rising prices. Still, it can be argued that IRP reduces system costs because damages associated with pollutants have been avoided.

Regulatory Incentives

The equal-treatment standard is intended to promote investments in conservation and DSM by both electric and gas utilities. This standard requires that regulated prices are set such that conservation, energy efficiency, and DSM investments are at least as profitable as investment in generation, transmission, and distribution facilities. EPAct's

justification for this pricing constraint is that it would remove a disincentive to invest in demand-side resources.

At first glance, the equal-treatment standard seems to be an even-handed approach to the problem of choosing between supply side and demand-side alternatives. State public utility commissions, however, may want to examine the expected secondary and tertiary effects of this standard before adopting it. One reason for exercising caution is that the deployment of demand-side resources increases the uncertainty surrounding the utility's forecasts of peak demand and energy usage. Another reason, more fundamental in nature, is that the equal-treatment standard does not directly address whether market barriers have deterred ratepayers from making cost-beneficial investments in energy conservation. In the absence of market barriers, it becomes difficult to justify utility involvement in promoting energy conservation.[10] Specifically, subsidies to promote energy conservation and other demand-side activities should only be offered by a utility if they are a direct response to some specific identifiable market barriers such as below-marginal-cost prices. Even then, in the case of inefficient prices, some analysts would argue that subsidies should be limited to the difference between marginal cost and prices on the grounds of both economic efficiency and equity.[11]

The equal-treatment standard implies the fulfillment of the at-least-as-profitable condition for all nontraditional generation. Some may interpret this to mean that the demand-side resources earn the same rate of return as traditional supply side resources. While this interpretation may have some validity, there is the possibility that investors may not view demand-side resources as favorably as traditional sources of generation if

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[10] Analysts broadly define "market barriers" as anything that would cause consumers to underinvest in cost-beneficial energy conservation. For example, prices established below social marginal costs and lack of adequate information regarding the benefits of energy conservation are alleged to be major sources of market barriers.

[11] See, for example, Larry E. Ruff, "Least-Cost Planning and Demand-Side Management: Six Common Fallacies and One Simple Truth," *Public Utilities Fortnightly* (April 28, 1988): 19-26; and Douglas A. Houston, *Demand-Side Management: Ratepayers Beware* (Houston, TX: Institute for Energy Research, 1992).

they perceive a higher probability that curtailments or outages will occur. To compensate for this additional uneasiness associated with the deployment of demand-side resources, investors may require a higher rate of return. At this point, regulators have to make a determination as to how to interpret the at-least-as-profitable condition. This implies, for example, that a utility could be allowed to profit more from successful demand-side technologies. In this case, a DSM option is being favored over a supply side option even though DSM may increase the utility's total cost without increasing its output level.

The equal-treatment standard also has another cost dimension that needs to be examined during the determination phase of the PURPA process for evaluating energy efficiency standards. Along with the at-least-as-profitable condition, there is the monitoring and verification condition. Neither monitoring nor verification is a costless activity. When these costs pass some threshold level that is dependent on the production cost characteristics of the firm, conservation and energy efficiency can become more expensive than traditional generation.

The incentive-compatible standard, which applies only to electric utilities, in the case of supply side energy resources, has two dimensions. First, it attempts to remove disincentives that prevent utilities from investing in energy efficiency. Second, it introduces incentives that encourage utilities to invest in energy efficiency. Therefore, the apparent objective of this standard is to substitute more energy-efficient generation, transmission, and distribution facilities for less energy-efficient ones.

The interpretation of the incentive-compatible standard is straightforward when energy efficiency means cost minimization. This standard is met when the new technology lowers total costs. There are several regulatory formats that can induce the firm to act in this way. Yardstick regulation and price-cap regulation provide these incentives. They do so, however, at the cost of allowing the firm to earn higher profits than what they would expect to earn under rate-of-return regulation.

Another interpretation of the incentive-compatible standard is that the new technology should improve the technological efficiency of the utility. For example, the

new technology may lower a generation plant's heat rate or increase its availability.[12] Any technology with either of these characteristics could be justified as long as the total costs of the utility are reduced.

Title VII: Wholesale Power Purchases

State commissions will need to pay the most immediate attention to EPAct section 712. They will have until October 23, 1993 to complete their evaluation and make a determination of whether to adopt, in whole or in part, or reject the section 712 standards. As mentioned earlier, unlike the other new PURPA standards, the "no grandfathering" provision applies.

A recent publication of The National Regulatory Research Institute (NRRI) provides an overview of the section 712 standards.[13] The report makes several points pertinent to state commissions. It observes that the four standards (each requiring a general evaluation) need to be considered as the basis of the purposes of PURPA Title I. As the major conclusion, the authors found that the section 712 standards are difficult to justify on the basis of carrying out the purposes of Title I. For example, regarding whether EWGs have an unfair advantage over a utility because of their highly leveraged capital structure, the authors pointed out that fairness to the utility falls outside the scope of Title I. In fact, the authors argue that the heavy-handed regulatory approach implied by the section 712 standards may be contrary to the purposes of PURPA Title I.

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[12] Several states currently have incentive mechanisms that attempt to improve the operating performance of base-load power plants. See Sanford Berg and Jinook Jeong, "An Evaluation of Incentive Regulation for Electric Utilities," *Journal of Regulatory Economics*, 3 No. 1 (March 1991): 45-55.

[13] Robert E. Burns and Mark Eifert, *A White Paper on the Energy Policy Act of 1992: An Overview for State Commissions of New PURPA Statutory Standards* (Columbus, OH: The National Regulatory Research Institute, 1993). The four standards are listed on page 11 of this report.

The standards, according to the report, also ignore the need for state commissions to change their policies and adapt to the industry restructuring and increased competitiveness that are likely to ensue during the coming years. Specifically, as a second-best approach, section 712 empowers state commissions to consider regulating the allowed capital structures of EWGs. The authors argue that, in an increasingly competitive electric power industry, state commissions should instead consider either deregulating the capital structure of electric utilities under their jurisdiction or increasing the amount of debt allowed in their capital structure.

Summary

State commissions may find it difficult to align the EPAct section 712 standards with the purposes of PURPA Title I. This is not surprising, if in fact, as some analysts assert, the section 712 standards are no more than a "utility give away" that was part of the overall package to get support for Title VII.

With regard to the new PURPA energy-efficiency standards, a fundamental question relates to the role of the IRP process in view of the more competitive electric power and natural gas markets envisioned by EPAct Title VII and FERC Order 636. For example, Are utility-funded incentives for energy conservation appropriate in the presence of competitive energy markets? How should the IRP process change in the future if retail wheeling becomes a reality?

CHAPTER 3

OPEN ACCESS TRANSMISSION FOR WHOLESALE ELECTRICITY

Without open transmission access in the wholesale generation market, independent power producers and other exempt wholesale generators (EWGs) may not develop to their economic potential.[1] Before the enactment of the Energy Policy Act of 1992 (EPAct), the Federal Energy Regulatory Commission's (FERC) authority to mandate wheeling or transmission services was extremely limited so that an applicant for a wheeling order from FERC had little or no chance of clearing all the legal hurdles necessary to obtain a FERC order from an unwilling utility.[2] While there has been some effort by FERC to encourage more open access by allowing for competitive pricing of wholesale power services,[3] transmission access on a voluntary basis has continued to fall short of what might be needed for more competitive wholesale power markets. In order to make competitive wholesale electric markets possible, Congress enacted Title VII, Subtitle B of EPAct.

EPAct Section 721: Open Transmission Access

Although the provisions of Title VIIB appear to be complex, their purpose is simple: to provide for more open transmission service that balances the public interest in having access to competitively priced electricity service with concerns about national or regional reliability. Indeed, EPAct section 721 amends section 211 of the Federal Power

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[1] See, for example, *Non-Technical Impediments to Power Transfers,* ed. Kevin Kelly (Columbus, OH: The National Regulatory Research Institute, 1987).

[2] Robert E. Burns, "Legal Impediments to Power Transfers," Kevin Kelly, ed., *Non-Technical Impediments to Power Transfers* (Columbus, OH: The National Regulatory Research Institute, 1987).

[3] For a summary of FERC's activities, see J. Stephen Henderson, "The Commission's Transmission Pricing and Access Policy," *Proceedings of the Eighth NARUC Biennial Regulatory Information Conference,* ed. David Wirick (Columbus, OH: The National Regulatory Research Institute, 1992), 127-146.

Act (FPA) to provide that upon application by any person generating electricity in the wholesale market (for sale for resale), FERC may issue an order requiring a transmitting utility to provide transmission services if the order meets the requirements of section 212 of the FPA and would otherwise be in the public interest. A transmitting utility includes any electric utility, qualifying facility, or federal power marketing agency which owns or operates electric power transmission facilities used for the sale of wholesale electricity.

Further, EPAct section 721 also eliminates a major impediment to FERC's authority to mandate wheeling by abolishing FPA section 211(c)(1). This provision prohibited FERC from issuing transmission orders unless it had determined that the transmission order would reasonably preserve existing competitive relationships. Ironically, FERC had interpreted this provision so that no transmission order could be issued if it affected existing relationships between wholesale suppliers and customers.[4] FERC's narrow interpretation of the relevant market when considering competitive relationships served anticompetitive interests by preserving existing relationships at the expense of encouraging competitive relationships.[5] The elimination of this restriction should allow the development of more open wholesale power markets.

Section 721 specifically provides, however, that FERC will not issue a mandatory transmission order if, after considering regional or national reliability standards, guidelines, or criteria, FERC finds that the mandatory transmission order would unreasonably impair continued reliability. One of the major challenges before FERC will be to determine whether or not regional or national reliability standards, guidelines, or criteria are met by a proposed transmission order. FERC may currently lack the engineering expertise to conduct such considerations in any timely fashion.

FERC's authority to issue an order requiring a transmitting utility to provide transmission services includes the right to order any enlargement of transmission capacity that may be necessary for the transaction. EPAct section 731, however, provides that

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[4] Southeastern Power Administration v. Kentucky Utilities Company, Opinion No. 198, 25 FERC para. 61,204 (November 8, 1983).

[5] See Robert E. Burns, "Legal Impediments to Power Transfers," 94.

state and local authorities are not preempted from their role of siting and providing for environmental protection in regard to both EWGs and new or enlarged transmission facilities. Thus, even though FERC might allow for an EWG or a new or enlarged transmission line to provide transmission services, a state commission could refuse to go along. Congress therefore provided for a "regulatory out" clause that applies when the transmitting utility subject to ordered transmission services makes a "good-faith effort" but fails to obtain siting or necessary environmental certification for enlargement of transmission capacity.

Thus Congress split up the jurisdiction over transmission capacity necessary for expanding transmission service. Congress allows state commissions to continue to play their traditional siting and environmental protection role concerning whether and where a transmission line will be built, while expanding FERC's role. FERC can now order transmission service including the enlargement of transmission lines that are necessary to make the transaction possible or to avoid problems with reliability. Consequently, while Congress provided a "regulatory out" for utilities that make a "good faith" effort, the current regulatory scheme tends to put state commissions in what could be an unenviable position, that of a road block.

Of course, the first issue raised by the statute is: what constitutes a "good faith" effort? An unwilling transmitting utility subject to a FERC order to provide transmission service might find it easy to make what on its face appears to be a good faith effort, but yet does not provide a state commission with sufficient information or provides erroneous or misleading information about the transmission enlargement. And, if there is little or no local in-state benefit from the wholesale transaction, the state commission might be disinclined to pursue the matter. In addition, individual state commissions, for legitimate local concerns about siting or health, safety, and the environment, might become a bottleneck and frustrate the movement toward more open and competitive power markets by blocking the building of new and the enlargement of existing transmission lines. Again, a state commission might be more willing to balance local interests with broad regional and national interests if the local jurisdiction stands to gain some offsetting benefits from the transaction.

This potential for jurisdictional conflict over capacity necessary for transmission service needs to be addressed by FERC and state commissions individually or as a group, through the National Association of Regulatory Utility Commissioners (NARUC). Otherwise, common goals of regulation shared by both federal and state regulators and policymakers have little chance of being realized. The most important of these goals is to provide ratepayers with an adequate and reliable source of electricity at the lowest reasonable cost. State and federal regulators must find the means to coordinate and cooperate to achieve these mutual goals.[6] An early attempt by FERC to address this and related issues involved a notice of inquiry concerning the use of regional transmission groups. Although the initial proposal was flawed because it failed to address the vital role of state public service commissions in transmission,[7] the general approach of forming regional groups has some merit, particularly if consensus-building mechanisms are used to develop "rules of the road" along with alternative dispute resolution techniques to resolve disputes.[8]

EPAct Section 722: Transmission Service Pricing

As discussed earlier, a transmitting utility must provide transmission access to a wholesale generator of power if the conditions of section 212 of the FPA are fulfilled. EPAct section 722 amends section 212 of the FPA by striking out the old provisions of section 212(a) and (b) and replacing them with requirements about the rates, terms, and

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[6] The NRRI has provided a theoretical foundation for such cooperation and coordination in Douglas N. Jones et al., *Regional Regulation of Public Utilities: Opportunities and Obstacles* (Columbus, OH: The National Regulatory Research Institute, 1992).

[7] See Notice of Request for Public Comments on Regional Transmission Group Proposal, FERC Docket No. RM93-3-000 (November 10, 1992). See also, Comments filed by The National Regulatory Research Institute in this docket.

[8] Ibid. The NRRI also has a forthcoming report on transmission jurisdictional disputes that will address these issues in greater detail.

conditions for transmission service that must be met. EPAct section 722 requires that rates, terms, and conditions for transmission services, provided under a FERC order pursuant to FPA section 211, must permit recovery of all the costs incurred in connection with the service and necessary associated services. These costs include, but are not limited to, an appropriate share of legitimate, verifiable, and economic costs, including any benefits to the transmission system of providing the service, as well as costs, associated with any transmission facility enlargement. At the same time, rates, terms, and conditions for transmission service are to be set so as to promote economically efficient transmission and generation. Congress also required FERC to address more traditional equity concerns: rates, terms, and conditions are to be just and reasonable, are not to be unduly preferential, and to the extent practicable, costs incurred are to be properly allocated to the applicant and not to be recovered from existing wholesale, retail, and transmission customers.

With such a potpourri of price and nonprice considerations to take into account, FERC has the difficult job of balancing the efficiency standards with the equity considerations. It can be argued that having such a Congressionally-mandated potpourri of efficiency and equity standards against which to set rates allows FERC a great deal of latitude as to the final results. For example, rates should be set so as to permit recovery of an appropriate share of costs. FERC has the latitude to determine the appropriate share of costs. The costs to be examined encompass legitimate, verifiable, and economic costs and benefits, including transmission enlargement costs. Determining what costs are verifiable is dependent in part on the ability to measure loop flows and other unintended power flows across neighboring utilities. When a provision of transmission service causes loop flows on neighboring utilities that result in legitimate, verifiable economic costs, the transmitting utility ought to be able to set transmission service rates that reflect those costs. Occasionally a contract for transmission service provides a benefit to the system, rather than incurring a cost. If so, that should be quantified and considered when setting transmission service rates.

Thus, to the extent costs are verifiable, the economic costs of loop flows or offsetting benefits to the transmission system from the transmission service are to be taken into account in setting rates. This is undoubtedly a difficult exercise. For FERC to be able to verify the full economic costs of transmission service on its own, it may need vastly expanded resources, especially electric engineers to track power load flows, costs, and benefits. A more sensible way of getting this task accomplished would be to rely on a regional transmission group, preferably with state commission participation, to delineate and quantify these costs and benefits.

Certainly, FERC can attempt to set transmission service rates without the assistance of state commissions so as to promote economically efficient transmission of electricity. One problem that will arise, however, is that a vertically-integrated electric utility, given two power sources that are similar in nature, will tend to favor its own facility over those of an equally well- or better-qualified EWG. Federal and state commission cooperation, therefore, seems essential if FERC is to design rates in a way that will promote both economically efficient transmission and generation, and prevents discriminatory behavior. This is especially true, since under EPAct, state commissions will still regulate state-franchised electric utilities, the principal purchaser of wholesale power. Consequently, state commissions can play a crucial role in creating the proper regulatory incentives so that the electric utilities under their jurisdiction purchase power in a manner that promotes economically efficient generation as well as transmission.[9] Without state commission coordination and involvement, however, FERC's attempt at setting rates to promote economically efficient transmission and generation could be frustrated. To put it differently, FERC is more likely to fulfill its Congressional mandate if it cooperates and works with the state commissions on devising a new regulatory scheme that takes into account more open and competitive wholesale power markets.

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[9] One possible incentive-based approach designed for state public service commissions to address this particular problem can be found in Robert E. Burns, Mark Eifert, and Peter A. Nagler, *Current PGA and FAC Practices: Implications for Ratemaking in Competitive Markets* (Columbus, OH: The National Regulatory Research Institute, 1991), Chapters 4 and 5.

Even if FERC can set transmission service rates so as to achieve the efficiencies envisioned in the Act, Congress also requires FERC to set rates that maintain traditional standards of equity. Transmission service rates are required to be "just and reasonable" and not "unduly discriminatory or preferential." Just and reasonable and not unduly discriminatory or preferential are terms normally used as touchstones in traditional ratemaking. In particular, they are terms associated with protecting fairness and equity.[10]

The requirement that transmission service rates not be unduly discriminatory or preferential means that like customers receiving like services pay the same price, unless there is a sufficiently compelling reason for a variation.[11] Grouping customers or services, however, is not an exact science. There is a regulatory art to grouping similar customers into customer classes. Further, there is also an art to determining the degree of service comparability needed for like services.[12] Assuring that transmission service rates are just and reasonable and not unduly discriminatory constitutes equity goals that must be artfully balanced against the efficiency goals to meet the purposes of EPAct. While FERC has some discretion in balancing equity and efficiency goals, neither can be sacrificed without violating EPAct section 722. Yet, unless the rates, terms, and

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[10] A rate is said to be just and reasonable if it is based on some specified definition of cost and if it falls within the "zone of reasonableness." For a rate to fall within a zone of reasonableness, regulators generally apply the principle that it should be higher than variable costs and should be lower than an excessive or exorbitant rate. In other words, a rate should be higher than one that would result in predatory pricing: it should cover variable costs and make some contribution to capital costs. In addition, for regulation to achieve one of its primary objectives, it should be lower than what an unregulated monopolist would charge. Because of the difficulties associated with attributing common costs to different customer classes, much controversy exists in regulatory proceedings over the exact meaning of cost-based rates.

[11] One reason may be that some customers may operate in more competitive markets, requiring a lower price to prevent those customers from switching to another firm.

[12] Obviously, if taken to an extreme one could argue that no two services are alike because of the lack of identity of the parties and the lack of identity as to location.

conditions of the proposed transmission service fulfill the goals of EPAct section 722, FERC cannot mandate transmission access nor wheeling.[13]

To complicate matters further, EPAct adds one more mandate. FERC is required to set rates, terms, and conditions for transmission service so as to ensure that, to the extent practicable, costs incurred in providing the wholesale transmission services, and properly allocable to the provision of such services, are recovered from the applicant for the transmission service and not from the transmitting utility's existing wholesale, retail, and transmission customers.

This provision addresses state commissions' concerns about more open transmission services. The state commissions expressed certain concerns when FERC staff was first studying more open transmission and during the Northeast Utilities merger. First, state commissions were concerned that FERC would give priority to firm transmission sales over economy sales that benefit retail customers.[14] Second, state commissions were concerned that the cost of new transmission service would be borne by retail customers.[15] State commissions argued that retail customers, as a group, have a beneficial ownership interest in the transmission system because the system had been ratebased and they had previously paid for it in their rates. The argument says that retail ratepayers have paid, at the very least, the depreciation expense associated with

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[13] One report that examines the issue of balancing efficiency and traditional equity goals is, J. Stephen Henderson and Robert E. Burns, *An Economic and Legal Analyses of Undue Price Discrimination* (Columbus, OH: The National Regulatory Research Institute, 1988), particularly Chapter 3.

[14] Kevin Kelly, Robert E. Burns, and Kenneth Rose, *An Evaluation for NARUC of the Key Issues Raised by the FERC Transmission Task Force Report* (Columbus, OH: The National Regulatory Research Institute, 1990), quoting the FERC staff's report, entitled *The Transmission Task Force's Report to the Commission--Electricity Transmission: Realities, Theory and Policy Alternatives* (Washington, D.C.: The Federal Energy Regulatory Commission, 1989).

[15] Ibid., 37-40.

the transmission lines.[16] The provision, designed to address such concerns, calls for an incremental pricing method of transmission service, to the extent practicable. Existing wholesale, retail, and transmission customers, in other words, are to be held harmless against incremental costs of new transmission services.

The relevant question then becomes: what is practicable? Certainly, to the extent measurable, the variable costs of providing transmission service, as well as a cost-based allocation of the capital cost of an existing transmission facility, can be assigned to an applicant for wholesale transmission service in a manner that holds existing customers harmless. What happens when the transmission service would require the enlargement of existing or construction of new transmission lines? Does the applicant bear the full cost of the transmission line upgrade? Certainly, the new applicant would if the entire upgrade (whether an enlargement or new line) were necessary to provide the applicant--and only the applicant--transmission service. But these cases are likely to be rare. In most cases, transmission line upgrades are likely to be constructed not only to serve the current applicant, but also to serve projected future applicants, and to provide more reliable service to existing wholesale, retail, and transmission customers. FERC might choose to protect existing wholesale, retail, and transmission customers at all costs. This would result in a system of vintage pricing, with existing customers paying a depreciated embedded cost of old plant and new customers paying the full incremental cost of new plant. One outcome of such pricing is that the old customers would benefit, enjoying increased reliability and the opportunity to increase their own wholesale or retail purchases or transmission service without paying any part of the cost of service of the new plant. Such vintage pricing makes for bad economics, whether or not practicable or feasible.

The main point here is that FERC has a potpourri of factors to consider and balance in setting prices, terms, and conditions for transmission service applied for under

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[16] The theory of beneficial ownership is discussed in detail in Kenneth Rose and Robert E. Burns, *Public Utility Commission Implementation of the Clean Air Act Allowance Trading Program* (Columbus, OH: The National Regulatory Research Institute, 1992), Chapter 8.

EPAct section 721. FERC has some discretion because of the variety of factors they are mandated to consider and balance. FERC may be well-advised to recognize that price and the availability of transmission access are necessarily linked. State commissions will be far more willing to allow for enlargement of existing or construction of new transmission lines necessary for transmission service if the local burdens created by transmission upgrade are compensated. It is therefore logical for something akin to regional transmission groups to consider transmission access and pricing together, subject to FERC review and approval, with some state commission involvement.

EPAct Section 723: Timing and Information Requirements

EPAct section 723 requires that, in order to request transmission service, a wholesale electric generator must make a good faith request to a transmitting utility to provide wholesale transmission service at a specific rate, subject to specific terms and conditions. Then, the transmitting utility must either provide the requested transmission service at rates, terms, and conditions acceptable to the applicant or provide the applicant, within sixty days of the receipt of the transmission request (or other mutually agreed on period), with a detailed explanation of why such transmission service cannot take place. The detailed written explanation will contain specific reference to the facts and circumstances of the request, specifying (1) the transmitting utility's basis for the proposed rates, terms, and conditions for the proposed service, and (2) the utility's analysis of any physical or other constraints affecting the requested transmission service. This information can then be used by the applicant to seek an order from FERC mandating transmission access and service.

By October 23, 1993, FERC must promulgate a rule requiring information needed to inform potential transmission service customers, state commissions, and the public about potentially available transmission capacity and known constraints to be submitted annually to FERC.

Retail Wheeling

EPAct section 722(3) also adds five new subsections to FPA section 212. Subsections 212(g) and (h) concern retail wheeling.[17] FPA subsection 212(g) prohibits FERC from issuing a transmission order that is inconsistent with any state laws governing the retail marketing areas of electric utilities, that is, franchise laws. Thus, FERC cannot order retail wheeling if it would violate state laws. This shifts the debate over whether retail wheeling should be allowed or prohibited, and if allowed under what conditions, into the state arena. Nothing in federal law prohibits a state from allowing retail wheeling. It is a matter to be decided by state commissions or state legislatures whether retail wheeling is to be permitted and, if so, under what limitations or conditions.

FPA subsection 212(h) provides that FERC cannot issue a wheeling order that requires or is conditioned upon transmission directly to an ultimate consumer. In other words, FERC may not order retail wheeling or condition its wholesale wheeling orders upon the availability of retail wheeling. Subsection 212(h) also prohibits FERC from ordering transmission or conditioning transmission in situations where there are sham wholesale transactions to disguise retail wheeling.

Sham wholesale transactions are identified in the Act as the transmission of electricity to, or for the benefit of, an entity if the electricity would then be sold by the entity directly to an ultimate (retail) customer. Exceptions are made if the entity is one of several excluded entities that are listed below, if the entity was "grandfathered" by providing electric service to the ultimate (retail) customer on October 24, 1992, or if the entity uses transmission or distribution facilities that it owns or controls to deliver all such electric energy to the retail customer. This final provision allows traditional

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[17] FPA subsections 212(i), (j), and (k) concern special provisions applicable to the federal Columbia River Transmission System, electric utilities prohibited by federal law from being a source of electric power supply, and the Electric Reliability Council of Texas (ERCOT). These subsections apply to special cases that, for the sake of brevity, will not be discussed here.

franchised utilities to continue to receive wheeled power and to resell to their retail customers. The entities listed as excluded include: (1) a federal power marketing agency; (2) the Tennessee Valley Authority; (3) a state or its political subdivision (or an agency, authority, or instrumentality of a state or its political subdivision); (4) a corporation or association that has ever received a loan from the Rural Electrification Administration (mainly rural cooperatives); (5) a legal person having an obligation to serve the public under state or local law, rather than arising solely from a contractual obligation; and (6) any corporation or association directly or indirectly wholly-owned by one or more of the foregoing listed in (1) through (5).

Subsection 212(h) then reiterates that nothing in the subsection affects any authority of state or local governments concerning the transmission of electricity directly to ultimate (retail) consumers. In other words, Congress clearly intends each state to decide the issue of retail wheeling individually. State public service commissions and state legislatures can expect intensive pressure by large industrial customers to obtain retail wheeling.[18]

Coordination with Other Provisions of Law

EPAct section 722(2) provides that the EPAct provisions on transmission service do not require any person to exercise these provisions in lieu of any other legal authority.[19] Nor are the provisions to be construed as limiting or impairing the authority of FERC under any other provision of law. Thus, parties are free to pursue their rights under other provisions of the FPA, and FERC can use other provisions of law *in pari materia* in conjunction with the EPAct provisions just discussed.

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[18] Statement of John Anderson, Executive Director of the Electricity Consumer Resource Council (ELCON) at the 6th Annual ABA Conference of Electricity Law and Regulation, Denver, Colorado, February 18-19, 1993. ELCON argues that state PUCs must consider retail wheeling as a component of integrated resource planning defined in section 111 of EPAct.

[19] Section 722(2) amends FPA subsection 212(e).

Finally, antitrust laws still apply to transmission. The EPAct provisions do not modify, impair, or supersede the antitrust laws.[20] Antitrust laws are defined as those listed in the first sentence of the Clayton Act (including the Sherman Act) and also section 5 of the Federal Trade Commission (FTC) Act to the extent that such section relates to unfair methods of competition. The extension of antitrust laws to include the unfair competition provision of the FTC Act constitutes a new addition that may well be needed, given the potential for some EWGs and utilities possessing key transmission facilities to exercise market power.

[20] Apparently, this means that Congress does not intend for FERC to have primary jurisdiction over antitrust issues involving transmission and wheeling. FERC is still charged under applicable case law, however, to consider the competitive and antitrust implications of its actions.

CHAPTER 4

CREATION OF EXEMPT WHOLESALE GENERATORS

Background

Since 1978, events in the electric power industry have raised doubts about the effectiveness of the Public Utility Holding Company Act (PUHCA) in protecting the interests of electricity consumers. PUHCA was enacted as law in 1935 to prevent gross abuses that were documented in a large-scale Federal Trade Commission study on the "complex and shadowy" accounting and financial practices of utility holding companies.[1] The Act triggered two important changes in the electric power industry. First, by simplifying holding companies' corporate and financial structures and by restricting their utility operations to a single geographical area, PUHCA facilitated the job of state commissions. Second, the Act dramatically restructured the electric power industry. Under the so-called "death clause," the Act abolished all holding companies that did not operate as an integrated electric power system.[2]

Led by the Public Utility Regulatory Policy Act of 1978 (PURPA), political pressure started to mount for a newly structured electric power industry. This pressure was sparked by the increased attractiveness of small-scale generating units, rising

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[1] Federal Trade Commission, *Utility Corporations*, S. Doc. 92, 70th Cong. (1928-1935).

[2] A more detailed examination of PUHCA is presented in Kenneth W. Costello, Edward H. Jennings, and Timothy W. Viezer, *Implications of a New PUHCA for the Electric Industry and Regulators* (Columbus, OH: The National Regulatory Research Institute, 1992).

electricity prices throughout the country, construction problems plaguing nuclear power plants, and the perceived benefits of competitive wholesale power markets.[3]

During the early 1980s, a national debate began over whether the economic performance of the electric power industry could be improved by lifting barriers to the entry of different generators. Opponents of the existing PUHCA argued that the Act was a major impediment to efficient generation markets. Specifically, the Act prevented a vertically-integrated utility from selling power generated by facilities disintegrated from the rest of its power system; and, in addition, it discouraged the entry of power producers (that is, independent producers) who would have no retail franchises, no affiliation with vertically-integrated utilities, or no high-voltage transmission facilities. Proponents of an amended PUHCA prevailed when the President signed into law Title VII, Subtitle A of the Energy Policy Act of 1992 (EPAct). A key juncture during the debate occurred when the electric utility industry's opposition to a new PUHCA started to unravel. Several utilities began to support amendments when they saw opportunities to earn future profits from forming wholesale power subsidiaries.

Table 4-1 shows some of the likely major effects of a new PUHCA on the electric power industry. Most fundamentally, it will expand the role of wholesale, nonrate-based generating facilities in meeting future electricity requirements. (See Table 4-2 for a list of the major power-generator groups.) Prior to the recent amendments, PUHCA seriously constrained the ability of both utilities and nonutilities to participate in the development of wholesale power facilities that did not meet the requirements of PURPA as qualifying facilities (QFs). For example, by 1989 less than 5 percent of the interconnected nonutility capacity in the U.S. consisted of generation facilities that were not QFs. Since the new PUHCA removes a major constraint on the development of nonQFs, it seems likely that future generation from QFs will decline in importance as competitive power procurement mechanisms become the standard industry practice.

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[3] Wholesale power markets include those markets where a utility or other entity supplies an electricity service to a party (for example, an investor-owned utility, municipality, electric rural cooperative) for resale to retail customers. Wholesale transactions may include transmission, energy, and capacity services.

TABLE 4-1

EXPECTED OUTCOMES OF PUHCA AMENDMENTS

- More independent power production
- Increased pressure for transmission access
- More unbundled electric power services
- Increased utility generation outside of franchised areas
- Lower market share of PURPA-QF generation
- Less vertically-integrated electric power industry

TABLE 4-2

DIFFERENT CATEGORIES OF POWER GENERATORS

Total Generators (TG) = Nonutility Generators (NUGs) +
Rate-Based Generators (RBGs)

NUGs = PURPA-QFs + NonQFs

PURPA-QFs = Cogenerators (CGs) +
Small Power Producers (SPPs)

NonQFs (= EWGs) = True Independent Generators (TIGs) +
Utility Affiliated Generators (UAGs)

Source: Kenneth W. Costello, Edward H. Jennings, and Timothy W. Viezer, *Implications of a New PUHCA for the Electric Industry and Regulators* (Columbus, OH: The National Regulatory Research Institute, 1992), 20.

QFs' privileges in the future may be limited to receiving energy payments for power offered to local utilities.[4] In one important way, QFs will be at a disadvantage because of the 50-percent restriction placed by the original PURPA on utility ownership.[5]

Major Components of New PUHCA

Table 4-3 lists the major provisions of the new PUHCA. First, it will exempt certain power producers from prior rules and regulations of the Securities and Exchange Commission (SEC). These "exempt wholesale generators" (EWGs) include both true independent generators and utility affiliated generators that sell power exclusively to wholesale power markets.[6] EPAct prohibits EWGs from selling directly to retail consumers.[7] It is expected that much of the new nonPURPA generation for wholesale markets will be developed by EWGs, with pricing and other contractual provisions falling under the authority of FERC.

Exempt utility holding companies and operating utilities, and nonutilities will be able to own and operate an EWG without SEC approval. This year the SEC is required to write rules on the acquisition of EWGs by regulated holding companies, with the intent of ensuring that such acquisitions will have no adverse effects on the ability of state commissions to protect retail electricity consumers. The rules must define the

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[4] This is especially true in states which have limited the amount of energy and capacity that a utility must purchase from QFs in addition to requiring utilities to institute a competitive power procurement program.

[5] In rules adopted in 1980, FERC interpreted ownership to mean having more than a 50 percent equity interest in a QF.

[6] An EWG can be a hybrid facility where a portion of the facility is included in a utility's rate base. While EPAct removes the definition of EWGs as electric utilities under section 2(a)(3) of PUHCA, EWGs fall within the category of electric utilities under the Federal Power Act (FPA). Some states may also define EWGs as electric utilities.

[7] This requirement does not apply to EWGs making retail sales in foreign countries.

TABLE 4-3

MAJOR PROVISIONS OF NEW PUHCA

- Definition of exempt EWGs
- FERC certification of EWGs
- SEC approval of EWG acquisition by registered holding company
- PUC discretion over affiliated transactions involving EWGs
- PUC discretion over spinoff of existing rate-based facilities as EWGs
- Investment in foreign utilities (SEC and PUC authority)

meaning of a "substantial adverse impact on the financial integrity of the registered holding company system."

Second, FERC has authority to certify EWGs. It has recently issued a general order (G.O. 550-A) stipulating conditions for certification.[8] FERC will likely approve the vast majority of applications for plant certification.[9]

[8] EPAct requires FERC to handle certificate applications within sixty days of receipt. See, "FERC Expands View of Certification Requirements Contained in Final Rule," *Electric Power Alert* (April 28, 1993), 22-23.

[9] Congress intended FERC's review of applications to be ministerial. FERC has recently ruled, however, that an applicant must be an actual seller of power from a facility, although it need not generate all the power it sells. EPAct requires FERC to write final rules regarding EWG certification no later than October 23, 1993.

Third, the SEC will have authority over approving the acquisition of EWGs by registered holding companies. Contrary to what some may believe, SEC has retained much of its authority over both registered holding companies and exempt holding companies. The SEC, for example, would continue to regulate registered holding companies regarding their financial and corporate structures, issuance of securities for acquiring wholesale power facilities and other assets, and their service contracts with wholesale power facilities.

Fourth, state commissions have authority over power sales involving affiliated EWGs. EPAct requires state commissions, on a case-by-case basis, to find that self-dealing sales would benefit consumers, are in the public interest, do not violate state law, and would not give an EWG an unfair competitive advantage.

Fifth, state commissions also have discretion over spinoffs of existing rate-based facilities to the status of EWGs.[10] Commission approval requires a determination that a proposed spinoff would benefit consumers, is in the public interest, and does not violate state law. The willingness of utilities to spin off facilities will depend to a large extent on state commission rules and policies on the distribution of capital gains between utility shareholders and ratepayers.

Sixth, the new PUHCA gives both state commissions and the SEC authority to approve of foreign investments by U.S. public utilities.[11] State commissions have approval rights, after certifying to the SEC that they have the ability to protect consumers from failed foreign investments, except in the case of registered holding companies, which must receive SEC approval. In such cases, state commissions will have an advisory role that according to EPAct, the SEC cannot ignore when making a

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[10] Commission authority encompasses affiliates of registered holding companies. Transfer of an existing facility does not require SEC approval.

[11] EPAct allows all electric utilities to acquire and hold the securities of or an interest in one or more foreign utility companies.

decision. EPAct requires that the SEC promulgate rules on the regulation of registered holding company acquisition of foreign utility companies.[12]

Finally, as a consequence of an amendment to the FPA, state commissions will have wide access to the books and records of utilities and their wholesale power subsidiaries. They can, for example, request financial information from an EWG or its affiliate company that sells power to a regulated utility.

The Role of Regulators

FERC and the state public utility commissions will play an important role in affecting the profitability and marketability of new wholesale power facilities. For example, the actions and policies of state commissions will influence the incentives of utilities to purchase power and, indirectly, the profit-risk environment faced by wholesale power producers (see Table 4-4).[13] Especially important will be state commission approval of provisions contained in power sale contracts; such approval influences the profit and risks of wholesale power in addition to the availability of capital funds for new projects. State commissions also will affect the outcome of power procurement bids by the discretion allowed utility buyers in selecting, and negotiating with, producers.

On the one hand, state commissions should be receptive toward the principles underlying the rationale for a new PUHCA and easier transmission access. More competitive wholesale power markets will allow vertically-integrated and other utilities to choose from a larger number of suppliers, thereby promoting state-sanctioned IRP

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[12] The rules are required to protect power consumers and maintain financial integrity of the whole registered holding company system.

[13] State commissions typically do not give electric utilities explicit incentives to purchase power. Recently, however, some states have begun or are considering allowing utilities to retain a portion of the savings from power purchases that lower their overall cost of service. The Georgia Commission, for example, recently approved a shared savings rate adjustment that allows a utility to receive an incentive payment for cost-efficient power purchases.

TABLE 4-4

WHAT A NEW PUHCA MEANS
FOR STATE COMMISSIONS

- More upfront reviews of wholesale transactions as part of the integrated resource planning (IRP) process or purchased power procurement program
- Review of proposed plant spinoffs by utilities
- Scrutiny of potentially anticompetitive activities such as cross-subsidization and self-dealing abuses
- More retrospective reviews of wholesale purchases by jurisdictional utilities
- Consideration of new PURPA wholesale power standards
- More reviews of utility restructuring proposals
- More reviews of utility investments in foreign countries

objectives. State commissions also may prefer that utilities "buy rather than build," since much of the risks associated with new plant construction and operations typically would shift from retail consumers to wholesale producers.[14] State commissions also may have

[14] Buying power, for example, would reduce risks to the utility because of the avoidance of construction risks, the reduction of regulatory risk, and the diversification of the utility's power portfolio. For example, the utility can expect greater assurance of recovering its costs for purchased power than for internal generation. A caveat is that state commissions will probably review purchased power contracts more closely in the future as they become more prominent within a utility's planning process. Commissions will need to be careful that contracts do not shift excessive risks to ratepayers.

reasons to favor EWGs over PURPA-QFs. They will have greater authority over EWGs than QFs regarding plant spinoffs, self-dealing transactions, and the review of books and records.

State commissions may generally oppose the formation of EWGs by in-state utilities from existing power plants--for example, the spinoff of an existing rate-based generating facility. In the case where a facility is producing small profits, the utility may expect to earn higher profits from spinning off the facility as a wholesale facility and receiving FERC approval for market-based prices. A state commission, however, may oppose the spinoff on grounds that retail consumers would lose the future benefits of the facility that they, in effect, previously paid for during the early years of the facility's life.[15]

Commissions also may tend to reject self-dealing transactions. The new PUHCA gives the state the discretion whether or not to approve self-dealing transactions involving an exempt wholesale generator. Many commissions may decide that the risks from possible self-dealing abuse are too great relative to the benefits. Even with a least-cost planning process in place or the ability to conduct a retrospective review, commissions would still have to closely monitor self-dealing transactions.[16]

The informational problem associated with detecting self-dealing abuse may provoke some commissions to enforce a blanket prohibition against all affiliated transactions.[17] Other commissions, however, may allow self-dealing transactions under the auspices of an incentive-based regulatory system that would take away any

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[15] Under rate-of-return regulation, a utility normally recovers a disproportionately higher portion of capital expenditures during the earlier years of plant operation.

[16] For example, a commission would have to review both the price and nonprice provisions of a purchase-power contract with an affiliate. In addition, they may need to determine whether the utility was able to restrict transmission access to competitors.

[17] The Oregon Commission, for example, recently rejected allowing utility affiliates to bid in an all-source bidding process. The commission concluded that affiliate participation would damage the credibility and fairness of the process and that enough independent power producers were available to provide successful competitive bidding.

opportunity for abuse by transacting parties. One such system is price-cap regulation, where the idea is that a regulated firm's prices to retail consumers would not increase because of inflated prices paid to an affiliate supplier. Under this mechanism, regulators could set maximum allowable retail prices in core markets based on industry-wide price and productivity indices.

The prices charged by wholesale power facilities, including EWGs, fall under the jurisdiction of FERC.[18] The federal agency has increasingly allowed market-based pricing for unaffiliated transactions where the generator has limited opportunities to exercise market power. FERC expects sometime this year to promulgate rules that would provide general guidelines on conditions acceptable for market-based prices. The rules would likely provide a "safe harbor" for generators willing to offer transmission access on a nondiscriminatory basis.[19] The rules should have the effect of reducing the uncertainty faced by both project lenders and suppliers over future revenue streams. It is anticipated that the new rules will accelerate the role of market forces in determining future prices and terms of wholesale power transactions.

The Significance of a New PUHCA

The new PUHCA will likely have at least four major effects. First, more new generation will lie outside the purview of rate-of-return regulation. Power generators will have a greater opportunity to profit from successful performances of existing as well as new technologies under a market-based pricing regime. For example, spinning off an existing rate-based facility may induce a utility to repower the facility with an innovative

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[18] Because EWGs remain utilities as defined by the FPA, they are subject to FERC price regulation.

[19] EPAct section 724 amends the FPA by prohibiting FERC from approving a rate or charge that gives an undue preference or advantage to an EWG transacting with an associate company or affiliate. One interpretation of this section is that it will give FERC additional leverage over a state commission's decision to allow affiliate transactions.

coal-based or other technology. The economic performance of generators will largely depend on the successes of generators to control construction costs and to operate at high levels of efficiency. The rewards for successful experiences generally should exceed those received under rate-of-return regulation.

Second, more new generation directed at wholesale markets will come from sources that are not QFs. The size, ownership, fuel use, and technology constraints of PURPA have diverted entrepreneurial activities from the development of potentially more economical generating technologies.[20] Some of the emerging new technologies, for example, cannot be deployed economically if their application is restricted to QFs. New technologies, in particular those exhibiting economies of scale, may benefit from the new PUHCA legislation. Some analysts believe that lifting restrictions on wholesale power production will greatly stimulate the use of natural gas by nonutility facilities.

Third, the new PUHCA, along with easier transmission access stimulated in part by recent amendments to the FPA, may change the nature of and expand the market for wholesale power. With opportunities to sell to more buyers, wholesale producers may no longer be constrained to signing long-term sales contracts. The possibility of opportunistic behavior by vertically-integrated utilities has discouraged the formation of a spot or short-term contract market for power and has necessitated the signing of long-term contracts. In the future, a spot market may develop that, by increasing the competitiveness of wholesale power markets, would increase overall efficiency and lower the price of bulk power. It may also be argued that a greater array of wholesale power services and market transactions would lead to a more diverse input market, where there would be more variety of power technologies. For example, growth in peak-load and standby capacity would be stimulated in a market that is not limited to long-term

[20] Incidentally, this was one of the major arguments made by supporters of PUHCA amendments.

contractual transactions. Easier transmission access could also make larger generating facilities more attractive as market opportunities increase.[21]

As a final observation on transmission, retail wheeling may become a reality in some states during the next few years. While, as mentioned previously, EPAct prohibits FERC from ordering transmission to retail markets and precludes domestic EWGs from making retail sales, it leaves the door open for state commissions. One scenario is that states will initiate voluntary retail-wheeling experiments on a utility-by-utility basis. Even electric utility executives are beginning to talk about the strong possibility of retail wheeling penetrating industrial markets during the next few years. Retail wheeling will confront state commissions with new challenges. Commissions, for example, will need to reassess their pricing policies and the obligation-to-serve requirements currently imposed on electric utilities.

Fourth, growing competition, stimulated by the new PUHCA and easier transmission access, will accelerate the replacement of rate-of-return regulation with more flexible regulation or perhaps deregulation, in selected cases. As a general rule, traditional regulation works best when firms offer bundled services, have limited supply options, and when technology is unchanging. Continuing with rigid regulatory procedures in a more competitive environment, especially one where retail wheeling becomes a reality, can produce large efficiency losses that are costly to both regulated firms and consumers. Unless regulators can accommodate the new changes on their own, outside pressure by special interests will likely prevail, for example, through legislative action. These groups see a new regulatory regime as crucial for promoting their economic well-being. When this occurs, regulators will be under great pressure to change their *modus operandi*. The history of other regulated industries where competition grew has shown that tight regulation is replaced either by incentive-based regulation or partial deregulation. In either case, power generators and other entities will likely face a more favorable environment for entrepreneurial activities.

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[21] The reason for this is that the potential benefits of economies of scale increase whenever sellers can sell to a larger market (assuming other things remain the same).

CHAPTER 5

PROMOTION OF DIFFERENT GENERATION TECHNOLOGIES

The Energy Policy Act of 1992 (EPAct) contains several provisions relating to the development, commercial deployment, and export of electric generation technologies that include renewable energy, nuclear, and coal. Provisions include continued authorization of funded research and development (R&D) projects administered by the U.S. Department of Energy (DOE), authorization for new appropriation of funds, and targeted incentives, including tax subsidies for selected technologies. EPAct establishes coordinating agency and commission studies to support domestic commercialization and export of selected technologies. The Act also streamlines licensing procedures for nuclear power plants, strengthens the authority of DOE to conduct a site characterization for a high-level nuclear waste repository, and establishes a decommissioning fund for existing nuclear plants.

Renewable Energy Technologies

Provisions in EPAct

EPAct strongly supports renewable energy technologies. The Act provides for authorizations of funding and grants for development, demonstration and commercialization, establishment of programs to promote export, and favorable tax treatment of renewable technologies. The Act also directs federal agencies to conduct studies and develop data systems to facilitate public communication and information exchange on important technical and institutional issues that have a bearing upon the adoption and diffusion of renewable energy technologies. Most of the provisions related to renewable technologies appear under Title XII. Other provisions appear under Title XIX, Title XXI, Title XXVI, and Title XXVII.

EPAct authorizes funding to develop, demonstrate, and commercialize renewable technologies. It establishes a five-year cost-sharing technology demonstration and commercial application program (Title XII), and authorizes funding for programs to accelerate development of renewable energy and electricity storage technologies (Title XX). The Act authorizes $50 million for Fiscal Year 1993 for demonstration and commercial application, and $209 million and $275 million for Fiscal Year 1993 and Fiscal Year 1994 for development of renewable energy technologies. It establishes a goal of increasing renewable energy production by 75 percent over the 1988 level.

The Act establishes targeted incentives in the form of awards, subsidies (Title XII), and tax credits (Title XIX) for renewable technologies. It directs the Secretary of Energy to present awards for advancements in practical applications of renewable technologies. DOE is directed to make payments of 1.5 cents per kilowatthour (kWh) (adjusted for inflation beyond Fiscal Year 1993) to producers of new renewable energy facilities. Both provisions are made contingent upon later appropriations. Also, the Act establishes a tax credit of 1.5 cents per kWh for electricity generated from wind or from closed-loop biomass systems and extends indefinitely the existing 10 percent business tax credit for solar and geothermal equipment.

EPAct provides for increasing export of renewable technologies already in use or under development in the U.S. The Act authorizes $10 million for an interagency working group, chaired by DOE, to assist firms in the export of domestic equipment (Title XII). Member agencies are encouraged to provide training to individuals from other countries, technical assistance to the World Bank, and financial incentives for the private sector. The interagency group is required to study incentives and policies that foreign countries apply to promote renewable technologies and to identify trade barriers to the import of U.S. technologies. The Act directs the U.S. Department of Commerce (DOC) to assess competitiveness of U.S. firms in foreign markets for renewable technologies and establish a data system on the energy technology needs of foreign countries. The DOC is directed to review export promotion programs and evaluate those that develop and promote the export of domestic renewable resources.

EPAct directs DOE to conduct a study to determine whether conventional utility and ratemaking treatments create barriers to adoption of renewable energy technologies (Title XII). A draft report of the study, which is being conducted by Oak Ridge National Laboratory, is to be available for public review during the summer of 1993.

Considerations

EPAct reflects the general public policy shift toward energy efficient and environmentally benign technologies that started in the early 1980s. The Act essentially ratifies what is increasingly being adopted as standard regulatory policy by state utility commissions. Approximately twenty-five state utility commissions currently allow favorable treatment of renewable technologies through the incorporation of environmental externalities in utility resource plans.[1]

EPAct complements these practices by providing other incentives to accelerate the development and adoption of renewable energy technologies. Because most renewable technologies currently cannot compete on the basis of cost with conventional fossil fuel and nuclear technologies, such incentives are provided to overcome their current economic disadvantage.

The underlying rationale for offering incentives for renewable technologies is that the alternatives, conventional fossil and nuclear technologies, impose environmental and other external costs on society that are not accounted for in traditional ratemaking. Consequently, such incentives are needed to offset these externalities.[2] Such incentives presumably should lead to socially more efficient choices over the consumption and production of energy. While most public policy analysts would agree with this premise, they disagree on how to assess externalities and the choice of different mechanisms to

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[1] State commissions apply different methods and levels of quantification for estimating and incorporating environmental externalities.

[2] The incentives can be viewed as a second-best approach to addressing the omission of external costs from utility or regulatory decisionmaking.

internalize them. Most of the incentives for renewable technologies in EPAct consist of public funding and tax subsidies, and to some may be less controversial than regulatory incentives currently being introduced by state commissions.[3] Since the general public is funding them, EPAct incentives would impose less of a burden on utility ratepayers.

One goal of the incentives being provided by the Act is to lower the costs of renewable energy technologies through more innovative designs and applications. The incentives in the Act may lead to accelerated development of renewable technologies and, it is hoped, greater adoption of them in the utility generation mix over the next decade.

The Act does not unconditionally favor renewable energy over alternative generation technologies. Similar incentives are provided for both coal and nuclear technologies.[4] It is fair to say that the incentives for development and demonstration in the form of project funding and grants are evenly balanced between the three energy resources. Incentives for adoption of renewable technologies, as well as energy efficiency technologies, however, may be somewhat stronger than for the other generation technology alternatives. The subsidy of 1.5 cents per kWh for qualified renewable technologies and the tax credit of 1.5 cents per kWh for wind technologies and closed biomass systems are unmatched by similar incentives for other alternatives. Some renewable energy technologies (namely, wind and closed biomass systems) may qualify for both incentives and, subsequently, gain a significant cost advantage over the alternatives.

The legislated incentives in EPAct may not achieve the intended goals because the research, development, and demonstration (R,D&D) funding, as well as direct subsidies for qualified generation facilities, depends upon the availability of future

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[3] Public funding and tax subsidies are common mechanisms used by the federal government to accelerate the commercialization of both new energy and nonenergy technologies.

[4] See subsequent discussion on nuclear and coal technologies.

appropriations.[5] Given the prevailing political opposition toward additional federal spending, appropriations are highly unlikely in the foreseeable future.[6] In the long run, however, the incentives for renewable technologies provided by EPAct may accelerate the development and adoption of these technologies.

The provisions of the Act pertaining to renewable energy technologies do not require any specific response from utility regulators. Along with other provisions of the Act, particularly those relating to energy efficiency, they articulate a clear preference for environmentally benign technologies. As discussed earlier, state regulators have increasingly revealed this preference through their policies and actions. Consequently, the Act supplements the existing policy direction of state regulators by strengthening the cost-competitiveness of renewable energy technologies. The study of barriers to adoption of renewable technologies created by conventional ratemaking treatments may offer regulators guidance on what policy changes are necessary to remove such barriers, if they are shown to exist, and on how to encourage efficient technology choices in utility resource planning.

Nuclear Power Technologies

Provisions in EPAct

EPAct provides strong support for nuclear power technologies.[7] First, it authorizes funding for developing advanced nuclear reactors and streamlines the nuclear power plant licensing process. Second, the Act attempts to expedite the resolution of the contentious issue of high-level nuclear waste disposal. This issue has plagued the nuclear

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[5] The same applies for incentives for nuclear and coal technologies.

[6] The only exceptions may be qualified wind and closed biomass systems, which receive tax credits of 1.5 cents per kWh regardless of the availability of future appropriations.

[7] See Titles VIII, IX, X, XI, XIX, XXI, and XXVIII.

industry and has hindered the construction of new nuclear plants since 1978.[8] Third, other provisions that affect the nuclear industry include creation of a new corporation to operate uranium enrichment facilities, establishment of a fund to finance the decommissioning of existing nuclear plants, and support for domestic uranium mining and export.

EPAct directs DOE to implement a comprehensive program to deploy advanced nuclear reactor technologies (Title XXI). Advanced nuclear technologies include both conventional (light-water cooled) and unconventional designs (liquid metal or high-temperature gas cooled). These technologies potentially have higher efficiencies and enhanced safety features compared to existing nuclear plants. The Act establishes goals that include certification by the Nuclear Regulatory Commission (NRC) of advanced reactor designs based on conventional technology by Fiscal Year 1996 and the selection by DOE of an unconventional technology for construction as a prototype by Fiscal Year 1998. DOE is directed to solicit proposals from, and provide up to half of the funding to, developers and manufacturers to design and construct prototypes of advanced reactors.

EPAct authorizes the NRC to issue combined construction and operating licenses for new nuclear plants (Title XXVIII). The one-step licensing process eliminates post-construction hearings on critical safety issues that the NRC must address before approving the construction. Post-construction hearings are allowed if evidence shows that the construction does not conform to the safety standards set forth in the license. Such hearings, however, cannot address new safety issues. The NRC also is authorized to allow start-up of plant operation during the post-construction hearings if it determines that public health and safety are reasonably assured.

EPAct establishes the United States Enrichment Corporation (USEC) to take over the functions of DOE's Uranium Enrichment Enterprise (UEE) (Title IX and X). The goals established for the newly created corporation include maximization of its long-term value to the U.S. Treasury and operation as a self-financing entity. The USEC also

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[8] See subsequent discussion on high-level nuclear waste in Chapter 7.

has an option of transferring ownership rights, in the future, to the private sector subject to presidential approval. The Act directs the NRC to establish standards to govern the operation of existing uranium enrichment facilities and exempts the USEC from license renewal requirements for these facilities (Title XI). New enrichment facilities, however, are subject to licensing requirements.

EPAct establishes a special Treasury account to pay for the costs of decontaminating and decommissioning existing uranium enrichment facilities (Title XI). It requires an annual deposit of $480 million into the decontaminating and decommissioning account of which up to $150 million must be met by contributions from utilities who use the enrichment services.

According to the Act, the Secretary of Energy continues to be responsible for promoting the domestic uranium mining industry and supporting export of domestic uranium (Title X).

Considerations

EPAct establishes a clear policy direction that supports nuclear power technologies. The funding support for advanced nuclear reactors is designed to develop and deploy technologies that would overcome many of the current public safety concerns associated with nuclear power. The one-stop licensing process and the preconstruction certification of standardized designs will lend a greater degree of predictability to the nuclear construction process and assuage the concerns about the risks of investing in nuclear technologies that are widely shared by utilities and the financial community. Finally, the reorganized and revitalized uranium enrichment operations may lead to some lowering of fuel costs to the nuclear power industry. Thus, one hope of Congress and President Bush was the revival of nuclear power by reversing a trend established in the 1970s and 1980s characterized by a virtual phase-out of this technology.

This observation needs to be tempered by several considerations, however. As in the case of renewable energy technologies,[9] the R,D&D funding for advanced nuclear technologies depends on the availability of appropriations, which are unlikely to be forthcoming in the near future. The proposed advanced technologies also are currently in the initial stages of development and are unlikely to achieve commercial readiness within the next decade. Finally, new nuclear construction is unlikely to be vigorously pursued by the utility industry unless there is a clear resolution of the high-level nuclear waste disposal issue.[10] The Act attempts to expedite the resolution by strengthening the authority of DOE to pursue its nuclear waste site-characterization program; yet that represents but a small step toward the resolution of this contentious issue.

The provisions of EPAct related to nuclear power do not require any specific response from state regulators. Overall, EPAct provides a clear impetus for renewed use of nuclear power and strong incentives for development and commercialization of a new generation of safer and more-efficient nuclear technologies. It may be prudent for state regulators and state environmental authorities to prepare and position themselves for a revival of nuclear power beyond the next decade.

Coal-Based Technologies

Provisions in EPAct

EPAct articulates a policy that supports the burning of coal in an environmentally benign manner. Most of the provisions for coal-based generation technologies appear under Title XIII. Support for coal technologies comes in the form of funding authorizations for development and demonstration initiatives to promote

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[9] See the discussion on renewables in the preceding section.

[10] See subsequent discussion on high-level nuclear waste in Chapter 7.

commercialization of clean coal technologies (CCTs) and establishment of programs to promote technology transfer and export.

EPAct authorizes DOE to establish a research, development and demonstration, and commercial application program on coal-based technologies. Goals established by the Act include commercial availability of cost-effective technologies, processes or systems that achieve greater fuel conversion efficiencies and pollution control by the year 2010. Targeted for the effort are both fuel (that is, production of electricity and other forms of energy) and nonfuel applications. Fuel applications include coal-based diesel engines, combined use of solid waste and coal for clean coal technologies,[11] use of coal waste as a boiler fuel, underground coal gasification, oil substitution through coal liquefaction, fuel cells,[12] and magnetohydrodynamics. The Act also authorizes additional solicitations for DOE's current program on CCTs.

EPAct establishes a Clean Coal Technology Subgroup within the Trade Promotion Coordinating Committee, which was established in May, 1990. The purpose of the Subgroup is to direct and coordinate efforts of various federal agencies to promote the export of CCTs (Title XIII). EPAct authorizes the Subgroup to carry out training, financial assistance, and loan guarantee programs.

Another provision of EPAct includes exemption of CCTs from PURPA avoided-cost calculations in utility power-procurement decisions. For example, if a utility has an operating demonstration coal-fired facility, the cost of producing power from the facility cannot be included in avoided-cost calculations for power-procurement decisions. The Act also authorizes a study to review current ratemaking and tax incentives for the

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[11] These include cofiring coal and discarded vehicle tires in fluidized bed combustion, combined gasification of coal and municipal sludge for integrated-gasification combined-cycle power production, creation of fuel pellets with coal and solid waste, and cofiring of waste methane with coal or coal waste in fluidized bed combustion.

[12] The provisions on development support for fuel cell technology appear under Title XXI.

adoption of CCTs;[13] and a second study to determine the effect of the Clean Air Act Amendments of 1990 on transportation rates (Title XIII).

Considerations

EPAct provides continued authorization of current R,D&D programs on coal-based generation technologies administered by DOE.[14] Although the Act strongly supports renewable and nuclear technologies as long as they are economically viable, there is greater emphasis on new and environmentally benign options in the case of coal-based technologies. For example, EPAct authorizes direct payment subsidies and tax credits for qualified renewable energy technologies. The Act also facilitates the building of new nuclear plants by streamlining the licensing process and expediting the resolution of the high-level nuclear waste issue, in addition to providing support for R,D&D programs. In the case of coal, there is no corresponding support for deployment of conventional technologies. The support for coal technologies focuses on new technologies that can potentially achieve significantly lower emissions of environmental pollutants.

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[13] The NRRI is currently engaged in a DOE-funded study to review possible ratemaking and tax incentives for accelerating the commercialization of CCTs and other innovative technologies.

[14] These programs include the CCT program.

CHAPTER 6

ALTERNATIVE FUEL VEHICLES

Jurisdiction of Vehicular Natural Gas

Section 404 of the Energy Policy Act of 1992 (EPAct) amends Section 1 of the Natural Gas Act (NGA) by prohibiting the Federal Energy Regulatory Commission (FERC) from regulating an entity solely by reason of its involvement in the sale or transportation of vehicular natural gas (VNG)[1] if such an entity is not otherwise a natural gas company as defined in the NGA. Section 404 also requires that an entity subject primarily to state regulation will not be regulated by FERC if a state commission chooses not to regulate the sale, sale for resale, or transportation of VNG by such a entity.

This section further stipulates that the transportation or sale of VNG by any entity not otherwise a public utility shall not be considered a transportation or sale of natural gas within the meaning of any state law and regulation in effect before January 1, 1989. An exception occurs when such law or regulation is related primarily to the protection of public safety.

Section 404 also states that a company shall not be considered a gas utility company under the Public Utility Holding Company Act of 1935 (PUHCA) solely because it owns or operates facilities used for the retail distribution of VNG. In addition, a PUHCA-registered holding company may acquire or retain in any geographic area interest in a company that is not a public utility and has a primary business interest in the sale of VNG or the manufacturing, sale, transport, installation, serving, or financing of equipment related to the sale or consumption of VNG.

The purpose of section 404 is to remove regulatory impediments, mainly by clarifying the applicability of certain existing regulations on VNG-related activities

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[1] VNG is defined as gas that is ultimately used as a fuel in a self-propelled vehicle.

(which are not the intended subject of regulation after all), to the sales and transportation of VNG, and the manufacturing of natural gas vehicles and construction of VNG fueling facilities. Accordingly, the only VNG transaction that the state commissions may regulate is the sale of VNG to end-use customers by a local gas distribution company (through one of its refueling stations) within its own service territory. This section does not provide any specific guidance on the regulation of such a transaction. States have the authority to decide the proper form of regulation. Certain states have chosen to deregulate the retail sale of VNG based on the argument that the ownership and operation of refueling stations do not exhibit any significant economies of scale and scope to justify any public utility type regulation. But market power and cross-subsidy issues may arise if an LDC owns a large percentage of refueling stations in its franchised area. Some form of regulatory control for the sale of VNG by LDC-owned refueling stations may be necessary when the number of competing refueling stations is small.[2]

Section 404 has removed much of the ambiguity related to the regulation of VNG-related activities and it either requires or recommends no specific actions for state commissions. The state commissions will still need to regulate the sales of VNG by local gas utilities to end-use customers.

Promotion of Alternative-Fueled Vehicles

Section 409 of EPAct stipulates that, by October 1993, the Secretary of Energy shall issue regulations establishing guidelines regarding the incentives to be considered by the states in accelerating the introduction and use of alternative fuels and alternative fuel vehicles (AFVs). It further stipulates that the Secretary shall invite the governor of each state to submit to the Secretary a state plan by October 1993. The plan shall

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[2] This point is discussed in much more detail in Daniel J. Duann and Youssef Hegazy, *Natural Gas Vehicles and the Role of State Public Service Commissions* (Columbus, OH: The National Regulatory Research Institute, 1992).

include provisions designed to achieve the scheduled progress toward the introduction of substantial numbers of AFVs by the year 2000.

This section also specifies that the Secretary, in approving the submitted state plan, shall consider the energy-related and environmental-related effects, as a result of successful adoption of the plan, and such other factors as the Secretary considers appropriate. Upon request of the governor of any state with an approved plan, the Secretary may provide to a state informational and technical assistance, grants for assisting a state in adopting the plan, and financial incentives for the acquisition of AFVs.

Section 410 authorizes the Secretary of Transportation to enter into cooperative agreements and joint ventures with municipal, county, regional transit authorities, and interested or affected private firms in an urban area to demonstrate the feasibility of alternative-fueled urban buses and other mass transit vehicles. This section further stipulates that the Secretary of Transportation may provide financial assistance to any agency, municipality, or political subdivision for the costs of buying alternative-fuel school buses, building refueling facilities, or converting school buses to run on alternative fuels.

The purpose of these sections is to provide federal regulatory guidance, technical assistance, and financial incentive to the states to encourage the more rapid development and use of AFVs. These sections do not indicate whether the state commissions will be the main state agencies responsible for the promotion of AFVs. The state commissions would be expected to play a large role in the development of a state action plan since several specific incentives promulgated in the Act clearly fall within the boundary of state commissions and gas utilities. These incentives include: (1) public education programs to promote the use of AFVs; (2) the treatment of sales of alternative fuels for use in AFVs; (3) the authorization of public utilities to include in rates the costs of new AFVs and the conversion of conventional vehicles to operate on alternative fuels; and (4) the installation of alternative-fuel fueling facilities to the extent that the inclusion of such costs in rates would not create competitive disadvantages for other market participants.

The states may see it in their interest to begin developing state-wide AFV action plans. The public utility commission may be the one state agency with the closest interaction with the natural gas industry, and gas utilities will play an important role in promoting AFVs. Consequently, the commission can be one of the lead agencies in the development of a state plan.

Based on the compressed schedules contained in these sections, the state government's first task is to quickly establish an organizational structure, perhaps with the public utility commission, the state Environmental Protection Agency (EPA), and the state Department of Transportation (DOT) as lead agencies, for the development of a state-wide AFV action plan. At the same time, the state commission may want to start reviewing the applicability and feasibility of some of the incentives outlined in the Act to promote AFVs.

Effective model year 1996, section 507 stipulates that state fleets must be comprised of certain percentages of AFVs for new light-duty motor vehicles annually acquired. The percentages for future model years are: 10 percent in 1996; 15 percent in 1997; 25 percent in 1998; 50 percent in 1999; and 75 percent in 2000 and thereafter. Section 507 also states that the Secretary shall promulgate a rule by May 1995 providing that a state may submit a plan within twelve months after such promulgation containing a light duty AFV plan for state fleets to meet the annual percentage requirement.

In sum, the state commissions will have no direct involvement with the preparation and adoption of the state plan to promote AFVs. The commissions will likely play an indirect role, in particular encouraging gas utilities to build more refueling and service stations to support the state vehicle fleet.

CHAPTER 7

MAJOR ENVIRONMENTAL PROVISIONS

A major objective of the Energy Policy Act of 1992 (EPAct) is to improve energy efficiency in the residential, commercial, industrial, and transportation sectors. Along with the national security and energy independence and economic competitiveness objectives, another objective of EPAct is to improve or preserve the environment. Although the Act contains no additional direct environmental provisions that utilities or commissions are required to adopt, commissions may want to consider indirect environmental consequences. For example, sections 111 and 303 amendments to the Public Utility Regulatory Policies Act of 1978 relating to integrated resource planning and conservation profitability for electric and gas utilities, as discussed in Chapter 2, have an environmental consequence; that is, by increasing energy efficiency in major appliances, power plant emissions of carbon dioxide and other pollutants should be reduced. The sections below outline other provisions of the Act relating to global warming, nuclear waste, and electromagnetic fields (EMFs). State commissions may want to consider how these provisions coincide with utility-sponsored conservation programs, how electricity demand may be affected, and the effect on a commission's environmental policy.

Global Warming

Title XVI of EPAct requires the U.S. Department of Energy (DOE) to submit a report to Congress that assesses the feasibility and implications of stabilizing U.S. greenhouse gas emissions or reducing them 20 percent by the year 2005. DOE must also prepare a "least-cost energy strategy" for the National Energy Policy Plans submitted by the President beginning in 1993. The strategy is to set goals and priorities that promote energy efficiency, renewable energy, and other energy technologies that reduce greenhouse gas emissions. DOE's Energy Information Administration is required to

catalog the national aggregate emissions of each greenhouse gas for the period 1987-1990 and update them annually. This title also establishes a "Global Change Response Fund" for assisting global efforts to adapt and respond to climate change.

Nuclear Waste

High-Level Disposal

EPAct directs the Environmental Protection Agency (EPA) to issue new environmental standards that would apply to the highly controversial Yucca Mountain repository site for high-level nuclear waste (currently stored on site at nuclear plants). Recommendations for the standards will be made by the National Academy of Sciences (NAS). The Act requires that general EPA repository standards issued under statutory authority would no longer apply to Yucca Mountain (Title VIII). The new standards would limit the radiation exposure to individual members of the public and must be consistent with the findings of the NAS study.[1]

EPAct directs the Nuclear Regulatory Commission (NRC) to modify its repository licensing requirements so as to make them consistent with the new EPA Yucca Mountain standards. The Act specifies that in developing its new licensing requirements, the NRC must assume the standards will not be violated either by human intrusion or failure of engineered barriers.[2]

EPAct extends the term of the Office of the Nuclear Waste Negotiator by two years to January 1995. The Office was established in 1988 to find voluntary hosts for nuclear waste facilities. Authority previously granted to the Negotiator to seek agreements with U.S. territories is rescinded, limiting the negotiations to the states, the District of Columbia, and the Indian Tribes.

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[1] The NAS findings will be available by the end of 1993.

[2] DOE will conduct permanent monitoring of the site to prevent human intrusion.

EPAct also directs DOE, in consultation with the EPA and the NRC, to report to Congress on the adequacy of the currently planned nuclear waste management systems to handle waste from future reactors (Title XXI).

Low-Level Disposal

EPAct grants authority to states to regulate low-level radioactive waste that the NRC determines to be "below regulatory concern" (BRC). Previous NRC policies establishing BRC are revoked, although the NRC had already withdrawn such policies (Title XXIX).

Considerations

The objective of the regulatory and licensing provisions of Title VIII of EPAct is to overcome long-standing obstacles to DOE site characterization efforts for the proposed Yucca Mountain repository. In the past, such efforts have been blocked by opposition from environmental groups and the State of Nevada, and EPA-mandated environmental standards. These standards are considered to have been impractical and unduly legalistic by critics including those at the NAS. The Act revokes the current EPA standards in favor of those to be developed based on recommendations of the NAS. The Act, however, is not likely to eliminate the opposition by environmental groups and the State of Nevada to DOE's site characterization efforts.

Together with the licensing provisions for new nuclear plants in Title XXVIII, Title VIII facilitates the future construction of nuclear plants. Besides low-demand growth and safety concerns, the contentious issue of high-level nuclear waste has been responsible, since the late 1970s, for slowing down and virtually phasing-out the nuclear option. In view of the concern over environmental pollution caused by conventional fossil plants and the need for national energy security, many experts now consider nuclear power to be a viable alternative. EPAct seeks to reduce the barriers to future deployment of nuclear technologies by promoting the development of safer technologies

and by expediting the resolution of the high-level nuclear waste issue. While it is unlikely that these steps alone will lead to a resurgence of nuclear power in the near future, EPAct clearly articulates a policy direction that favors such an outcome in the long term. The Act, at the minimum, will stimulate research, development, and demonstration efforts dedicated to safer and more energy-efficient nuclear technologies.

The authority granted to states to regulate low-level radioactivity represents a significant departure from the previous policy established through the Atomic Energy Act. That policy made federal authority over radiological regulation supersede state authority. This parallels similar provisions in the Clean Air Act Amendments of 1990, which authorizes stricter state standards than those mandated by the federal government. The effect, however, may not be significant because the NRC had already abandoned its BRC policy.

Electromagnetic Fields

EPAct establishes a national electromagnetic fields research and public information program to address the growing concern about possible health risks of exposure to EMFs (Title XXI). It creates an interagency committee to coordinate federal research efforts, and a separate advisory committee of EMF experts to develop a comprehensive research agenda. The Act authorizes $65 million for the national program over the next five years, of which up to $5 million will be allocated to public information. The responsibilities for program coordination, engineering research, health effects research and public information will be divided between DOE and the National Institute of Environmental Health Sciences.

The provisions of EPAct related to EMFs reflect the growing public concern over the health effects of EMFs. The scientific evidence on whether exposure to EMFs leads to significant adverse health effects is far from conclusive. The public concern continues to grow, however, as exhibited by increasing media coverage of EMF, opposition to siting of new power lines by intervenors across the country, and a growing number of lawsuits filed against utilities over alleged health conditions caused by power lines. Responses

suggested to meet this concern include enacting stricter siting standards for power lines, reducing exposure by reconfiguring tower designs and burying of power lines, monitoring public exposure, providing funding for further research and promoting public information. Although the scientific community has not yet reached a clear consensus on either the EMF-health effects linkage or the best way to mitigate effects if they exist, there is widespread support for increased funding and public information programs. EPAct also reflects this particular approach. In the coming years, the EMF health-effects issue will increasingly confront state commissions. It would be in their best interest to participate in the federal effort to pursue further research and promote dissemination of public information.

Environment-Improving Taxes

Beginning January 1, 1993, any subsidy given to residential customers by regulated public utilities for installing energy conservation measures is excluded from the customer's adjusted gross income for tax purposes. The exclusion for subsidies to commercial and industrial customers begins on January 1, 1995, limited to 40 percent of the subsidy for 1995, 50 percent for 1996, and 65 percent after 1996.

The title raises the limits on the amounts of tax-exempt, mass-transit subsidies and establishes limits on the amount of tax-exempt parking benefits provided by an employer. Under the provision of this title, individual and corporate taxpayers can deduct from adjusted gross income a portion of the costs associated with the purchase of vehicles that run on clean-burning alternative fuels or the installation of refueling facilities for alternative fuels. The Act also allows deduction for the cost of alternative fueled vehicles and refueling property.

The title also allows an income tax credit of 1.5 cents per kilowatthour (kWh) for electricity generated from wind or from closed-loop biomass systems. The credit is reduced if the average price of the electricity rises above 8 cents per kWh, and is phased out entirely if the average price exceeds 11 cents per kWh (adjusted annually for inflation). The credit is also reduced if the project receives other subsidies.

The title extends indefinitely the 10 percent business tax credit for solar and geothermal equipment.[3]

EPAct reduces the tax rate on income earned by special funds established to pay for nuclear power plant decommissioning from 34 percent (the maximum corporate tax rate) to 22 percent in 1994 and 1995 and to 20 percent thereafter. The Act also eliminates restrictions on how nuclear decommissioning funds could be invested.[4]

Finally, a tax-exempt facility bond is created for environmental enhancement of hydroelectric generation facilities. This allows tax-exempt bonds to be issued for mitigating the environmental damage from a governmental owned and operated hydroelectric facility.

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[3] This is an extension of the 1978 National Energy Plan tax credit.

[4] Because nuclear decommissioning funds are precollected from ratepayers, state commissions have exercised their oversight authority to ensure that excessive amounts are not being charged.

CHAPTER 8

CONCLUSIONS

The U.S. electric power industry will look much different by the end of this century (see Figure 8-1). As a major piece of federal energy legislation, EPAct will accelerate the restructuring and the trend toward competition of the industry. Title VII establishes the legal foundation for a competitive generating industry.

On the generation side, the industry will consist of more power plants operating in nonregulated or lightly-regulated markets, more production of utility power outside franchise areas, more renewable energy and other innovative generation facilities, and the development of a power spot market. *On the transmission side*, open access will soon be widely available in wholesale power markets and perhaps in a few years available in retail markets as well, market forces will play a major role in determining prices, concerns over electromagnetic fields at the state level may affect siting of new facilities and pricing, and important decisions will be made by regional transmission groups. *On the retail side*, integrated resource planning will continue to grow in popularity over the next few years but then probably decline, at least in the way it is practiced in many states, as competitive forces start to dominate (the same applies to the natural gas industry), utilities will offer more services in addition to unbundled services, state commissions will experiment with either performance-based regulation or deregulation of some services, and finally, new generators will eventually enter the retail markets.

Assuming that the electric power industry does in fact evolve into the form just described, state regulators necessarily will face new questions. How they answer them has repercussions for both the future performance and structure of the electric power industry. To some extent, state regulators have confronted similar questions when reevaluating their policies and practices toward the telecommunications industry.

One crucial issue for state commissions is their disposition toward competition. At the moment, it seems that FERC will encourage competition more aggressively than

Bulk Power		Retail
Generation	Transmission	Planning/Ratemaking
1. More nonrate-based facilities (owned by both utilities and independents)	1. Open access for wholesale power producers and consumers	1. Explicit accounting of environmental effects in planning (short term)
2. More renewable energy and other innovative generation facilities	2. Open access for retail consumers (at some later time)	2. Unbundling of transmission and other utility services
3. Lower market share for PURPA-QF wholesale generation	3. Market-sensitive pricing	3. Spurt of currently practiced IRP and DSM activities (short term)
4. Development of spot market	4. Consideration of EMF effects on siting and pricing	4. Performance-based PUC regulation
5. More generation of utility power outside franchise areas	5. Regional transmission groups (RTGs)	5. Increased concern over cross-subsidization and other forms of price discrimination
6. Market-based pricing in noncore markets		6. Movement toward deregulation of some services
		7. Entry of new generators in retail markets (retail wheeling)

Fig. 8-1. Future electric power sector.

the state commissions. The state commissions may be more concerned with the possibility of electric utilities to cross-subsidize competitive services by charging higher prices to noncompetitive or less competitive services--often residential customers. Commissions may attempt to stifle competition when by doing so core consumers stand to benefit in the short term. For example, less competition implies that the utility can charge higher prices to large consumers in order to hold down prices to residential and other small consumers.

Commissions also will face the question of whether they should deregulate certain services. Should deregulation depend solely on the ability of the utility to exercise market power? How do regulators know when a utility lacks market power?

From a broader energy perspective, EPAct attempts to achieve the goals of less energy dependence on foreign countries, improved environmental quality, and increased competitiveness of the U.S. energy industry. It provides support for the acceleration of those generation technologies that currently seem to have the most potential in both domestic and foreign markets for being economical and environmentally clean. EPAct takes into account the differences in economic, public safety and environmental concerns associated with renewable energy, coal-based, and nuclear power technologies. Specifically, it authorizes research and development funds, promotes technology exports, provides taxpayer-funded incentives to accelerate the commercialization of renewable energy technologies, and attempts to remove regulatory and institutional barriers to the revival of nuclear power.

EPAct establishes new PURPA standards that state commissions will have to address over the next one and a half years. Many commissions have already addressed some of these standards in prior actions. Others, especially those pertaining to IRP for gas utilities and wholesale power purchases, will require additional efforts for the vast majority of state commissions. Unlike the original PURPA standards, the new standards will compel some electric and gas utilities to reconsider their planning processes and the selection of options to meet the future demand requirements of their customers. The original standards emphasize better rate designs to advance the purposes of PURPA Title I.

EPAct will force electric and gas utilities and state commissions, perhaps sooner than otherwise, to consider IRP. While the apparent goal is to promote demand-side initiatives, the Act will require the verification of energy savings from these activities, if found appropriate by a state commission, and the consideration of whether they promote more equitable rates. An argument can be made that the Act reflects a more cautious approach toward utility-funded, demand-side initiatives than what some state commissions already have taken.

Within the next year, rules from FERC will specify details of the amendments to the Federal Power Act relating to transmission-access enforcement and pricing. How FERC will deal with pricing in particular will provoke spirited debate, as many participants in the electric power industry will expend substantial resources to protect their interests. Electric utilities with both transmission facilities and franchised customers, as well as state commissions, will pay particularly close attention to how FERC will price transmission services. For other transmission matters, state commissions will play an important role in addressing the issues of retail wheeling, siting, electromagnetic fields, and regional transmission groups.