SUSTAINABLE ENERGY, ENVIRONMENTAL POLICY, AND STATES' RIGHTS: DISCERNING THE ENERGY FUTURE THROUGH THE EYE OF THE DORMANT COMMERCE CLAUSE

STEVEN FERREY*

INTRODUCTION

Energy policy has been a primary domestic news story during the last two years: the Enron scandal,[1] terrorist threats against nuclear power plants,[2] the California electric energy market collapse,[3] and the August 14, 2003 blackout affecting fifty million people in the eastern United States.[4] Electric energy, although seldom analyzed in the literature (especially compared to the column inches devoted to the geopolitical role of oil) is the critical resource underwriting the modern post-industrial economy. Without adequate and reliable electric energy, the computer age, the information society, many industrial processes, and even high-rise or moderate height buildings would be impossible. Electric power is the critical energy input in the American economy.

We are embarked on a significant and ultimately inevitable transition from fossil fuels to renewable energy resources, by far the fastest growing source of new electric power in the U.S.[5] The leverage for these renewable power resources is fulcrumed at the

* Professor of Law, Suffolk University Law School. B.A. 1972, Pomona College; J.D. 1975, M.A. 1977, University of California, Berkeley; Fulbright Fellow, University of London, 1975-76. I would like to acknowledge the research assistance of Ann-Margaret Ferrante.

[1] Rebecca Smith, *Shock Waves: Enron's Swoon Leaves a Grand Experiment in a State of Disarray*, WALL ST. J., Nov. 30, 2001, at A1.

[2] *World Watch: Men Held in Canada Were Sizing Up Buildings*, WALL ST. J., Aug. 27, 2003, at A10.

[3] *See infra* note 20 and accompanying text.

[4] Antonio Regalado & Gary Fields, *Blackout a Reminder of Grid's Vulnerability to Terror*, WALL ST. J., Aug. 15, 2003, at A4.

[5] *See infra* Part I.

state level by a host of renewable electric power subsidies and requirements.[6] Eighteen states, including every large state except Florida, are deregulating their electric power sectors.[7] The so-called "renewable resource portfolio standard" is adopted in most of these deregulated states, as is the renewable energy system benefit charge trust fund subsidy.[8] These state policies drive American energy policy into the twenty-first century.

This energy transition has profound effects on the decentralization of power in America. It diversifies and strengthens the U.S. energy system against attack and failure in the post-September 11 era. But despite the beneficial environmental and national defense implications of this state-subsidized push into a renewable power future,[9] there are serious Constitutional tripwires lurking before some of these innovative state initiatives.

This Article critically analyzes application and violations of the dormant Commerce Clause and the Supremacy Clause of the U.S. Constitution posed by these state renewable energy programs.[10] In twenty-first century America, power is the quintessential good (or service) in interstate commerce. Yet, some of the states through these initiatives use interstate power sales to subsidize in-state enterprises, while beggaring their neighbors. The U.S. Supreme Court has struck down similar programs involving interstate goods taxed by states to provide local subsidies.[11] This Article attempts to determine which of the key renewable energy initiatives commit constitutional violations and are thus not legally sustainable.

Given the pivotal role of power in the American economy, this Article charts and outlines how states can accomplish a range of renewable energy promotions without running afoul of Constitutional and other legal limitations. It also suggests federal solutions. While the many varied state programs create wonderful laboratories for experimentation, only by fostering the renewable energy future without constitutional violations can the energy future be founded on a truly sustainable base.

---

[6] *See infra* Part II.

[7] *See infra* notes 739-740 and accompanying text.

[8] These pioneering state renewable energy schemes are analyzed, examined, and contrasted in detail *infra* Appendix.

[9] *See infra* Part I.

[10] *See infra* Parts IV, V.

[11] *See infra* Part IV.

I
THE SOCIETAL IMPACT OF THE CURRENT SHIFT IN ENERGY TECHNOLOGIES

A. *The Formative Role of Energy in Shaping Society*

> Energy is the single most important problem facing humanity today. We must find an alternative to oil . . . the cheaper, cleaner, and more universally available this new energy technology is, the better we will be able to avoid human suffering, and the major upheavals of war and terrorism.[12]

Energy has always been important, since humankind first created the wheel and harnessed animals to do productive labor. Energy is the means to organize production. Certain energy technologies—principally those associated with the portable fuel role of petroleum products and the formative impact of the automobile in sculpting modern use of land and space—are the stuff of folklore and study. These are specific examples in a long continuum of the harnessing and application of energy by society.

Much less well studied is the critical role of electric energy in modern society. Although often overlooked amidst geopolitical headlines about oil cartels, electricity is a fundamental and formative energy form. Electricity is a unique form of energy that performs tasks that cannot be accomplished with other forms of energy. Without electricity, there could be no information age, no computers, and no high-rise buildings. Few computers would boot if run on natural gas or oil. The type of available energy, its application, and its deployment fundamentally shape American society.

1. *Electricity: A Unique Energy Form*

When generation of electricity was made possible on a large scale, a host of new applications for it emerged, including electric motors which were used to power street cars, elevators, washing machines, refrigerators, and factory machinery, as well as electric furnaces.[13] Abundant and affordable electric supplies, making

---

[12] Attributed to Richard Smalley, Nobel Laureate, 2002. Scott Kirsner, *It's Time We Looked Toward the New Power Generation*, BOSTON GLOBE, Sept. 16, 2002, at C-5.

[13] Robert U. Ayres, *How Economists Have Misjudged Global Warming*, WORLD WATCH, Sept./Oct. 2001, at 12, 24. Electric furnaces could reach much

possible a "plethora of energy-intensive domestic labor-saving devices," have liberated many homemakers from the necessity to work full-time in the home at basic housekeeping functions.[14]

Electricity is the least price-elastic of all energy commodities because it is so essential to the functioning of all modern economies.[15] Today, electric power is quickly replacing all sources of mechanical power for non-transportation purposes, and it facilitates the systematic use of the electro-magnetic spectrum for communication technologies as diverse as telegraph, telephone, radio, radar, television, electronic data processing, computers, and the Internet.[16] Electric power is the motive force for the next burst of economic growth in the developed world.[17]

Electricity has no peers for lighting, for any of the computer technologies, for many precision manufacturing technologies, and for such basic services as elevators and air conditioning. Without elevators and air conditioning, which are often taken for granted, there could be no high-rise office design, because it would be impossible to get furniture, fixtures and people to significant heights efficiently within buildings and it would be impossible to cool buildings to comfortable levels.[18]

It is curious that few authors have studied or written about the pivotal role of electricity in modern American society. Perhaps this is because its role is so patent, or perhaps because electricity is

---

higher temperatures, thus enabling the manufacturer of totally new materials such as silicon carbide for cutting tools, calcium carbide to make acetylene gas for welding, tungsten filaments to make more efficient electric lightbulbs, and stainless steel which has revolutionized the manufacturing sector.

[14] Henry R. Linden, *A Comparison of the Performance of Industrial and Developing Countries in Creating Social and Economic Well-Being Through the Prudent Use of Energy Commodities*, ELECTRICITY J., Jan.-Feb. 2002, at 74, 76.

[15] *Id*. at 81. This lack of price-elasticity means that consumers are unlikely to adjust demand in response to price changes. Electricity also cannot be stored in sufficient quantities or at acceptable cost to provide reserves during peak demand periods. Hydrogen may prove over time to be an acceptable storage medium for electricity production through renewable resources. *Id*.

[16] Office computers and Internet equipment, as a group, account for about two percent of the total electricity consumption in the United States. KAORU KAWAMOTO ET AL., LAWRENCE BERKELEY NAT'L LABORATORY, LBNL-45917, ELECTRICITY USED BY OFFICE EQUIPMENT AND NETWORK EQUIPMENT IN THE U.S. 13 (2000).

[17] *See* Linden, *supra* note 14, at 82-83.

[18] Even in many cold climates, office buildings with fixed, immovable windows are air conditioned during the winter months to remove all of the heat produced by persons, lighting, and electric equipment.

increasingly taken for granted. If oil were again in scarce supply, the United States could face significant shortages of heating oil, fuel for factories, and gasoline and aviation fuel.[19] While society would be radically altered by a sudden scarcity of oil fuel, it also would be significantly altered by a shortage of electricity.

2. *Dencentralization of Renewable Energy Supply*

The electric energy crisis in California during 2000-2001 demonstrated better than any study the unique and critical role of electricity in American society. In the course of a few months, the price of electricity quadrupled, sky-rocketing the cost of living, and causing business dislocation. Nonetheless, black-outs rolled across the Golden State.[20]

A shortage of electricity has dire social and political consequences; a blackout has been equated to a natural disaster.[21] Allowing rolling blackouts is a tremendously inefficient way to balance supply and demand differences. Not every consumer attaches the same value to electricity at a given hour. For some industries, even a short blackout can ruin millions of dollars of production; for others, it is a minor inconvenience.[22]

Since the attacks of September 11, 2001, the vulnerability of electric systems to systematic planned attacks has come under more analysis. The United States contains one-quarter of all the electric generation capacity in the world.[23] Because electricity cannot be easily stored or rerouted, supply must instantaneously match demand. The majority of system interruptions in the United States result from transmission and distribution difficulties within one-half mile of a customer.[24] Where an electric system is

---

[19] JON VAN TIL, LIVING WITH ENERGY SHORTFALL: A FUTURE FOR AMERICAN TOWNS AND CITIES 104-105 (1982).

[20] *See* Steven Ferrey, *The Eagles of Deregulation: the Role of the Courts in a Restructured Environment*, 32 ENVTL. L. 297, 302 (2002).

[21] Allen W. Williams, Jr., *The U.S. Electricity Sector: What After California?*, ELECTRICITY J., June 2001, at 51, 52.

[22] Some industries voluntarily participate in utility programs for interruptible service, as electricity primarily runs lights or air conditioning. Where loss of refrigeration is involved or digital services are powered by electricity, brief interruptions can cost hundreds or thousands or millions of dollars per business per interruption. JOEL N. SWISHER, ROCKY MOUNTAIN INST., CLEANER ENERGY, GREENER PROFITS: FUEL CELLS AS COST EFFECTIVE DISTRIBUTED ENERGY RESOURCES 21-22 (2002).

[23] INT'L ENERGY AGENCY, KEY WORLD ENERGY STATISTICS 29 (2003).

[24] Hisham Zerriffi, et al., *Electricity and Conflict: Advantages of a*

centralized and integrated, a disruption from attack at a given point can temporarily destroy large parts of the integrated network.[25]

National electric grid systems have been targets of terrorist attacks. The Farabundo Marti National Liberation Front was able to disrupt up to ninety percent of El Salvador's electric production at times, and the organization has produced terrorist manuals for such purposes.[26] The war in Bosnia-Herzegovina, where electric production and fuel supply was targeted by combatants, resulted in more than half of the country's generating capacity being unavailable due to direct damage and fuel shortage, and half the country's transmission and distribution capacity being lost from damage and lack of maintenance.[27]

Analysts argue that a distributed energy system,[28] including increased use of cogeneration,[29] is much less subject to disruption, whether from weather, terrorism, or other factors, than the centralized generation and distribution system employed in the United States.[30] The robustness of a distributed, on site,

---

Distributed System, ELECTRICITY J., Jan./Feb. 2002, at 56 (citing H.LEE WILLIS & WALTER G. SCOTT, DISTRIBUTED POWER GENERATION: PLANNING AND EVALUATION 14 (2000)).

[25] *Id*. at 55. The 1998 Northeast ice storm left millions of people without power for as much as several weeks in Quebec, Ontario, New York, and parts of New England. Niagara Mohawk Power Co. in New York estimates losses of $100 million to its capital equipment from this event. *Id*. at 55 n. 1.

[26] *Id*. at 56.

[27] *Id*. at 57. The generating capacity was repaired at the cost of approximately $50/kw for the first proximately 1,000 MW of repair. This is approximately ten percent of the cost of new construction. *Id*.

[28] A distributed generation system typically is an electric generator placed on the consumer's side of the electric meter. It may be owned by the customer, the utility in rare instances, or a third party. By being so placed, it can either supply the host consumer, feed some or all power to the grid, or be wired to supply power to the host and selected abutters on dedicated distribution lines. When coupled with use of the thermal by-product of the generation process, distributed generation is known as cogeneration.

[29] A cogeneration system produces both electric energy and useful thermal energy. It thus uses some of the approximately forty-five to seventy percent of that portion of the output of a conventional electric power plant that is thermal energy and wasted as thermal pollution to the environment. Cogeneration is defined by federal law as a system that utilizes a minimum of five percent of the energy output as useful thermal energy, while taking the remainder of the energy output as electric power. 16 U.S.C. § 796(18) (2000); 18 C.F.R. § 292.205 (2003). The criteria for this are discussed in more detail *infra* Part III.A.3.a.

[30] Zerriffi, *supra* note 24, at 57.

cogeneration-based system, likely fueled by natural gas, results from:

> 1. Reliance on a larger number of small generators; no one of which is critical to huge amounts of supply.
>
> 2. Less reliance on a vulnerable centralized transmission and distribution grid.
>
> 3. Reliance on the movement of natural gas in a more protected underground fashion to the electric generation source near the load center rather than reliance on above-ground more vulnerable electric transmission infrastructure. Gas can be stored in pipelines while electricity cannot be stored in transmission lines, especially where they are knocked out.[31]

From an efficiency point of view, there are significant reasons to promote decentralized on-site electricity supply. Decentralized electric production can transform electric production efficiency from approximately thirty-three percent for central station conventional utility supply to something approaching as much as eighty percent for decentralized cogeneration.[32] These decentralized electric supply technologies, in addition to greater potential efficiency, and in certain circumstances environmental benefits, tend to encourage the deployment of renewable energy sources and applications.

The security of large nuclear and fossil-fuel-fired power plants is not assured. The security of supply of renewable energy

---

[31] *Id*. at 57-58. Over a range of model scenarios, the authors conclude from the model that a distributed system is up to five times less sensitive to loss of load under systematic attack over a range of impacts than the conventional electric system. This analysis focuses primarily on loss of generating capacity, rather than on transmission and distribution system attack. It also does not address the stability of the natural gas supply system. *Id*. at 60.

[32]

> Using fuel to raise steam to drive turbines to generate electricity inevitably loses about three-fifths or more of the fuel's energy in the form of warm water used to cool the steam condenser. But this heat need not be wasted, as it normally is in U.S. power stations. Instead, it can be used to heat buildings or greenhouses via a combined-heat-and-power station. Such an integrated 'total-energy system' can raise to eighty percent or more the efficiency with which useful work is extracted from the fuel, saving money correspondingly. This can be done particularly well on a small scale because it is more difficult to transport low-temperature heat for long distances than electricity.

AMORY B. LOVINS & L. HUNTER LOVINS, BRITTLE POWER: ENERGY STRATEGY FOR NATIONAL SECURITY 343 (1982).

sources is deemed by many to be more predictable and more reliable than for conventional fossil fuels.[33]

Because renewable energy sources are not under the control of any nation or cartel, but are distributed across the earth, they are not subject to embargo or manipulation.[34] Because decentralized renewable energy sources are developed in relatively small modules, they are reliable and resilient.[35] Because decentralized energy resources are built close to their points of use, they are not as dependent on long transmission and distribution networks and are less vulnerable to supply disruption from an overloaded system line, storm, or intentional disruption.[36]

Unlike finite fossil fuels, renewable energy represents a constantly replenished flow, rather than an existing stock that is diminished by its use. Tomorrow, the earth will have exactly as much solar energy as it has today, regardless of how much solar energy is used and consumed each day. By contrast, burning a barrel of oil or a cubic meter of natural gas diminishes

---

[33] "The methods used to forecast the path of the sun, or even next week's weather, are considerably more reliable than those which predict reactor accidents or Saudi politics." LOVINS & LOVINS, *supra* note 32, at 269.

> [R]enewable sources eliminate at a stroke two of the most fragile parts of today's energy system—the special localities (foremost among them the Persian Gulf) where rich deposits of fuels occur in the earth's crust; and the far flung links which carry raw fuels and deliver processed energy in copious but concentrated flows over long distances. In place of these power transportation systems, renewable sources rely on the automatic arrival of the natural energy flows, direct and indirect, which are distributed freely, equitably, and daily over the entire surface of the earth. This energy flow is not subject to embargoes, strikes, wars, sabotage, or other interferences, nor to depletion, scarcity, and exhaustion.

Id. at 268.

[34] "Being *inexhaustible* and relying only on domestic energy flows, renewable sources can never place this nation at the mercy of other countries which control dwindling and scarce fuel resources." *Id*. at 288-289.

[35] A resilient energy supply system should consist of *numerous, relatively small modules with a low individual cost of failure*. . . . The philosophy of resilience . . . accepts the inevitability of failure and seeks to limit the damage that failure can do." *Id*. at 264.

[36]

> [A] resilient supply system delivers energy to its users via *short, robust links*. Energy that travels simply and directly from one's own rooftop, or down the street, or across town, is more likely to arrive than energy that must travel hundreds or thousands of miles and be processed and converted in complex devices along the way.

Id. at 265.

permanently that quantity of fossil fuels for the next day and for future generations.

While many nations, particularly developing nations, have no significant reserves of oil, coal or natural gas, every nation has renewable energy in some form – sunlight, wind, ocean wave power, etc. The interests involved in fossil fuel are extremely concentrated, while other energy interests are much more decentralized and diverse.

The metaphor of the traditional electric infrastructure grid organized in a linear mode is an assembly line;[37] for decentralized supply and delivery of electricity, the metaphor might more aptly be analogized to the Internet or a complex network. With decentralized power supply, there is a proliferation of power input to the network or system to more robustly counterbalance and support the backbone of centralized supply, along with more connectivity and more instantaneous access. The system is based on a complex network of power supply and demand interconnections, rather than the discrete domains of unidirectional centralized supply over linear networks. As with the Internet, such a system is more localized, decentralized, and open.

This decentralization of supply breaks the dependency relationship between major urban infrastructure suppliers and the consumers of this essential service.[38] Decentralized energy

---

[37] Conventionally, electric power is conceptualized in several stages of production and delivery. Fuel is extracted and process, converted to electricity in large, centralized plants owned and operated by large, integrated companies, distributed over a transmission system controlled by approximately 200 major regional electric utilities in the U.S. (and by a single state-sponsored utility in many countries in the world), and distributed by monopoly regional utility companies to consumers. Companies in various aspects of this business were often vertically integrated.

[38]

> [E]nergy shortfall contains within it a set of implications more conducive to decentralization than to reconcentration. . . . [T]he decentralizing influence of solar, recycling, and communications technologies . . . "offers an individual the opportunity to withdraw from traditional dependency relationships which have been created by the basic urban institutions of our time: city governments, utility companies, major educational centers and the workplaces of corporate capitalism. . . . There is increasing evidence that dispersed settlement patterns can be combined with what we have previously considered urban levels of quality of life.

VAN TIL, *supra* note 19, at 107 (quoting David L. Peterson & L. C. Hempel, Settlement Patterns in the Post-Industrial Society: Redefining Urban and Rural

sources encourage independent responsibility in lieu of centralized dependency. This has the potential to be a formative force on spatial development, modern society, and institutional evolution, much as did the automobile.

With demand for electricity increasing in both developed and developing nations, whether new power supply is developed in a centralized or decentralized mode has profound implications. How states encourage or discourage the creation of decentralized dispersed energy sources through various regulatory, subsidy, and metering initiatives, will sculpt the electric energy future. Net metering is the principal mechanism employed by the states to encourage decentralized and renewable energy technologies.[39] However, net metering may involve a sale of power to an unwilling regional utility buyer. If so, it is a wholesale transaction that is subject to federal, rather than state, jurisdiction and control.[40] Attempts have failed to enact direct metering legislation at the federal level. Therefore, net metering must survive legal scrutiny as a sale transaction that is ultra vires to state authority.

B. *The Benefits of Distributed Generation and Cogeneration*

1. *Greater Efficiency*

Both conventional electric generation technologies and industrial process heat applications are inefficient. Conventional electric generating technologies typically exhaust as much as two-thirds of the heat energy produced to power electric generators.[41] Many industry uses process steam in applications that run below 400º Fahrenheit; however, the combustion of fossil fuels required to produce that heat results in temperatures of more than 3000º Fahrenheit, much of which is wasted.[42] The next major leap in efficiency must come from recovering and reusing waste heat.

(1979) (Abstract of paper presented to Western Social Science Association)).

[39] Net metering is the ability of a distributed generator to run the retail meter backwards when it puts power to the monopolized grid, thus offsetting its own power purchases from the regional utility at the the retail rate, rather than accounting for the putting of power to the grid as a separate wholesale sale transaction.

[40] *See infra* text accompanying notes 140-142.

[41] *See supra* note 32.

[42] CAL. ENERGY COMM'N, NO. P500-82-054, COGENERATION HANDBOOK 1-1 (1982).

Machines that recover all waste heat and produce electricity have the capability to achieve efficiencies from fifty to ninety percent, much better than the typical thirty-plus percent of the existing central station utility fossil steam system.[43] Thus, cogeneration facilities operate at overall thermal efficiencies as great as 250 to 300 percent higher than conventional electric generating technologies.[44] The very best cogeneration technologies are more than twice as efficient as new coal-fired power plants.[45] This results in savings of fuel input needed to generate a unit of usable energy output by various cogeneration technologies, when compared to conventional electricity generation technologies, of up to thirty percent.[46]

Distributed generation and cogeneration systems, because they are smaller, tend to be less efficient at electric production than large central station power generation facilities. It has been estimated that distributed generation would be twenty-three percent more expensive to implement in Florida (where cooling requirements dominate) and twenty-seven percent more expensive to implement in New York state (where heating requirements dominate) than a new centralized system.[47]

However, this comparison looks only at electric production. If one assumes that waste heat from distributed cogeneration can be employed productively, the economics change: a distributed cogeneration model realizes cost savings of thirty and twenty-one percent in New York and Florida, respectively.[48] Interestingly, as the cogeneration units get smaller, total system savings increase.[49]

---

[43] STEVEN FERREY, LAW OF INDEPENDENT POWER § 2:2 (2004).

[44] CAL. ENERGY COMM'N, *supra* note 42 at 1-3.

[45] A large, modern, coal-fired central-station power plant has a heat rate of 10,500 Btu/kWh. The most efficient cogeneration units have a heat rate of 4,500 Btu/kWh. *See* Barney L. Capehart & Lynne C. Capehart, *Efficiency in Industrial Cogeneration: The Regulatory Role*, PUB. UTIL. FORT., Mar. 15, 1990, at 17, 17-18.

[46] *Id*. Typically, cogenerators utilize seventy to ninety percent of the fuel of conventional stand-alone generation to produce an equivalent amount of energy output. *Id*.

[47] Zerriffi, *supra* note 24, at 61. This assumes greenfield construction of a new plant.

[48] *Id*. The savings in New York are greater in this model because a larger fraction of the heat output of internal combustion engines can be utilized in New York, where heat rather than cooling is the primary variable. In Florida, the model implements gas turbines. *Id*.

[49] *Id*.

This is due to the improved cost profiles of new gas turbines and internal combustion engines, and the ability of smaller units to meet variable loads more efficiently.[50] Also, small units can be sited where waste heat can be most productively used. Thus, the cogeneration value of distributed generation turns the economics from negative to positive because of the greater overall efficiency of energy production and use.[51] This analysis is for a greenfield new system, it does not account for the costs of integration with older systems.[52] Nonetheless, distributed generation proved to be up to five times less sensitive and vulnerable to significant impacts resulting from terrorist attack or weather-related events.[53]

The heat recovered from a total cogenerating energy system can be used for direct application heat, for industrial process heat, or for pre-heating the combustion air for a utility boiler. This means that more useful energy can be produced while generating fewer environmental pollutants and emissions. It also means that less transmission capability would be required if there is development of dispersed electric and total energy systems, located close to load centers. Not only will additional transmission capacity not be required in certain areas, but capacity on existing transmission grids will be less burdened. One way to view this phenomenon is that if natural gas cogeneration or total energy systems replace centrally dispatched electricity, energy will be moved more in its primary form by natural gas pipelines and less in its derived form as electricity.

2. *Environmental Benefits*

Conventional production of electricity by electric utilities in the United States is responsible for substantial shares of criteria pollutant emissions, including sixty-three percent of SO_2 emissions, twenty-two percent of NOx emissions, and thirty-nine percent of CO_2 emissions.[54]

Environmental costs associated with power plants occur at each of three stages of the energy process: at the point of

---

[50] *Id*.

[51] *Id*. at 62.

[52] *Id*. at 62-63.

[53] *Id*. at 63.

[54] NAT. RESOURCES DEF. COUNCIL, BENCHMARKING AIR EMISSIONS OF THE 100 LARGEST ELECTRIC POWER PRODUCERS IN THE UNITED STATES—2002, 2 (2004).

extraction and processing of energy sources,[55] direct costs associated with the use of energy sources,[56] and back-end residual costs.[57] There were over 650 electric utilities that both generated and sold power in the United States in 2000.[58] The fifteen largest of these electric utilities were accountable for forty-five percent of the utility emissions of NOx, SO_2 and CO_2; the 100 largest of these electric utilities were responsible for ninety percent or more of each of these emissions.[59]

The primary impacts on human health from direct production of electric energy are from emissions of the criteria pollutants carbon dioxide, sulfur dioxide (SO_2), NO_x, ozone, and particulates, and from acid deposition.[60] Conventional power facilities exert environmental impacts on health and the environment in the form of water pollution[61] and impairment of land uses.[62]

---

[55] Front-end costs include the costs of drilling, mining, or otherwise extracting raw fuel sources, the processing, enrichment or concentration of these fuel sources, the manufacture of equipment to effectively utilize these fuel sources, and transportation costs for fuel and equipment. Steven J. Ferrey, *Shaping American Power: Federal Preemption and Technological Change*, 11 VA. ENVTL. L.J. 47, 107-08 (1991).

[56] These include the emission of a variety of pollutants, health impacts from these emissions, impacts on the natural environment of such emissions, and human occupational exposure or illness at the power plant work site. The primary effects on human populations are the increased risk of mortality and morbidity, including chronic illness and increased risk of chronic disease. *Id*.

[57] These include waste disposal costs for residual elements of fuel and the eventual costs of decommissioning energy producing facilities. *Id*.

[58] NAT. RESOURCES DEF. COUNCIL, *supra* note 55, at 3.

[59] *Id*. at 13, 16.

[60] Carbon dioxide is caused principally by the burning of fossil fuels and is a principal greenhouse gas responsible for global warming. *Id*. at 40-41. Sulfur exerts a significant impact on human health directly, is also a precursor of aerosols that result in acid deposition, and is transformed into sulfates which pose independent problems. *Id*. at 39-40. NOx is formed by the conversion of chemically bound nitrogen in fuel or from thermal fixation of atmospheric nitrogen in the combustion of air. *Id*. at 44. Ozone causes damage to human health, agriculture, and plant life. *Id*. at 44-45. Particulates include solid particles and liquid matter which range in size from one micron to more than 100 microns in diameter. They are responsible for major health impairment, impairment of visibility by causing haze, and the creation of sulfates from SO_2 emissions. *Id*. at 41-42. Acid deposition causes damage to forests, wildlife, water quality, and aquatic species. *Id*. at 39-40.

[61] This is primarily in the form of thermal discharge from fossil-fuel and nuclear power facilities, water impacts from hydroelectric dams and spillways, and leachate contamination from discharge ponds or landfills for contaminated facility water.

[62] Large hydroelectric generating stations flood upstream land; solar and

In the twenty-first century, CO_2 emission growth is expected to accelerate.[63] The choice of fuels, as well as the technology for converting those fuels to electricity, has profound implications for attaining CO_2 reduction targets to limit possible effects of global warming.

Cogeneration facilities should cause fewer environmental impacts than equivalent megawatts of conventional power production, because cogeneration facilities simultaneously produce electricity and thermal energy by the same process, thereby recapturing and utilizing energy that would otherwise be wasted. For example, various cogeneration technologies can reduce the levels of sulfur oxides (SO_2),[64] particulate matter, carbon dioxide, and nitrogen oxide (NO_x)[65] per unit of useful energy output, although certain technology configurations can also increase the discharge of these critical emissions.[66] Typical air emissions of technologies, without added emission controls, are displayed in Table 1.

---

wind electric production facilities create visual, aesthetic and, in some cases, television signal interference externalities; large generating facilities, particularly nuclear facilities, may adversely impact property values in the region where the facility is located. *See infra* note 390.

[63] U.S. DEP'T OF ENERGY, INTERNATIONAL ENERGY OUTLOOK 2004, 13 (2004). While the use of coal in power plants is a major source of carbon dioxide, the fastest growing source of CO_2 emissions is vehicle exhaust.

[64] A diesel cogeneration system using 0.2 percent sulfur No. 2 oil could save about 0.1 lb. of SO_2 for every 100 kWh of electricity generated by the facility. OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, INDUSTRIAL AND COMMERCIAL COGENERATION 223 (1983).

[65] A gas turbine cogeneration system can reduce NO_x emissions by about 0.3 lb. for every 100 Kwh of electricity generated by the facility. *Id*. at 223.

[66] A shift in electricity generation from utility central-station conventional technologies to either gas or diesel turbine cogeneration systems will actually increase NO_x emissions, and the latter technology will also increase carbon monoxide (CO) and particulate emissions. *Id*. at 224.

TABLE 1

Air Quality Impacts of Cogeneration[67]

TECHNOLOGICAL CHARACTERISTICS	DIRECT PHYSICAL EFFECTS	IMPACT ON AIR QUALITY: POSITIVE, NEGATIVE OR MIXED
Increased Efficiency	Reduction in total emissions per unit of energy produced	Positive
Smaller Scale of QF	Change in emissions deployment levels	Mixed or negative
	Change in level of environmental control, usually less	Negative
	Lesser emissions Stack height	Mixed or negative
Change in energy production technology	Change in emissions and type of pollutants	Mixed
Change of fuels	Change in emissions and type of pollutants	Mixed or positive
Change of location of electricity generation	Change in location of emissions, density and distribution	Mixed

The shift to on-site distributed generation, Qualifying Facilities (QFs),[68] and self generation all have the potential to dramatically lessen the emission of criteria pollutants. First, more than twenty-five percent of QFs utilize renewable energy sources

[67] *Id*. at 222.
[68] *See infra* Part III.A.

(which exhibit fewer environmental externalities than nonrenewables).[69]

Second, seventy-five percent of QF and independent power facilities constructed are cogeneration facilities. These produce more usable total energy per unit of energy input than comparably sized stand-alone conventional electric generating facilities.[70] Thus, there is more usable and used energy output per unit of pollution from the combustion. Third, the fuel of preference for QF and independent power projects is natural gas—a relatively clean fossil fuel.[71] Half of all QF and independent power facilities and most new self generation fired by fossil fuels are fired by natural gas.[72] Each of these three factors exerts a fuel or efficiency substitution effect. This results in fewer environmental emissions than had conventional power facilities supplied all power resources. These self generation technologies may deploy renewable resources without fossil fuel combustion, or they may use the cogenerated output more efficiently than conventional technologies.

II
OPTIONS FOR PROMOTION OF RENEWABLE TECHNOLOGIES AND DISTRIBUTED POWER IN A COMPETITIVE ENVIRONMENT

PURPA allowed the entrance of certain QFs to the power generation market.[73] The Energy Policy Act of 1992 allows any size and technology generating facility to qualify as an Exempt Wholesale Generator (EWG), which can transmit, or "wheel," bulk power.[74] However, both statutes affect only the wholesale power

---

[69] If solid waste is included, this percentage increases to thirty-three percent. FERREY, *supra* note 43, § 6:23.

[70] *Id*. While larger facilities can achieve better heat rates, the average size of independent power facilities doubled between 1989 and 1990. Cogeneration can be about twenty percent more efficient than electricity-only plants. Many IPPs are of comparable size to smaller utility plants. *Id*.

[71] *Id*.

[72] *Id*.

[73] 16 U.S.C. §824a-3 (2000).

[74] 15 U.S.C. §79z-5a (2000). An EWG is an independent power generation facility that registers with FERC to gain exemption from provisions of the Public Utility Holding Company Act, which otherwise could expose the owner to regulations by the Securities and Exchange Commission. An EWG may only sell power at wholesale and may not make retail sales. *Id*.

market. By unshackling wholesale power, in conjunction with state initiatives on bidding and independent power producer (IPP) development, the market ran ahead of the regulators. Now, approximately eighteen key states have deregulated retail power markets.[75] Power transactions trading at lowest cost will eliminate certain environmental and renewable resources, which trade above the market clearing power price, unless otherwise protected by government policy.[76]

There are several recognized techniques capable of deployment to promote renewable energy and demand-side management (DSM) investments after deregulation of retail service options. Each attempts to require or subsidize certain preferred technologies that otherwise might be less demanded by the market. Before assessing their legality, the techniques are briefly explained.[77]

A. *System Benefits Charge/Renewable Trust Fund*

The system benefits charge is a tax or surcharge mechanism for collecting funds from electric consumers, the proceeds of which could then support a range of activities[78] In order to support DSM of renewable resources, funds are collected through a non-bypassable system benefits charge to users of electric distribution services.[79] The money raised from the system benefits charge is then used to "buy down" the cost of power produced from sustainable technologies so that they can compete with more conventional technologies on both the supply and demand side. A system benefits charge will raise the following issues: the level of the charge, the allocation to classes of customers, the rate design, the programs to be implemented, and the ongoing process for oversight and management of the fund.[80] The overall goal of the

---

[75] See discussion *infra* Appendix.

[76] FERREY, *supra* note 43, § 10:93.

[77] FERREY, *supra* note 43, § 10:94.

[78] FERREY, *supra* note 43, § 10:95. These activities could include energy efficiency programs, renewable energy projects, and low income customer assistance. The activities supported might range from research and development to pilot projects to the implementation of mature technologies. Richard L. Ottinger & Rebecca Williams, *Renewable Energy Sources for Development*, 32 ENVTL. L. 331, 360 (2002).

[79] FERREY, *supra* note 43, § 10:95. *See* Ottinger & Williams, *supra* note 78, at 359-60.

[80] FERREY, *supra* note 43, § 10:95; *see* M. Sami Khawaja et al., *System*

system is to allow electric utilities to recover certain costs from all retail electricity customers.[81] The National Association of Regulatory Utility Commissioners endorsed the use of a system benefits charge.[82] It is implemented in a majority of states deregulating retail power markets, and it is one of the two most used of the mechanisms discussed herein.[83]

Between 1998 and 2012, approximately $3.5 billion will be collected by sixteen states with existing renewable energy funds.[84] More than half the amount collected—at least $135 million per year—comes from just California.[85] The funding levels range from $0.07/MWh in Wisconsin up to almost $0.6/MWh in Massachusetts.[86] Most only provide assistance to new projects and not to existing renewable projects.[87]

The form of administration of renewable trust funds varies. Many states administer them through a state agency, while others use a quasi-public business development organization.[88] Some funds are managed by independent third-party organizations, some by existing utilities, while two states allow large customers to self-direct the funds.[89] For distribution, some states utilize an investment model, making loans and equity investments.[90] Other states provide financial incentives for production or grants to

---

Benefits Charge: Economic Impacts and Implications, ELECTRICITY J., June 2001, at 25.

[81] Most state benefits charges are nonbypassable. For examples of state benefits charges, see *infra* Appendix.

[82] FERREY, *supra* note 43, § 10:95. Khawaja et al., *supra* note 80.

[83] For advocacy of a national system benefits charge as the most equitable way to subsidize renewable energy technologies, see Khawaja, *supra* note 80.

[84] FERREY, *supra* note 43, § 10:95. Those fifteen states are Arizona, California, Connecticut, Delaware, Illinois, Massachusetts, Minnesota, Montana, Nevada, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, and Wisconsin. *See infra* Appendix; MARK BOLINGER ET AL., LAWRENCE BERKELEY NAT'L LABORATORY, LBNL-47705, CLEAN ENERGY FUNDS: AN OVERVIEW OF STATE SUPPORT FOR RENEWABLE ENERGY vii (Apr. 2001).

[85] Connecticut, Massachusetts, and New Jersey are the next largest-funds, each collecting between $20 - $30 million annually. BOLINGER ET AL., *supra* note 84, at vii.

[86] BOLINGER ET AL., *supra* note 84, at 3.

[87] California, which does support existing resources, is an exception. *See supra* Appendix.

[88] BOLINGER ET AL., *supra* note 84, at viii.

[89] BOLINGER, *supra* note 84, at viii, ix.

[90] *Id*.

stimulate supply-side development.[91] Some other states use research and development grants, technical assistance, education, and demonstration projects.[92]

Wind power has been a major beneficiary of these subsidies. The largest subsidy is $0.0675/kWh to subsidize 6.6 MW of wind power by grants in New York state.[93] The subsidy level in California, Illinois, Pennsylvania, and Rhode Island ranges from $0.0059 to $0.0195/kWh for wind and hydroelectric projects, and from $0.0011 to $0.0057/kWh for landfill gas projects.[94]

As Table 2 indicates, the funding level is in the range of $175-$250 million annually for the cumulative impact of the state system benefit charge programs.[95] While many of these programs are set up to run indefinitely, others have set lifespans.[96] The level of per capita funding ranges between $0.90-$4.40 annually for renewable energy.[97] Expressed another way, for each megawatt hour sold in the state, the level of subsidy ranges from $0.07-$0.59.[98]

---

[91] *Id*.

[92] *Id*. ("Normalizing all incentives to a five-year production incentive equivalent utilizing a 10% discount rate, states have subsidized large-scale renewable energy projects in a range of 0.l-7¢/kwh.").

[93] FERREY, *supra* note 43, § 10:95; BOLINGER, *supra* note 84, at ix.

[94] *Id*.

[95] FERREY, *supra* note 43, § 10:95; BOLINGER, *supra* note 84, at iii.

[96] *Id*.

[97] *Id*.

[98] *Id*.

TABLE 2

Funding Levels and Program Duration[99]

State	Est. Annual Funding ($million)	Per-Capita Annual Funding[100]	Per-MWh Funding	Funding Duration
CA	$135	$4.0	$0.58	1998 - 2011
CT	$15 - $30	$4.4	$0.50	2000 - indefinite
DE	$1 (max)	$1.3	$0.09	1999 - indefinite
IL	$5	$0.4	$0.04	1998 - 2007
MA	$30 - $20	$4.7	$0.59	1998 - indefinite
MT	$2	$2.2	$0.20	1999 - July 2003
NJ	$30	$3.6	$0.43	2001-2008
NY	$6 - $14	$0.7	$0.11	1998 - 2006
OH	$15 - $5 (portion)	$1.3	$0.09	2001 - 2010

[99] *Id.*

[100] Annual per-capita and per-MWh funding figures are based on funds expected during 2001 (with the exception of . . . Oregon, for which [was] used an expected annual figure instead of just the last three months of 2001; New York, for which [was] used the $14 million per year figure; and Wisconsin, for which [was] use[d] $4.8 million). Some states, such as Connecticut, ramp up funding levels over time, making 2001 a conservative estimate, while others, such as Ohio and Massachusetts, ramp down funding levels over time, making 2001 an aggressive choice. Note that funding scope differs by state, meaning that strict inter-state comparisons may be misleading. For example, NYSERDA's fuel cell budget is outside of the Energy $mart renewable R&D program and is not included in this table, while fuel cell funding is included in the funding levels reported for other states.

BOLINGER, *supra* note 84, at iii.

OR	$8.6	$2.5	$0.17	2001 - 2010
PA	$10.8 (portion)	$0.9	$0.08	1999 - indefinite
RI	$2	$1.9	$0.28	1997 - 2002
WI	$1 - $4.8	$0.9	$0.07	1999 - indefinite

The system benefits charge can be applied within either wholesale or retail competition frameworks. At first blush, a system benefits charge may seem to be necessary only under a retail competition scenario, because that is the situation where utilities face the greatest risk of losing customers and not being able to recover their costs.[101] However, a system benefits charge could be important under wholesale competition as well.[102] The Federal Energy Regulatory Commission has suggested that states have the jurisdiction to implement the charge.[103] The charge could be applied on a utility-by-utility or a state-by-state basis, but would be more effective if the charge were spread over the customers of all utilities in a region. This would prevent funding inequities between customers of different electric companies.[104]

The system benefits charge is justified to overcome market barriers that are created by increased competition.[105] It will not

[101] FERREY, *supra* note 43, § 10:95. Such costs would include DSM, renewable resources, or environmentally related initiatives.

[102] Utilities could lose a portion of wholesale customers, thus causing their retail rates to rise if a system benefits charge were not imposed on all wholesale and retail customers.

[103] *See* Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540, 21,619-20 (May 10, 1996) (suggesting state authority to apply stranded cost charge to local retail customers).

[104] Such equity concerns were the basis of an unsuccessful challenge in Massachusetts courts to the state's benefits charge. It contested exempting municipal utility customers from the benefits surcharge, while allowing them and all other customers to benefit from the proceeds of this charge. Shea v. Boston Edison Co., 727 N.E.2d 41, 47-49 (Mass. 2000).

[105] FERREY, *supra* note 43, § 10:95. The market barriers include the risk of not recovering above-market investments related to environmental and other beneficial projects and the competitive threat caused by the resultant price

result in environmental improvements on its own. Therefore, a system benefits charge could be employed in a manner complementary to other simultaneously implemented environmental policies. For example, a system benefits charge could complement a resource portfolio requirement[106] to ensure that the policy does not create market distortions or put regulated utilities at a competitive disadvantage with respect to unregulated generation sources.[107]

It is also very important to note that a system benefits charge can be avoided despite its "non-bypassable" feature. The customer could by-pass the distribution system altogether by moving out of the service territory of the local distribution company, selling or reorganizing its assets, or generating electricity on-site for its own purposes.[108]

Renewable trust funds are likely to be less efficient than portfolio standards in promoting the burgeoning renewable power industry. Portfolio standards set a requirement and challenge market participants to satisfy it in the most efficient, manner possible. By contrast, trust funds create a discretionary gift program. This process will cause renewable projects to conform themselves to funding criteria, rather than to take the initiative to operate most efficiently. Political manipulation of trust fund cash flows also is possible.

There exist broader funding mechanisms as alternatives to the system benefits charge, which could be applied to a broader range of energy uses.[109] The broader funding would provide the advantage of delivering electricity DSM programs jointly with fossil fuel conservation programs. This could potentially reduce costs and increase market penetration.[110]

The problem is that many of the trust fund schemes explicitly restrict the subsidy to in-state projects. Other state trust fund programs intend, in fact, to apply the subsidies only to in-state projects, even though an express limitation was removed from the

---

increases.

[106] FERREY, *supra* note 43, § 10:95; *see infra* Part II.A.2.

[107] FERREY, *supra* note 43, § 10:95.

[108] FERREY, *supra* note 43, § 10:95.

[109] FERREY, *supra* note 43, § 10:95. The broader funding could come by means of a revenue tax or a more general utility tax, and could be applied to energy products including gas and possibly fuel oil.

[110] FERREY, *supra* note 43, § 10:95.

deregulation statute in order to forestall commerce clause challenge.

B. *Renewable Resource Portfolio Requirements*

A resource portfolio requirement requires certain electricity sellers and/or buyers to maintain a predetermined percentage of designated clean resources in their wholesale supply mix.[111] A number of variations of resource portfolios are possible, including a renewable resource portfolio requirement, a DSM portfolio requirement, and a fossil plant efficiency portfolio requirement.[112]

The concept of the renewable energy portfolio is attributed to the American Wind Energy Association and first adopted by California in its restructuring decision.[113] While Massachusetts and Connecticut were the only two states in the first wave of retail deregulation to adopt both a system benefit charge to fund renewable technologies and a resource portfolio standard mandating renewable wholesale power sources, seven states (not all of them deregulating) have adopted both programs, including Arizona, California, Minnesota, New Jersey, and Wisconsin.[114]

The deregulation legislation proposed by the Clinton administration would have required 7.5 percent of all U.S. electricity to come from renewable energy sources by the year 2010, had it been able to enact the legislation.[115] The Bush Administration energy legislation that passed the House of

---

[111] FERREY, *supra* note 43, § 10:96.

> The resources such as renewables, DSM, or high efficiency fossil combustion, as defined by a particular state, would be included in the company's overall resource portfolio. Portfolio requirements can be applied to electricity sellers, such as generation companies and vertically integrated utilities as a condition of continues market access. The requirements could also be applied to wholesale electricity buyers, such as distribution companies and electricity brokers, but the states do not exercise authority over wholesale markets.

Id.

[112] FERREY, *supra* note 43, § 10:96. "A renewable resource portfolio requirement would involve vertically integrated utilities or generating companies being required to develop renewable resources as a certain proportion of their generation capacity." *Id*.

[113] Nancy A. Rader & Richard B. Norgaard, *Efficiency and Sustainability in Restructured Electricity Markets: The Renewables Portfolio Standard*, ELECTRICITY J., July 1996, at 37, 43.

[114] FERREY, *supra* note 43, § 10:96; s*ee infra* Appendix.

[115] FERREY, *supra* note 43, § 10:96. H.R. 1828, 106th Cong. § 611 (1999).

Representatives in November 2003,[116] but failed by two votes in the Senate to invoke cloture and thereafter be enacted into law, was stripped of Democratic amendments that would have provided a federal renewable standard.[117] The restructuring legislation in Maine requires competitive providers of electricity to maintain a minimum thirty percent renewable resource composition in supply portfolios.[118]

The key to making the portfolio requirements work is to establish trading schemes for "portfolio obligations."[119] A trading scheme would allow distribution companies, ESCOs[120]or generation companies that are particularly effective at developing low-cost DSM programs or renewable resources, to sell portfolio obligations to other distribution and generation companies that are less effective in developing these resources. The trading scheme would effectively create a market for DSM programs and renewable resources.[121] The DSM, renewable, or fossil plant efficiency standard could be made more stringent over time to account for technological developments and evolving environmental priorities.[122]

Portfolio standards are flexible in that certain technologies can be included in the renewables definition, or certain subgroups of technologies can be targeted for inclusion at distinct levels. The standard allows market competition to decide how best to achieve these standards. The standards become self-enforcing as a condition of retail sale licensure.

The advantages of a portfolio standard is that it does not

---

[116] 149 CONG. REC. H3309 (daily ed. Apr. 11, 2003).

[117] H.R. 6, 108th Cong. (2003); 149 CONG. REC. S15,326 (daily ed. Nov. 21, 2003).

[118] FERREY, *supra* note 43, § 10:96. ME. REV. STAT. ANN. tit. 35-A, § 3210 (West Supp. 2003).

[119] FERREY, *supra* note 43, § 10:96. "The trading schemes would eliminate the need for every electricity supplier or buyer to develop renewable energy resources, or every distribution company to acquire DSM, as long as the portfolio requirement is met in the aggregate in a state or region." *Id*.

[120] An energy service company (ESCO) is a company that achieves conservation savings on customers' premises, and often splits such savings with the customer or charge a fee for service. Ottinger & Williams, *supra* note 78, at 364. ESCOs have been active players in the American energy conservation industry for twenty-five years.

[121] FERREY, *supra* note 43, § 10:96. The market value of the resource would be driven in part by the level of the portfolio requirement that is established.

[122] FERREY, *supra* note 43, § 10:96.

subsidize any particular technology or locus of that technology, there is no government subsidy of any technology or project, the market dictates what renewable technologies and projects are actually successful based on competition, and non-compliant owners can purchase credits from others rather than construct renewable projects themselves. Resource portfolio requirements can be applied under any wholesale or retail competition, without placing any entities at a disadvantage.[123] This could have a significant impact on the mitigation of pollutant discharges by power plants. As the industry becomes more competitive, the DSM and renewable portfolio requirements could become an important means of ensuring that energy efficient opportunities contribute to the electricity market.[124] However, fossil plant efficiency requirements may not be necessary if current fuel adjustment clause provisions are eliminated in a restructured industry.[125]

A disadvantage to implementing portfolio resource requirements is that the appropriate portfolio target level must be decided, rather than relying on general financial incentives towards continuous improvements. The primary disadvantage for DSM standards is the logistical challenge of monitoring tradable obligations for DSM, which requires continuing regulatory oversight for measuring and monitoring DSM savings. A renewable standard will also involve subsidiary issues, such as how to define renewable resources and whether standards should be based on available capacity, or actual generation, though from an environmental perspective basing them on actual kwh of

[123] They can be applied either to vertically integrated utilities, generation companies, distribution companies, or retail brokers. Furthermore, the type of wholesale market or power pool that exists does not matter.

[124] The National Association of Regulatory Utility Commisioners report states that of all the environmental policies considered, the DSM portfolio requirement and the establishment of the alternative entities to implement funded DSM programs may provide the only assurance that energy efficient opportunities will be developed in a more competitive industry. Furthermore, portfolio requirements are one of the few environmental policies that can be applied to generation companies. NAT'L ASS'N OF REGULATORY UTIL. COMM'RS, PROMOTING ENVIRONMENTAL QUALITY IN A RESTRUCTURED ELECTRIC INDUSTRY 53 (1995) [hereinafter NARUC REPORT].

[125] Without a fuel adjustment clause, utilities would already have financial incentives to operate their generation facilities as efficiently as possible. However, the only way to guarantee meeting the target is to impose explicit efficiency standards.

generation makes the most logical sense. Standards for renewable energy can require new renewable generation or total renewable capacity.

C. *Siting Reviews of New Generation Capacity*

New rules and siting review standards could be imposed to ensure that an appropriate range of environmental impacts is considered to guide new generation or transmission facilities construction. One method would be to enact institutional changes that expand the role and responsibility of state siting councils to consider a wider range of environmental impacts.[126] A generation company could be required to make a demonstration of need for any proposed power plant.[127]

Siting reviews for new generation and transmission facilities could be applied within any future industry structure. They are not market-based policies: they require new facilities to meet a certain set of standards regarding environmental impacts. As a result, they appear, *prima facie*, to be inconsistent with industry structures that are more competitive and more reliant upon market forces. However, if the role of integrated resource planning is diminished in a restructured industry, then siting reviews may be one of the few remaining forums for any sort of system-wide planning considerations and public input.[128]

---

[126] For example, a siting council review could take into account emission of greenhouse gases, NOx, contribution to ozone nonattainment, cooling water impact on fish population propagation, etc.

[127] Such a requirement could be met by evaluating (1) the forecasted electricity demand for a particular state or region, (2) the existing generation resources available to meet that demand, (3) the generation resources that are currently being constructed to meet that demand, (4) whether the proposed facility has a contract for its power, and (5) whether the proposed facility is likely to be necessary to meet that demand within a reasonable time period, if it does not have power sale contracts in hand. Siting agencies could even go further and require that a generation company demonstrate that its proposed power plant is preferable to alternative options, in terms of environmental impact. NARUC REPORT, *supra* note 124, at 32.

[128] For example, FERC has proposed that investor-owned transmission utilities be required to expand their transmission capacity, if necessary, to meet the needs of open access for generation companies. This expansion obligation could result in proposals for a number of new transmission facilities in any given region, without any requirement to coordinate the proposals, or to evaluate whether alternate transmission, DSM or generation options are available at a lower cost. Siting reviews may provide the only forum available for making such an evaluation. *Id*. at 33.

The major advantage of expanded siting reviews is that they are unlikely to have any significant material impact on electricity prices. Furthermore, siting reviews may reduce the threat of excess capacity, though some argue that excess capacity is not a factor in a completely free market, because customers would not have to incur the costs associated with excess capacity.[129] Siting reviews may cause a shift towards some less-polluting facilities if environmental factors are properly considered in siting decisions.

D. *"Green" Electricty Pricing*

Certain commodities with an "environmental" identification sell for more than generic commodities. This is true for organic foods, "pure" spring bottled water , products made from recycled parts, etc. The cost of tap water in the United States ranges between $0.001-$0.001/gallon.[130] For bottled water, which often is tap water, people pay 100 to 1,000 times more.[131] This indicates that certain brand identities or "green" products command a substantial premium in the market of commodities.

Unbundling the structure of retail electricity pricing offers opportunities to encourage consumers to purchase cleaner resources or invest in conservation. The operational premise of so-called "green pricing" is that there are certain customers who want to use electricity produced by "clean" or renewable technology and are willing to undertake the expense in order to procure it.[132] Electricity sellers could then use funds raised from such environmentally oriented customers to acquire less polluting resources that would not otherwise be developed because of market costs or are hindered by market barriers. One advantage of green pricing is that providers can protect customers from fuel price fluctuations.[133]

---

[129] *Id.*

[130] *See, e.g.*, AM. WATER WORKS ASS'N, PRICE PER GALLON (2004), *at* http://www.awwa.org/Advocacy/learn/info/PricePerGallon.cfm.

[131] *Id*.

[132] This premise is supported by customers in other industries who choose to buy environmentally sensitive mutual funds, recycled products, or other environmentally friendly products. Market research has indicated that many customers are interested in green pricing options. NARUC REPORT, *supra* note 124, at 42.

[133] Most renewables do not experience fluctuations in fuel costs as do fossil-fuel-fired facilities. "Green pricing" can be used for wholesale or retail competition. On a wholesale level, vertically integrated utilities or distribution

Renewable power that qualifies as "green" energy can be marketed and sold in different modes:

> 1. As actual kWh sales where electricity and its "green" attributes are bundled together as a single product in a single transaction; there, the purchaser switches from conventional power to a bilateral contract with the "green" energy supplier.
>
> 2. Sale only of the "green" attributes without purchasing the actual kilowatt hours; the retail customer does not need to switch from buying conventional power but only purchases the renewable certificate.

The drawback of green power marketing is that it relies on individual consumer decisions to create a public good. The environmental benefits of green power consumption are not internalized to the consumer who elects to pay a premium for green power, but rather are shared by all in the region. This allows "free riders" who benefit but do not pay or contribute.[134] This raises equity and efficiency issues. Therefore, green power marketing suffers from individual consumer motivation and equity impediments that are not raised by a portfolio standard, which imposes requirements on energy producers rather than consumers.

Another price alternative is the use of "green ratemaking," which is rate design that reflects environmental costs. Green ratemaking could be applied easily under wholesale competition, but becomes very difficult under retail competition, since rates for generation may not be regulated. In this pricing scheme, rates are designed in such a way that marginal prices reflect long-term marginal societal costs.[135] By using this system, the price signals sent to customers at the margin would be more closely tied to

---

utilities could offer "green pricing" as a way of diversifying their resource portfolios and enhancing customer choice. Under retail competition, distribution and electricity brokers may choose to offer green pricing as one option available out of a portfolio of different electricity resources, electricity service, or electricity pricing packages. NARUC REPORT, *supra* note 124, at 43.

[134] See, Nancy A. Rader & William P. Short, III, *Competitive Retail Markets: Tenuous Ground for Renewable Energy*, ELECTRICITY J., Apr. 1998, at 72, 76-77.

[135] Rates would be designed so that the total amount of costs recovered from ratepayers would be the same as with traditional rate design—the only difference being that the marginal cost would be increased and other portions of the tariff would be decreased correspondingly to reflect the environmental consequences of marginal energy use. For example, fixed customer charges could be reduced while tailblock energy charges are increased. NARUC REPORT, *supra* note 124, at 45.

environmental costs, and may encourage consumers to use energy more efficiently. Green ratemaking is not intended directly to affect electricity sellers, but is directed toward modifying customer use patterns.

The ability of green pricing mechanisms to promote cleaner resources will depend on how willing customers are to pay for them, as well as the success of the electricity sellers' marketing and promotion campaigns. Any rate impacts associated with environmental improvement are assigned to those customers who choose to accept them. As a result, green pricing does not cause any market distortions and is, in theory, reflective of true customer preferences. Green pricing effectively assigns an important social policy decision to individual customers, who may act on their own interest rather than in society's best interest.

E. *Promotional Ratemaking Policies*

Ratemaking policies provide an alternative to promoting sustainable technologies. These policies include environmental performance-based ratemaking (PBR), net metering, and the distributed utility concept. They all involve the regulation of retail sales of distribution companies and can function under both wholesale and retail competition. Several states are deploying these mechanisms.[136]

There are two approaches to PBR: price caps and revenue targets. Price caps fix maximum electricity prices for longer periods of time than would be the case under traditional ratemaking. This provides incentives for utilities to become more efficient, so that any differential between actual costs and the price cap results in some additional profits to them. Revenue targets set the allowed rate of return for utilities based on productivity benchmarks.[137] Under either policy, it is possible to set the price

---

[136] For example, both Massachusetts and California, discussed in more detail in the Appendix as to their renewable energy requirements, implemented performance-based ratemaking where after divestiture of their generating assets, their rates of return were adjusted based on performance criteria for their distribution systems. *See, e.g.*, Investigation by the Dep't of Telecomm. & Energy into the Service Quality of Boston Edison Co., Commonwealth Elec. Co. & Cambridge Elec. Light Co., No. DTE 01-65, 2002 Mass. PUC LEXIS 27 (Mass. Dep't of Telecomm. & Energy Mar. 22, 2002).

[137] Revenue targets are preferred over price cap, from the standpoint of energy efficiency, because under a price cap the utility has a strong incentive to increase sales and minimize DSM programs. Under a revenue target, the incentive to

or revenue target to include adjustments for environmental performance.[138] The limitation to PBRs is that they can be applied only to regulated utility activities, and not to generation companies or aggregators under retail competition, where it is most needed.[139]

Net metering is a ratemaking option for electricity customers who self-generate. It essentially allows a power customer to run the retail meter backwards when it generates more power than it consumes.[140] It is designed to encourage the development and implementation of decentralized renewable technologies.[141] More than twenty-five states have net metering provisions.[142]

The idea behind the distributed utility policy is to strategically place small generating resources at load centers along the distribution system to avoid transmission and distribution costs, and help defer or avoid upgrades to the distribution system. This would also result in lower transmission and distribution losses.[143] With perhaps one-third of future retail electricity costs to be distribution costs, and another one-third of intermediate term costs as stranded cost recovery, distributed utility or cogeneration options may avoid up to two-thirds of the total costs of central station generation.[144]

---

increase sales and minimize DSM programs can be reduced.

[138] For example, a company's price cap could be formulated depending on the level of DSM implementation and/or capacity of renewable resources from its generation portfolio. Similarly, revenue targets could be adjusted to include certain levels of DSM and renewable resources. TELLUS INST., SUSTAINABLE ELECTRICITY FOR NEW ENGLAND: DEVELOPING REGULATORY AND OTHER GOVERNMENTAL TOOLS TO PROMOTE AND SUPPORT ENVIRONMENTALLY-SUSTAINABLE TECHNOLOGIES IN THE CONTEXT OF ELECTRIC INDUSTRY RESTRUCTURING 41 (1997).

[139] *Id.*

[140] Ferrey, *supra* note 43, § 4:27.

[141] There are two options for net metering: instantaneous and periodic. Under instantaneous net metering the customer is charged the difference between instantaneous consumption and instantaneous on-site generation. If the difference is positive, then the customer is charged at the retail rate; if the difference is negative, then the utility pays the customer at its short-run avoided cost. Periodic net metering is similar to instantaneous, the only difference being that the measurement between consumption and generation occurs periodically, in other words, once a month. TELLUS INST., *supra* note 138, at 43.

[142] For treatment of net metering, see FERREY, *supra* note 43, § 4:27.

[143] There has been considerable interest in distributed resources, as utilities have looked for a method to reduce their costs. TELLUS INST., *supra* note 138, at 42.

[144] *Id*. at chapter 10.03.

F. *Emission Trading*

The combination of environmental emissions caps and a marketable permit or allowance trading system has attracted growing interest since the passage of the Clean Air Act Amendments of 1990, because it offers the possibility of using market-based instruments to achieve environmental goals. NOx[145] and SO2[146] emission allowances can be traded from those who over-control or control ahead of schedule to those who under-control NOx or SO2.[147]

Caps and trading schemes can address the environmental threats associated with existing power plants, because they are directly tied to the level of emissions from all generators. Furthermore, by increasing costs of more polluting power plants, cap and trading schemes will increase the avoided costs for DSM and renewable resources. Development of these resources will depend on other policies that support such resources. The major disadvantage to emission trading is that certain pollutants that are caused from sectors other than the electricity industry may not allow for a practical, effective trading system.

G. *Emission Taxes*

Pollution taxes, applied as a dollar-per-ton charge to selected pollutants, could be used to correct the market failures in allocating the costs of residual pollution damages from pollution sources. Emission taxes could be applied under both a wholesale and retail competition framework. They are (1) market based, (2) can be implemented without a great deal of regulatory oversight or central planning, and (3) can be effective in either modifying producer's and consumers' behavior patterns, or raising funds that can be used to promote environmental protection. The best known

---

[145] NOx emission reduction credits can be traded within similar ozone non-attainment regions. 51 Fed. Reg. 43,829 Dec. 4, 1986), 57 Fed. Reg. 13,498 (April 16, 1992); 42 U.S.C. 7503 (2000). For detailed analysis of the regulatory and trading scheme for NOx, see FERREY, *supra* note 43, §§ 6:85-6:96; STEVEN FERREY, ENVIRONMENTAL LAW: EXAMPLES AND EXPLANATIONS 177-187 (2d ed. 2001).

[146] 40 C.F.R. 73-76. Since 1993, annual auctions have been held. 40 C.F.R.73.72(g). Industries not covered by the allowance program have an option to "opt in" to the program. 42 U.S.C. 765li. For detailed discussion of sulphur allowances and the auction/trading system that allows their trade, see FERREY, *supra* note 43, §§ 6:78-6:84; FERREY, *supra* note 145, at 199-201.

[147] *See* FERREY, *supra* note 43, §§ 6:78-6:100.

such tax policy is the $0.015/kWh production tax credit for wind and closed-loop biomass technologies, introduced by the Energy Policy Act of 1992, which continued to 2003 and is pending reauthorization.[148]

In addition to affecting electricity sellers' decisions regarding new resources, direct emission taxes will also alter the order and quantity of dispatch of existing plants. The variable cost of plant operation will increase to more accurately reflect environmental costs, leading to "full cost" dispatching. The costs associated with emission taxes will then be passed on to final electricity consumers, providing them with price signals that more closely reflect societal costs of electricity. An emission tax would have to be established through legislation.[149]

In constructing an emissions tax scheme, there is risk that states may disadvantage in-state industry. Since state taxing authority does not extend beyond state boundaries, the tax must be applied against activities occurring within the state. Thus, if an emissions charge is applied to energy production, it can only apply to in-state production, thus disadvantaging in-state industry. Instead, a state could tax consumption or use of power in-state based on its inherent emissions, thus taxing in-state and out-of-state energy equally when used in the state.

H. *Cleancos*

A new entity could be created to promote sustainable technologies.[150] This could be an independent government agency or private organization, known generically as a "cleanco."[151] The

---

[148] An example on the state level includes Massachusetts' renewable tax policies, which are an income tax credit of fifteen percent for homes that install renewable energy systems, and corporate excise tax exemptions and corporate income tax deductions for renewable space heaters or water heaters. TELLUS INST., *supra* note 138, at 46.

[149] The legislation could use a variety of options for distributing the emission tax revenues. Revenue-neutral approaches could be employed where pollution taxes are used to reduce other taxes, such as gross receipts taxes for the electric industry, or other broad state and local taxes. An alternative is the "feebate" approach, where revenues are collected from high pollutant emitting sources and rebated to sources that use cleaner, more costly technologies. NARUC REPORT, *supra* note 124, at 51.

[150] TELLUS INST., *supra* note 138, at 35.

[151] *Id.*

role of a cleanco could include some combination of coordinating, funding, and implementing projects.

One advantage to a cleanco is that as an institution organized solely to promote the commercialization and implementation of sustainable technologies, it could focus exclusively on the efficiency and/or renewable business, without conflicting business objectives. Although there has been some debate as to the political feasibility of cleancos, in certain situations a cleanco may be essential in order to avoid the abuse of market power by a vertically integrated company.[152]

I. *Efficiency Standards*

There are two primary types of efficiency standards: (1) appliance efficiency standards mandate that all new electric end-use devices operate at or above a base level of efficiency;[153] (2) building energy codes define the minimum requirements for the energy efficiency of different building shells.[154] In order for this policy approach to work, existing standards/codes would have to be implemented to promote new, more efficient appliances and buildings. Energy efficient standards promote the use of newer, energy saving, more efficient technology by expediting the replacement of older, less efficient technology.

The biggest advantage of efficiency standards is that they usually provide a very cost-effective means of conserving energy.[155] The disadvantage of efficiency standards is the difficulty in measuring and enforcing their effectiveness—principally building codes.[156]

---

[152] This is in situations where the restructuring proceeds without the full divesture of generating assets, leaving a distribution company with affiliated generation. *Id.* at 36.

[153] Efficiency standards normally apply to energy consumption in buildings and residences, but can be utilized on the supply-side as well. The two main examples are appliance efficiency standards and building efficiency standards. *Id*. at 45.

[154] The standards employ "passive" conservation measures such as windows, insulation and orientation, and building systems. *Id*.

[155] For example, the NAECA and EPAct appliance standards have realized energy standards 2.5 times greater than the incremental costs of these more efficient technologies. *See* TELLUS INST., *supra* note 138, at 45.

[156] Building operators rarely have practical and accurate methods for measuring building shell energy use. Furthermore, the energy savings realized from codes will fluctuate significantly depending upon the pattern of energy use in the shell. TELLUS INST., *supra* note 138, at 45.

III
FEDERAL ENCOURAGEMENT OF RENEWABLE RESOURCES

A. *The Federal PURPA Incentives*

PURPA was one of five pieces of legislation bundled into the National Energy Act of 1978.[157] All five pieces of legislation were enacted in response to the 1973-1974 oil embargo and resultant dislocations that resulted from the shortage of oil. PURPA created the designation of QFs, which are federally protected against state regulation. This federal preemption has been upheld by the Supreme Court.[158]

The PURPA rules require that QFs be efficient cogenerators that productively use both electrical and thermal energy production, or consume renewable or waste resources. The ownership limitations prevent majority utility ownership. QFs benefit from the ability to sell power to the utility at full avoided post and to purchase supplemental power from the utility. These on-site generation facilities can have significant efficiency and environmental advantages over conventional centralized electric generation. These on-site and distributed renewable and cogeneration QFs enjoy special federal law entitlements that must be administered and respected by the states pursuant to the Supremacy clause of the Constitution. Much of the renewable energy case law has developed around QF power.

1. *Legislative Purpose*

The Congressional impetus for Title II of PURPA—authorizing QFs—was to encourage conservation of energy, optimization of efficient use of electric utility facilities and resources, and equitable electric rates to consumers. Congress' goal was to accomplish greater diversity in the supply of electric power by providing incentives for development of small

---

[157] The National Energy Act of 1978 consisted of five acts: the National Energy Conservation Policy Act, 42 U.S.C. §§ 8201-87d (2000), the Public Utility Regulatory Policies Act, 46 U.S.C. §§ 2601-45 (2000), the Energy Tax Act, the Power Plant and Industrial Fuel Use Act, and the Natural Gas Policy Act.

[158] Fed. Energy Reg. Comm'n v. Mississippi, 456 U.S. 742 (1982); Am. Paper Inst. v. Am. Elec. Power Serv. Corp., 461 U.S. 402 (1983).

alternative power and cogeneration resources.[159] Congress perceived both a reluctance among electric utilities to transact business with alternative power producers and a fear held by alternative power developers that they would be regulated as "public utilities" if they sold power.[160] One of the impediments to self-generation projects historically was that electric utilities could employ one of several methods to discourage such customer generation.[161] First, they could cut the retail rates that they would otherwise offer such a customer to discourage self-generation. Resultant lower retail revenues could be offset by shifting costs to other consumers, thereby causing other consumers without the option to self-generate to bear the subsidy used to discourage self-generation.

Second, utilities could impose discouraging rates, terms, and conditions on stand-by and back-up power requirements for self-generating entities. This could make it prohibitively expensive to self-generate. With deregulation, a third tool presented itself: Exit fees could be proposed to discourage exodus from the conventional system.[162]

PURPA Title II sought to remedy these perceived barriers to alternative power development by permitting some alternative power producers to operate in a relatively unregulated environment. Section 210 breaks the utility monopoly on generation of electric power specifically for certain types of power production.[163] Title II also requires that electric utilities deal with project sponsors in a nondiscriminatory manner.[164]

Under PURPA, if power projects meet specific and exacting requirements, they qualify to sell their power output to electric utilities. The price at which utilities must purchase power from QFs is determined not by QF costs nor by traditional regulatory principles, but rather by the incremental cost of power for the

---

[159] S. REP. NO. 95-361 (1977), *reprinted in* 1978 U.S.C.C.A.N. 8173, 8178.

[160] *Id*.

[161] *See generally* Richard F. Hirsh, *PURPA: The Spur to Competition and Utility Restructuring*, ELECTRICITY J., Aug. 9, 1999, at 60.

[162] *See* Steven Ferrey, *Exit Strategy: State Legal Discretion to Environmentally Sculpt the Deregulating Electric Environment*, 26 HARV. ENVTL. L. REV. 109 (2002). Exit fees are charges for embedded capital costs of regulated monopoly utilities, assuming that these assets cannot serve other customers. *Id*.

[163] 16 U.S.C. § 824a-3 (2000).

[164] 16 U.S.C. § 824a-3(b) (2000).

purchasing utility.[165] PURPA imposes mandatory equipment interconnection and purchase obligations on electric utilities, which reduce the monopsony power the utilities would otherwise exercise as the exclusive outlet for sale produced by an independent entity.[166] In turn, PURPA required utilities to interconnect with QFs, to purchase their power, and to supply them with supplemental or backup power.[167]

In 1980, FERC promulgated regulations pursuant to Title II of PURPA.[168] These regulations are divided into two relevant parts: (1) Subpart B regulations define the operating and efficiency standards that cogeneration facilities must meet in order to qualify as QFs;[169] and (2) Subparts C[170] and F[171] regulations define the benefits to which QFs are entitled.

2. *Regulatory Exemption Enjoyed by Qualifying Facilities*

Perhaps the single most important benefit for QFs is that they are exempt from the Federal Power Act,[172] the Public Utility Holding Company Act,[173] and most importantly, most state regulations.[174] Otherwise, federal law would regulate QF conduct as if QFs were public utilities and subject their financial structures, corporate organizations, and profit (or return) to regulatory scrutiny.[175]

Pursuant to PURPA, in its original form, only small power producers of 30 MW or less were exempt from provisions of the Federal Power Act and the Holding Company Act; however, small

---

[165] *Id*.; *see also* 18 C.F.R. § 292.304 (2003).

[166] 16 U.S.C. § 824a-3(a) (2003).

[167] 16 U.S.C. § 824a-3(a); *see* 18 C.F.R. §292.303(a)-(c) (2003).

[168] 18 C.F.R. § 292 (2003).

[169] *Id*. §§ 292.201-.211 (2003). The Commission's operating standard provides that the cogenerating facility's annual useful thermal energy output (in other words, the energy that is used for an industrial or commercial purpose) be at least five percent of the total energy output. *Id*. § 292.205(a)(1). The Commission's efficiency standard requires that a cogenerating facility use fuel efficiently and is calculated based on the facility's annual fossil fuel input, the useful thermal energy output, and the total energy output. *Id*. § 292.205(a)(2)-(b).

[170] *Id*. §§ 292.301-.308.

[171] *Id*. §§ 292.601-.602.

[172] *Id*. § 292.601.

[173] *Id*. § 292.602(b).

[174] *Id*. § 292.602(c).

[175] 16 U.S.C. § 824a-3(e)(1) (2000).

power facilities of up to 80 MW which employ geothermal resources may be exempt from both Acts.[176] In 1990, Congress removed the 80 MW ceiling for small power producers that are fueled by some waste products or renewable energy.[177] Larger small power producers fueled by waste or renewable resources at a single site no longer have to find a thermal application to retain their QF status at larger than 80 MW capacity.[178] Moreover, certain renewable energy technologies will become more cost-competitive developed at larger scale. To the extent that a project loses QF status within its lifetime, it is subject to plenary regulations as a public utility.[179]

These regulatory exemptions carve out a distinct role for QFs. Under PURPA, QFs can sell power only to electric utilities on a wholesale basis under the sanctions of state regulatory commissions.[180] Nothing in PURPA, however, authorizes a QF to make a power sale for any purpose other than on a wholesale basis.[181]

Exemption from "utility-type" regulation comes with QF status.[182] FERC regulations state that "[a]ny qualifying facility shall be exempted . . . from State law or regulation respecting: (i) The rates of electric utilities; and (ii) The financial and organizational regulation of electric utilities."[183]

The litigation around utility-type regulation has focused on power sale rates and contract terms, and not yet on the newly

---

[176] *Id*. § 824a-3(e)(2).

[177] *Id*. The provisions for renewable power producers over 30 MW were added by Act of Nov. 15, 1990, Pub. L. 101-575, 104 Stat. 2834 (1990). Those waste-fueled sources that can be larger than 80 Mw are those that are by-products of industrial processes, such as coal waste or waste tires. Tire-derived fuels are a viable source of small power production fuel. The 80 MW cap still applies to biomass, including municipal solid waste, and to hydroelectric facilities. 18 C.F.R. § 292.304 (2003).

[178] 16 U.S.C. § 824a-3(e)(2) (2000).

[179] Under PURPA, no QF is exempt from sections 1-18, 21-30, 202(c), 210-214, and 305(c) of the Federal Power Act. *Id*.; 18 C.F.R. §292.601(c) (2003). These sections pertain to the requirement of interconnection with QFs, wheeling of power, and the enforcement of these two provisions. These provisions, however, do not affect the fundamental economics of QF power development.

[180] 16 U.S.C. §824a-3(a)(2) (2000).

[181] *Id*.

[182] *See* Am. Petroleum Inst. v. Am. Elec. Power Serv. Corp., 461 U.S. 402, 414 (1983).

[183] 18 C.F.R. §292.602(c)(1) (2003).

imposed state exit fees. Utilities have attempted to circumvent the ability of a QF to receive a fixed price through the life of a contract by the use of contractual clauses allowing for rate revision at a future time.[184] Courts have found that these types of QF rate revision clauses would constitute "utility type" regulation and undermine the intent of Congress. In 1984, the Idaho Supreme Court rejected a utility's attempt to include a clause in the QF contract that provided that the rates and terms in the contract were subject to change in the event that the state found the new rates were "just, fair, reasonable, sufficient, nonpreferential and non-discriminatory."[185]

The Third Circuit found that an attempt at QF rate reconsideration after approval and implementation by the state utility regulatory commission was preempted by federal law.[186] The court found that the state utility regulatory commission's attempt to modify or revoke approval of the power purchase agreement constituted "utility type" regulation.[187] The court held that the "regulatory out" clause did not confer any continuing jurisdiction on the state utility commission and did not reflect the QF's agreement to surrender any protection from state regulation that it is entitled to under PURPA.[188]

---

[184] *See* Smith Cogeneration Mgmt., Inc. v. Corp. Comm'n and Pub. Serv. Co. of Okla., 863 P.2d 1227, 1237 (Okla. 1993) (voiding Oklahoma Commission's order requiring a notice provision allowing reconsideration of avoided costs to be placed into the contract). The court said, "Reconsideration of long-term contracts with established estimated avoided costs imposes utility-type regulation over QFs." *Id*. at 1240. "Requiring QFs and utilities to include a notice provision allowing reconsideration of established avoided costs conflicts with PURPA and FERC regulations." *Id*. at 1241.

[185] Afton Energy, Inc., v. Idaho Power Co., 693 P.2d 427, 431 (Idaho 1984). The court declined to accept the utility's argument that the clause represented a stricter public interest standard ensuring that the utility rates remain "just and reasonable" and "in the public interest." *Id*. at 432-33. The court found that this contractual language constituted utility type regulation over QFs contrary to congressional intent and PURPA. *Id*.

[186] Freehold Cogeneration Assocs. v. Bd. of Regulatory Comm'rs of N.J., 44 F.3d 1178, 1194 (3d Cir. 1995). The utility claimed that the QF had voluntarily agreed by contract to the state commission's continuing jurisdiction over the power purchase agreement and the rates contained therein. This continuing jurisdiction would allow the commission to modify the previously approved rates. *Id*. at 1191. The court agreed with Freehold's contention that this was an action under PURPA section 210(e), which grants cogenerators immunity from state utility-type regulation. *Id*. at 1184-85.

[187] *Id*. at 1192.

[188] *Id*. at 1193-94.

A Pennsylvania court affirmed that the state Public Utility Commission's decision to deny an electric utility's request for rescission of prior rate approval under power purchase agreements made with QFs, because the QFs were not public utilities and revisiting the rate issue was preempted by federal law.[189] In 1998, a Michigan federal district court noted that once a state has established the avoided cost rate, it no longer has the authority to regulate QF rates.[190]

QFs are also exempt from state laws respecting "[t]he financial and organizational regulation of electric utilities."[191] FERC regulations do not define exactly what makes up "financial and organization regulation." Several courts, including the First Circuit and the Ninth Circuit, have determined that certain activities by a state utility commission do not fall under the financial regulation exemption and therefore are not "utility type regulation."[192] FERC has upheld a monitoring program instituted by the New York Public Service Commission.[193]

---

[189] West Penn Power Co. v. Pa. Pub. Util. Comm'n, 659 A.2d 1055, 1066 (Pa. 1995).

[190] N. Am. Natural Resources, Inc. v. Mich. Pub. Serv. Comm'n, 41 F.Supp.2d 736, 739-40, (W.D. Mich. 1998) (allowing plaintiff QFs to seek declaration that orders issued by state commission pursuant to deregulation would not disallow recovery of QF avoided cost rates), *rev'd*, North Am. Natural Resources, Inc., v. Strand, 252 F.3 808 (6th Cir. 2001) (on the grounds of no actual case in controversy).

[191] 18 C.F.R. § 292.602(c)(1)(ii) (2003).

[192] Bristol Energy Corp. v. N.H. Pub. Util. Comm'n, 13 F.3d 471, 475 (1st Cir. 1994). A limited inquiry for the purposes of completing a federally mandated study did not constitute "utility type" regulation because the state utility commission was not asserting full authority over QFs and had only requested information (including financing agreements, retired debt, monthly volume of electricity generated, identity of customers, and fuel use including price paid for fuel) related to the factors indicated in the Energy Policy Act of 1992. *Id*. at 473, 475.

In *Indep. Energy Producers Ass'n, v. Cal. Pub Util. Comm'n*, 36 F.3d 848, 859 (9th Cir. 1994), the state utility commission authorized utilities to monitor QFs to determine whether they met federal standards. In addition to allowing the monitoring, the state commission allowed the utility to suspend payment to the QF if the utility found that the QF did not comply with the federal standards. The utility was authorized to substitute a lower, alternative rate in the event that it determined that the QF did not comply. *Id*. at 852. In examining the program, the court noted that the underlying motivation of the program was to lower the rates set in California standard offer contracts because they were higher than current avoided costs. *Id*. at 858. Although the court found that the program violated federal law by allowing utilities to make QF status determinations, the court allowed the utilities to continue to monitor the QFs, finding this

Exit fees have aspects of both rate regulation and financial regulation. Where the exit fee is embodied in a back-up power rate (that is, the imposition of a surcharge on power purchased from a utility), as with Massachusetts' exit fee for the Massachusetts Institute of Technology,[194] it works as a disincentive rate. Where exit fees are imposed as a function of the self generation decision (as a one time only event), they are powerful regulatory disincentives. It is yet unresolved whether they run afoul of PURPA's federal preemption.

3. *Size and Efficiency Criteria*

A proposed self generation facility may qualify as a QF as a cogeneration facility or as a small power producer, both of which produce electric power for resale to regulated electric utilities.[195] Next, we describe those federal requirements for self generation to be certified as a Qualifying Facility so as to enjoy protection against state utility-type regulation.

a. *Cogeneration*

Cogeneration is the sequential[196] use of energy to produce electricity and either steam or some other useful thermal energy.[197] A cogeneration facility must produce useful thermal output as well as electricity.[198] Cogeneration facilities qualify as QFs regardless of their size or the fuel input used, as long as they satisfy operating

---

requirement was reasonable under the state's broad ratemaking authority as long as the requirements did not impose an undue burden on the facilities. *Id*. at 859.

[193] Indep. Power Producers of N.Y., Inc., 80 F.E.R.C. ¶ 61,125 (1997). The New York monitoring program was designed to enable utilities to have sufficient data to determine whether the QF is in compliance with federal standards. *Id*. ¶ 61,396. Because the program was designed to collect data solely for the purpose of determining QF status, FERC found it was consistent with the Ninth Circuit decision in *Independent Energy* and did not impose an undue burden on QFs. *Id*. ¶ 61,398.

[194] Mass. Inst. of Tech. v. Dep't of Pub. Util., 684 N.E.2d 585 (Mass. 1997).

[195] 16 U.S.C. §824a-3(e)(1) (2000); 18 C.F.R. §§ 292.101(b)(1), .203 (2003).

[196] Sequential use involves the co-production from the same source of electricity and thermal energy. 18 C.F.R. § 292.202(c) (2003); *See* Texas Industries, Inc., 29 F.E.R.C. ¶ 61,051, 61,110 (1984).

[197] The statute defines a "cogeneration facility" as a facility that products both electric energy and steam or some other form of useful energy, such as heat. 16 U.S.C. §796(18)(A) (2000).

[198] The two forms of energy output (electric and thermal) must be produced through the sequential use of energy inputs. 18 C.F.R. § 292.202(c) (2003).

and efficiency standards.[199] At least five percent of the total energy output of any cogeneration facility must be useful thermal energy.[200]

The regulations establish an operating standard and efficiency standard to determine "qualifying cogeneration facilities."[201] Section 292.205 of the commission's regulations establishes an operating standard for topping-cycle cogeneration facilities.[202] Under the operating standard, the useful thermal energy output must be at least five percent of the total energy output.[203] Both operating and efficiency standards involve calculations of the electric and nonelectric energy produced in the cogeneration process.[204] The regulations define these outputs as "useful power output" and "useful thermal energy output" respectively.[205] The regulations define useful thermal energy as the thermal energy "made available to an industrial or commercial process" or used in a heating or space cooling application.[206]

i. *Efficiency Standards and Sequential Use*

The efficiency standard for topping-cycle cogeneration facilities wholly or partly powered by oil, natural gas, or other fuels of limited resource requires that the QF's useful power output plus one-half of the useful thermal energy output during any calendar year must be no less than 42.5 percent of the total energy input of natural gas or oil.[207] FERC has stated that at the pre-

---

[199] *Id*. §§ 292.203(b), .205.

[200] This output requirement applies only to topping cycles; bottoming cycles will always meet the requirement. 16 U.S.C. § 824a-3(e)(1) (2000); 18 C.F.R. § 292.205(a)(1) (2003). Topping cycles are *defined* at C.F.R. § 292.202(d) (2003). Useful thermal energy output is energy made available in any commercial or industrial process, or used for heating or cooling applications. *Id*. § 292.202(h).

[201] The Commission's regulations define cogeneration facilities as "equipment used to produce electric energy and forms of useful thermal energy (such as heat or steam), used for industrial, commercial, heating, or cooling purposes, through the sequential use of energy." 18 C.F.R. § 292.202(c) (2003).

[202] A topping-cycle cogeneration facility means a cogeneration facility which first uses energy input to produce useful power output and then captures reject heat from the power production process to provide useful thermal energy. *Id*. § 292.202(d).

[203] *Id*. § 292.205(a)(1).

[204] *Id*. § 292.205(a)(1), (a)(2).

[205] *Id*. § 292.202(g)-(h).

[206] *Id*. § 292.202(h).

[207] *Id*. § 292.205(a)(2).

operational stage, it will accept as true or attainable the assertions of a QF project developer as to the satisfaction of operation and efficiency requirements at the time of operation.[208]

The relevant time to determine whether efficiency requirements are met is the time of first commercial operation of the facility, and thereafter.[209] When calculating compliance with the efficiency requirement, all supplemental natural gas or oil consumed must be calculated in the input calculation.[210] If a QF is grafted onto an existing facility, the operation of the equipment from the original installation must be part of the calculation of the total energy input, if it still operates in tandem.[211]

Where efficient thermal energy is not produced sequentially, FERC will deny QF status.[212] Where auxiliary boilers are employed to boost thermal energy, some of the capacity can be disqualified from QF status. Where steam is produced directly for thermal uses and is not sequentially used for the production of electricity, that proportion of the electricity production represented by the auxiliary steam is not counted toward the qualifying capacity.[213] Many cogenerators employ an extraction steam turbine technology to draw minimal thermal energy from the cogeneration facility.[214] FERC allows extraction steam turbine technology to qualify for QF status,[215] despite its apparent contradiction of the sequential use rule articulated in other cases.[216]

---

[208] Cherokee County Cogeneration Partners, L.P., 75 F.E.R.C. ¶ 61,156, 61,514 (1996).

[209] Georgetown Cogeneration, L.P., 54 F.E.R.C. ¶ 61,049, 61,185 (1991).

[210] 18 C.F.R. § 292.202(j) (2003).

[211] Walker Resources, Inc., 47 F.E.R.C. ¶ 61,399, 62,315-16 (1989) (existing preheated feedwater counted in gas use for entire facility). This is true even if there are separate qualifying and non-qualifying parts of the facility.

[212] The sequential use requirement is contained at 18 C.F.R. § 292.202(c) (2003).

[213] U.S. West Fin. Servs., Inc., 55 F.E.R.C. ¶ 61,377, 62,147 (1991). 3.2 Mw of a 22.2 Mw cogeneration unit at a cement plant host facility was deemed not to qualify for QF status, because eighty-five percent of the steam for the turbines was provided by an auxiliary boiler. The reduction in QF qualifying capacity was based on the percentage of steam that was produced by the auxiliary boilers directly for electricity production not related to a direct thermal application. The technology employed was a bottoming cycle, for which no PURPA efficiency standard exists. *Id*.

[214] The extraction steam turbine draws minimal waste heat off an otherwise conventional electric generating system, downstream of the electricity production.

[215] Texas Indus., Inc., 29 F.E.R.C. ¶ 61,051, 61,111 (1984). The Commission

Thus, conventional electric generating technologies may obtain QF status merely by capturing waste heat for some useful thermal purpose. Most small power production facilities which exceed the PURPA small power producer size requirements could qualify instead as cogeneration QFs by finding a useful thermal application.[217]

Two exceptions to these cogeneration requirements are notable. First, cogeneration facilities for which construction began prior to March 13, 1980, are not subject to efficiency criteria.[218] Second, FERC can waive either the efficiency or the five percent thermal output requirements if it finds that a project will produce significant energy savings.[219]

Waiver of the FERC requirement potentially is available for a QF which cannot achieve the efficiency or output requirements.[220] Several QFs which failed to comply have retroactively asked FERC for a waiver. These have generally been denied. Typically, this is because the QF/applicant has been unable to demonstrate significant energy savings, which is the regulatory criterion for a waiver.[221] Waivers are denied for the first phase of a facility's operation, even where the facility may achieve the operating efficiency and output requirements during its second phase.[222]

---

held that for extraction steam turbines the part of steam flow used for thermal application need only have been previously used for generation, rather than that all steam used for generation sequentially flow to a subsequent thermal application. Because the facility in question in this case was fueled by coal, no efficiency standards were applicable. *Id.*

[216] Cal. Portland Cement Co., 20 F.E.R.C. ¶ 61,217, 61,419 (1982) (FERC specified that useful steam application had to occur sequentially with the extraction point for the steam, rather than downstream of the extraction plant).

[217] However, FERC denied a requalification of a 30 MW facility from small power to cogeneration status. This was because FERC found that heating liquid sodium in a furnace for research purposes, while simultaneously producing steam for electricity at a sodium research facility, did not constitute an independent thermal application. Energy Tech. Eng'g Ctr., Rockwell Int'l Corp., 27 F.E.R.C. ¶ 62,190 (1984).

[218] 18 C.F.R. § 292.205(a)(2)(B)(ii) (2000).

[219] *Id.* § 292.205(c).

[220] *Id.*

[221] Metro. Dade County, Fla. v. Energy Sys. Div. of Thermo Electron Corp., 65 F.E.R.C. ¶ 61,090, at 61,539 (1993); Nelson Indus. Steam Co., 38 F.E.R.C. ¶ 61,162, at 61,445-46 (1987) (denial of request for temporary waiver; no energy savings demonstrated).

[222] Nelson Indus. Steam Co., 38 F.E.R.C. ¶ 61,162, at 61,446 (1987) (sixty month waiver of efficiency standards denied).

Where a waiver is permitted, it is where there is a short-term temporary need for the waiver, typically associated with problems with start-up and shake-down of the facility. It is not fatal if the waiver is requested after the fact.[223] Temporary waivers in these limited circumstances have been granted by FERC from the output requirement and the efficiency requirement.[224] FERC has waived, on a case-by-case basis, the QF efficiency standard where additional capacity is required by the local utility to meet temporary emergency capacity shortfalls.[225]

ii. *Output Parameters*

At least five percent of total QF cogeneration energy output must be useful thermal energy.[226] This threshold is used to assure that a project cogenerates two useful forms of energy. In 1995, the Commission considered how to calculate the useful thermal energy output of a QF that produced and sold steam to a thermal host.[227] FERC calculated the QF's "useful thermal energy" as the thermal content of the steam *delivered*, rather than the thermal content of the steam *used*.[228]

FERC articulates that thermal output is "useful" if it has "an independent business purpose with some economic justification."[229] However, the Commission has stopped short of

---

[223] Altamont Cogeneration Corp., 62 F.E.R.C. ¶ 61,206, at 62,298 (1993).

[224] The Commission has exercised its waiver authority in a number of cases based on factors such as the limited duration of the requested waiver; the fact that noncompliance was confined to the testing stage and that further waivers would therefore be unnecessary; and the fact that granting waiver would fulfill PURPA's goal of encouraging cogeneration development. 18 C.F.R. § 292.205(c) (2003). *See also* 16 U.S.C. § 825h (2000) (granting FERC general authority to waive regulations as the Commission "may find necessary or appropriate").
See LG&E-Westmoreland Hopewell, 62 F.E.R.C. ¶ 61,098, at 61,711 (1993); Archbald Power Corp., 53 F.E.R.C. ¶ 61,324, at 62,199 (1990); Consol. Power Co., 52 F.E.R.C. ¶ 61,220, at 61,778 (1990).

[225] FERC granted a request in 1990 to allow a QF to generate an additional 2 MW of power even if that resulted in it not meeting the QF efficiency standards for cogenerators. This waiver was conditioned on there being a system emergency in the New England Power Pool and that the particular cogenerator was specifically called on to generate a maximum capacity. Consol. Power Co., 52 F.E.R.C. ¶ 61,220, 61,778 (1990).

[226] 18 C.F.R. § 292.205(a) (2003).

[227] Megan-Racine Assocs., Inc., 73 F.E.R.C. ¶ 61,308, 61,862 (1995).

[228] *Id*.

[229] Electrodyne Research Corp., 32 F.E.R.C. ¶ 61,102 (1985) (80 MW topping

articulating a rule to determine when a thermal application is "useful." "Useful output" must be used for heating or affecting a chemical or physical change as part of a process that demonstrates economic significance.[230]

Two FERC opinions demarcate the basic boundaries of what satisfies the requirement of at least five percent "useful" thermal output from a QF facility. This requirement was met where thermal energy by-product was used to raise the temperature of water by forty degrees for heating aquaculture ponds, where there was the requisite economic "independent benefit" in the thermal energy use.[231] Where FERC found that a similar aquaculture application was not independent, but was merely an attempt to dump cooling water from a conventional power plant design, cogenerator QF status was denied.[232] The independent basis for the thermal energy application is critical to satisfy FERC's five percent thermal output minimum. This independent basis must not be related to the power generation process, such as the use of thermal energy to assist in fuel scrubbing or fuel preparation before combustion.[233] The use of thermal energy to produce electricity or mechanical energy, for example, is not a thermal output by FERC's definition of usefulness.[234]

---

cycle cogeneration facility where steam would be used to dry an affiliate's anthracite coal). The QF must present quantitative evidence that a person contemplating the use of thermal energy would find it economical to pursue, absent the incentive to qualify as a cogeneration facility. Otherwise, the QF may find that the cost of the thermal output exceeds its value but that the opportunity to sell power as avoided cost rates more than makes up for the diseconomy.

[230] *Id.*

[231] FERC found persuasive that evidence of the economics of the aquaculture venture was offered, the temperature of the aquaculture operation would be controlled, and the thermal output was substantially greater than the required minimum five percent of total output (indicating that the thermal application was not a mere afterthought). The thermal application had viable independent economic significance. John W. Savage, 28 F.E.R.C. ¶ 61,273, at 61,501 (1984).

[232] The Commission did not believe that fuel would be burned independently for an aquaculture application, absent the PURPA regulatory benefits. Nothing distinguished this thermal application from exhaust of thermal energy in a conventional powerplant operation. The Commission found that thermal applications such as power plant feedwater, deaerating and fuel preparation are internal to the power production cycle, and therefore, inapposite to the thermal output requirement. EG&G, Inc., 16 F.E.R.C. ¶ 61,060 (1981).

[233] *Id.*; *see also* LaJet Energy Co., 43 F.E.R.C. ¶ 61,288, at 61,789 (1988) (steam may not merely enhance generation of electricity in another facility); Everett Energy Corp., 45 F.E.R.C. ¶ 61,314, at 61,999 (1988).

[234] *See* LaJet Energy Co., 43 F.E.R.C. ¶ 61,288, at 61,789 (1988), *reh'g*

When a QF files with FERC stating that it will achieve QF status, there is a rebuttable presumption that the thermal output is "useful."[235] "Usefulness" is determined by any common industrial or commercial application.[236] If the use is not common, a more exacting two-part standard is applied. Where a thermal energy using facility is not related to the QF, either plausible evidence of an arm's length market transaction for the thermal energy or an end product produced with the aid of the thermal output can establish its "usefulness." [237] However, if the thermal energy user is affiliated with the QF, a more careful examination without a presumption of legitimacy is applied by FERC.[238] If a challenger

---

denied, 44 F.E.R.C. ¶ 61,070 (1988).

[235] Kamine/Besicorp Allegany L.P., 63 F.E.R.C. ¶ 61,320, at 63,157-58 (1993).

[236] *Id*. The Commission adjudges the thermal output presumptively useful, regardless of the user's relationship to the cogeneration facility. *See* LaJet Energy Co., 44 F.E.R.C. ¶ 61,070, at 61,194 (generally, the commission accepts as useful any common industrial or commercial thermal application, such as space heating, crop drying, or chemical process use).

[237] The Commission defines the term "affiliate" when used in relation to any person or entity, as another person or entity that controls, is controlled by, or is under common control with such person or entity. Electrodyne Research Corp., 32 F.E.R.C. at ¶ 61,102 at 61,278 n.8. Affiliate use of QF power raises the issue of whether the proposed arrangement is the result of arm's length negotiations. *See* Overland Energy Corp., 43 F.E.R.C. ¶61,224, at 61,575 (1988).

[238] Common suppliers and financiers are not evidence of an affiliation between the QF and its thermal energy host. The ultimate determination of usefulness will be made in the marketplace. Kamine/Besicorp Allegany L.P., 63 F.E.R.C. ¶ 61,320, at 63,158 (1993). Under the "plausible evidence" standard, applicants might submit quantitative data, statements by or contracts with potential purchasers, or such other evidence of a market as is available. *Id*. In *River Delta Cogeneration*, 40 F.E.R.C. ¶ 62,103, at 63,175 (1987), the thermal energy output was sold to a non-affiliated purchaser for use in a brine desalinization plant pursuant to an arm's-length contract. The contract for sale of the thermal energy rather than the distillation application established, prima facie, the usefulness of the thermal output. *Id*.

In *Rio Grande CoGen., Inc.*, 39 F.E.R.C. ¶ 62,082, at 62,236 (1987), the proposed use involved steam for heating heavy oils and in a non-affiliated desalinization plant to provide fresh water for the City of Brownsville, Texas. The provision of water for an entire city manifested an arm's length market for the output, i.e., water, to make out a prima facie showing of usefulness. *Id*. at 62,236-37. *Cf*. LaJet Energy Co., 44 F.E.R.C. ¶ 61,070, at 61,193-94 (1988) (finding an obligation to review the economic justification once presented, refusing to find presumptively useful an affiliated water distillation process of smaller proportion). Thus, where a non-affiliated thermal host uses the non-electric output, plausible evidence of an arm's-length transaction makes a prima facie case for usefulness, according to FERC.

rebuts or raises questions about qualification, FERC may review the actual contracts for thermal energy use to reach a decision.[239]

If, however, the cogenerator or an affiliate use the output in an innovative fashion, the Commission requires qualitative evidence of economic justification.[240] Under the affiliate use test, the applicant may provide a cost-benefit analysis[241] or submit other evidence of a market establishing economic viability.[242]

The Commission fails to require "economic usefulness" of thermal output when the application produces an end product for which a market is established—the independent business test does not apply.[243] Accordingly, FERC did not need to consider statements by QF personnel claiming innovative recovery of thermal energy in providing refrigeration for an adjacent ice skating rink.[244]

Thermal applications which would not be undertaken, but for the by-product availability of inexpensive thermal energy, are not "useful" thermal applications. Use of by-product thermal energy for agricultural purposes are particularly suspect, because conventional power plants dump waste thermal energy into the water or the air.[245] However, where there is a close sizing of the

---

[239] Kamine/Besicorp Allegany L.P., 63 F.E.R.C. ¶ 61,320, at 63,158 (1993) (no review of contracts due to presumptive usefulness of application).

[240] Electrodyne Research Corp., 32 F.E.R.C. ¶ 61,102, at 61,279 (1985).

[241] *See, e.g.*, Long Island Cogeneration Ltd. P'ship, 40 F.E.R.C. ¶ 62,272, at 63,442 (1987) (cost-benefit analysis submitted to support use of thermal energy output in a sludge waste processing system).

[242] *See, e.g.*, Freeport-McMoran Inc. and Gunnison Capital, Ltd., 38 F.E.R.C. ¶ 61,059, at 61,165 (1987) (evidence that the product had been marketed for many years and the revenues from its production have at times been sufficient to maintain operations and induce capital expenditures); York Canyon Cogeneration Assocs., 44 F.E.R.C. ¶ 61,101, at 61,288 (1988) (York Canyon proposed the recovery of steam to produce hot oil for purchase by an affiliated user in a thermal coal drying operation. The commission found that neither the thermal coal drying process, nor the application of a QF's thermal output to produce dry coal were common. As a result, York Canyon provided evidence of an escalating future sales price, and a cost-benefit analysis projecting profitability based on the transportation cost savings and increased value of coal with a lower moisture content.).

[243] *See* Polk Power Partners, L.P., 61 F.E.R.C. ¶ 61,300, at 62,128 (1992).

[244] Arroyo Energy, Ltd. P'ship, 62 F.E.R.C. ¶ 61,257 at 62,723 (1993). The innovative use of technology to produce ice did not trigger the independent business purpose test because, the Commission explained, "ice is a universal product and its use in ice skating rinks is also common."

[245] EG&G, Inc., 16 F.E.R.C. ¶ 61,060 (1981) (here, the aquaculture facility would not burn natural gas to heat pond water but for the desire to achieve QF

facility to the *thermal* needs of the facility, rather than sizing to the maximum *electric* output available, an agricultural use of the thermal output can pass muster as "useful" thermal output.[246]

Where the facility is sized for maximum electric output and revenues, where the heat that is produced is not efficiently used and controlled, where the heat-using facility is not independent, or where the product is not economic (i.e., the product is dumped on the market to justify the QF status and electric production), the thermal application may not be "useful."

FERC finds presumptively useful a common, if inefficient, application of thermal output.[247] The distillation of water originally was not, but now is, considered a "useful" thermal output application. In *Bayside Cogeneration*, the Commission explained that it had reviewed sufficient applications to declare the use of thermal energy to water distillation as common and, therefore, presumptively useful.[248]

FERC had held that the thermal output of a QF under PURPA need not be economic to be considered "presumptively useful."

---

status for the facility).

[246] John W. Savage, 28 F.E.R.C. ¶ 61,273, at 61,501 (1984). Here, there were four factors which allowed an aquaculture thermal use to qualify as "useful." First, the facility was sized to deliver the appropriate amount of thermal energy—more than fifty percent of the useful energy output was thermal energy. Its primary purpose was not the production of electric power. Second, there was independent economic significance to the production of fast-maturing catfish. The production of catfish achieved a profit. Third, there was no relationship between the electric and thermal projects. Both here independent of the other. Fourth, the heat was adequately controlled to best use the thermal output. *Id.*

[247] Polk Power Partners, L.P., 61 F.E.R.C. ¶ 61,300 (1992). Specifically, Liquid Carbonic asserted that the flue gas method of carbon dioxide employed by Lavair is much more expensive and inefficient than the conventional method of recovering carbon dioxide as a waste gas from another industrial process. *Id.* at 62,126. It also argued that the Florida market for carbon dioxide is easily met with the plant which Polk proposes. *See* Polk Power Partners, L.P., 61 F.E.R.C. ¶ 61,030, at 61,162 (1992). Liquid Carbonic Industries Corporation, a competing carbon dioxide producer, submitted evidence that the QF's thermal hosts failed to employ the most economic process of carbon dioxide production and could not exist viably without subsidies from electric sales. The commission found no reason to investigate the presumption of usefulness because it had certified fourteen other such facilities. Moreover, six of the QFs involved unaffiliated thermal hosts, demonstrating that there was a market for thermal output to produce carbon dioxide. Therefore, FERC upheld certification of all three facilities, noting concern that a potential competitor could undermine PURPA by alleging that a thermal process is not the most economic, no matter how common the process. Polk Power Partners, L.P., 61 F.E.R.C. ¶ 61,300, at 62,127 (1992).

[248] Bayside Cogeneration, L.P., 67 F.E.R.C. ¶ 61,290, at 62,007 (1994).

The FERC opinion rested on the finding that there is no statutory requirement that the thermal output be used in a cost-effective or economic manner.[249] "Presumptively useful" to FERC means that, in theory, such a thermal energy project *could* be economically useful. It is irrelevant if in fact it is useful in the specific circumstances for a specific project, or is effectively a sham.[250]

Brazos Electric Power Cooperative, Inc. opposed FERC's determination of what is "useful thermal energy" generally, and whether water distillation constitutes an economically justified business purpose, per se.[251] Tenaska found support in Brooklyn Navy Yard Cogeneration Partners, L.P.,[252] a project that planned to use cogenerated steam to process the waste water effluent of a water pollution control plant in order to produce distilled water. FERC, in that case, declined to investigate the actual use of a product that "has already met the Commission's usefulness requirement."[253] FERC then decided in 1998 that there is a presumption of usefulness even when the facts indicate that

---

[249] Brazos Elec. Power Coop. v. Tenaska IV Texas Partners, Ltd., 83 F.E.R.C. ¶ 61,176, at 61,727 (1998).

[250] *Id*. The appeal was taken to the U.S. Court of Appeals for the Fifth Circuit. Brazos Elec. Power Coop. v. Fed. Energy Reg. Comm'n, 205 F.3d 235 (5th Cir. 2000). In response, the project owner, Tenaska, began exploring several alternative uses for the purified water product made with the thermal output. In theory, this might attract additional companies to the host city industrial park. The very fact that the project sponsor was looking for alternatives for the water, which on paper was sold to the city, rather than the city looking for such alternative uses, underscores the suspicious nature of the economic relationships involved with a particular thermal application.

[251] In an effort to obtain QF status, Tenaska IV Texas Partners initially applied for certification representing that extracted steam would be used to dry brewer's spent grains which would then serve as livestock feed. The Texas Public Utilities Commission certified the power purchase agreement, and, less than two weeks later, Tenaska filed a new notice of self-certification stating that low pressure steam would be used to distill water for sale to a third party. A few months later, FERC certified the facility based on the same representations regarding the use of thermal output. Brazos alleged that the distilled water produced by the QF is not useful because it is "returned to the city" and disposed of into the city's sewer system. The QF maintained that it satisfies operating and efficiency standards, and that its application of the thermal output to produce distilled water is "common" and thus "presumptively useful." Motion of Brazos Electric Power Cooperative, Inc. to Intervene and to Request Revocation of Qualifying Facility Status For Plant Operated by Tenaska IV Texas Partners Ltd. at 7-11, Brazos Elec. Power Coop. v. Tenaska IV Texas Partners, Ltd., 83 F.E.R.C. ¶ 61,176 (1998) (No. QF94-84-003).

[252] Brooklyn Navy Yard Cogeneration Partners, 74 F.E.R.C. ¶ 61,015 (1996).

[253] *Id*. at 61,046.

thermal output is not useful, is not used in an economic manner, or is being discarded, as long as there is a common usage in theory for the output, making it "presumptively useful" thermal energy.[254]

b. *Renewable Small Power Production*

There is a second way that self generation can attain QF status. Small power production facilities are waste- or renewable energy-fueled free-standing electric generating units. They may be independent power producers which only produce electric power or power producers which do not produce thermal energy in excess of five percent of the facilities' total output.[255]

i. *Size Parameters*

Although there are no applicable efficiency or operating requirements, small power producers are limited in size to less than 80 MW[256] at the same site,[257] except as of 1990, renewable energy-fueled and industrial waste byproduct-fueled facilities may exceed 80 MW.[258] Some QF units that are too large to qualify for QF exemptions based on their engineering and technology have

---

[254] Brazos Elec. Power Coop. v. Tenaska IV Texas Partners, Ltd., 83 F.E.R.C. ¶ 61,176, at 61,727 (1998).

[255] 18 C.F.R. §§ 292.203(a), .204(a)-(b), .206 (2003).

[256] A small power producer that exceeds a 30 MW threshold can still qualify if its generating source is biomass energy. 16 U.S.C. § 824a-3(e)(2) (2000). Biomass is any organic matter not derived from fossil fuels. It includes agricultural waste, wood, and refuse. 18 C.F.R. § 292.202(a) (2003). To be considered biomass, the fuel must consist of at least fifty percent of such matter, thereby permitting some blending of fuels. 18 C.F.R. § 292.204(b) (2003). There is no clue in the legislative history as to why the distinction for small power production facilities greater or less than 30 MW was enacted. Both the 30 MW limit for additional exemptions and the ultimate 80 MW cap appear arbitrarily selected and not based on any technologic, economic, or environmental criteria.

[257] Facilities within a one mile radius (measured from their respective generating equipment) are deemed to be at a common site; hydroelectric facilities that utilize the water from the same impoundment are deemed at a common site. 18 C.F.R. §292.204(a)(2) (2003). In this instance, nine distinct ridgetops in a region were designated for installation of wind turbines ranging in size from 5 to 25 MW each, with an aggregate installed capacity of 87.5 MW. The applicant sought successfully a determination that each of the nine locations could be individually regarded as a separate site of less than 30 MW. Windfarms, Ltd., 19 F.E.R.C. ¶ 61,220, at 61,435 (1982).

[258] *See supra* note 177.

qualified by downlisting the rating of the prime mover so that it appears legally to be smaller than it actually is.[259]

FERC denied QF status to a second waste incinerator within one mile of another waste incinerator owned by the same county agency, where their combined capacity exceeded 80 MW.[260] For purpose of determining the size of a small power production facility, project size/capacity can be determined at the busbar[261] after interconnection line losses, rather than at the point of project sendout to the interconnection line.[262]

FERC declined to grant QF status to a proposed small power production facility comprised of two methane production facilities associated with municipal sewage treatment plants located forty-five miles apart. The methane would be traded to a natural gas company that, in return, would provide natural gas at a third location to supply a 20 MW small power producer.[263] It appeared that this concept's failure to gain QF status was related not so much to its disparate sites or convoluted trading structure, but, rather, to the fact that the fuel ultimately burned would be pipeline quality natural gas, which eliminates the possibility of being certified as a QF under FERC regulations.[264] FERC found unconvincing the petitioner's argument that the gas was acquired

---

[259] For example, in New York State units owned by Besicorp Group and by Kamine Development Corp. with technologically rated turbines at 100 Mw, listed the ratings at 79 Mw to qualify under applicable New York statute for certain QF benefits. *See* Kamine/Besicorp Syracuse L.P., 78 F.E.R.C. ¶ 61,356, at 62,496 (1997).

[260] Pinellas County, Fla., 50 F.E.R.C. ¶ 61,269 (1990).

[261] The busbar is the first utility distribution system line into which the independent power project interconnects, typically at the crossbar or "busbar" on the nearest utility company pole.

[262] Regulations Governing the Public Utilities Regulatory Policies Act of 1978, 53 Fed. Reg. 31,021, 31,041-42 (Jul. 29, 1988). This reversed a prior FERC determination allowing subtraction of line losses and measuring capacity at the point of interconnection. *See* Malacha Power Project, Inc., 41 F.E.R.C. ¶ 61,350 (1987). This previously measured the actual amount of power delivered to the utility after any line losses, rather than the net power sendout of the project after allowance for on-site consumption, as the determinative value. In this instance, it rendered Malacha Power at a net capacity of no more than 30 MW and thus exempted the project from federal regulation.

[263] Gary Hibbert, 53 F.E.R.C. ¶ 62,259 (1990). The problem with this configuration is that the synthetic waste-derived fuel produced would not necessarily be the same gas that was burned at the remote small power production facility, given that the gas would be blended into the distribution system and transported by a common carriage pipeline.

[264] *Id*.

in exchange for recovered methane, thus in an accounting, if not physical, sense, the small power production facility was offsetting the fossil fuel it consumed with a waste resource.[265]

ii. *Fuel Input Parameters*

A small power producer must employ primarily alternative fuel or waste inputs.[266] The definitions of alternative fuel evolve from case precedent. "Waste" is generally defined as any by-product fuel source that is "unessential and subordinate to the overall economic goal of an industrial process" and currently of "little or no commercial value."[267]

In some limited situations, even conventional fossil fuels can qualify as "waste" material to allow certification as a small power project. FERC defines "waste" to include natural gas which would otherwise be flared and refuse piles of lignite/anthracite.[268] Low- or medium-quality natural gas with minimal commercial value can qualify as a "waste" material.[269] On the other hand, FERC did not consider the downstroke portion of an ordinary oil well pump as "wasted" and did not consider the inertial energy of such a facility to qualify for the benefits of PURPA.[270]

During any calendar year, not more than twenty-five percent of the fuel input into a small power production QF can be from fossil fuels.[271] FERC will grant waivers from the fuel use requirement under several circumstances. In limited situations, fossil fuels can be used in excess of this percentage limitation to enhance overall efficiency.[272] If a project encounters problems

---

[265] *Id*.

[266] 18 C.F.R. § 292.204(b) (2003).

[267] Am. Lignite Prods. Co., 25 F.E.R.C. ¶ 61,054, at 61,288 (1983).

[268] *Id*.; Stieren Farms, 17 F.E.R.C. ¶ 61,260, (1981).

[269] Gabriel Mills Energy Co., 41 F.E.R.C. ¶ 62,288, at 63,645 (1987). The FERC decision classifies gas with a heating value between 300-800 Btu/cubic foot, which is demonstrated to have no commercial value, as a waste. *Id*.

[270] FERC decided that a properly balanced pump would not produce any wasted mechanical energy, and denied the application to consider as a QF an 11 kW pump electric system. Turbine Tech., 31 F.E.R.C. ¶ 61,184, at 61,357 (1985).

[271] Conventional fossil fuels include oil, natural gas, and coal. 18 C.F.R. §292.204(b) (2003).

[272] A facility including approximately 864 solar collector assemblies was used to heat oil used in a heat exchanger to generate steam. Natural gas was employed to superheat the generated steam. A gas-fired boiler also supplies supplemental steam for periods when the solar energy was insufficient to drive

during start-up or testing of a new project, it can receive a waiver.[273] FERC also grants waivers where there are unanticipated problems associated with innovative or novel technologies.[274] Where there is a single unusual event that is outside the normal control of the QF sponsor, a waiver also may be granted.[275] FERC has also allowed waivers where the purchasing utility declares a system emergency and needs additional power.[276] In deciding whether or not to grant a waiver, FERC will consider the duration of the waiver period, financial hardship caused, whether a timely submission of a waiver request is filed, whether this is likely to be a one-time event, employment impacts associated with closing the QF, controversy caused, and how a waiver fits within the general policy goals of FERC.[277]

FERC rejected a request to waive the fuel use limitation for a small power producer while that facility underwent repairs.[278]

---

the heat exchanger, and could be used to supply additional electricity firing on-peak periods. The natural gas and oil input would not exceed twenty-five percent of total energy input. The facility capacity was 30 MW. While the uses of gas under this proposal were not those specifically permitted by PURPA, FERC held that gas could be used for general supplementary purposes up to the twenty-five percent maximum. The gas uses must be "minor" in relation to the primary use of renewable resources. Solar radiation will not always be available in sufficient amount during peak demand periods. FERC found that the supplemental use of natural gas improved overall system efficiency. It is important that the supplemental gas-burning system be sized compatibly with the solar system, and not in excess of that necessary for supplementary purposes. Luz Solar Partners II, Ltd., 34 F.E.R.C. ¶ 61,383 (1986).

[273] *See* Polk Power Partners, L.P., 66 F.E.R.C. ¶ 61,116, at 61,202 (1994); LG&E-Westmoreland Hopewell, 62 F.E.R.C. ¶ 61,098 (1993).

[274] *See* Cont'l Energy Assocs., 50 F.E.R.C. ¶ 61,425, at 62,305 (1990), *order on reh'g*, Cont'l Energy Assocs., 51 F.E.R.C. ¶ 61,243 (1990).

[275] *See* Kramer Junction Co., 61 F.E.R.C. ¶ 61,309, at 62,160 (1992), *order on reh'g*, 64 F.E.R.C. ¶ 61,025 (1993) (weather-related factors temporarily diminished the inherent capability to use renewable energy sources); and Daggett Leasing Corp., 64 F.E.R.C. ¶ 61,148 (1993), *order denying reh'g*, 65 F.E.R.C. ¶ 61,143 (1993).

[276] Luz Solar Partners III, Ltd., 49 F.E.R.C. ¶ 61,070, at 61,274 (1989). This system emergency resulted when Southern California Edison, the purchasing utility, had a curtailment of natural gas to its power generation equipment. It was necessary for the purchasing utility to rely on maximum output of renewable energy facilities. This greater use of fossil fuel at the QF facility caused the QF to exceed its air emission limitations under its air permits. *Id*. at 61,271.

[277] Pac. Gas & Elec. Co. v. Red Top Cogeneration, L.P., 84 F.E.R.C. ¶ 61,138, at 61,757 (1998); *see* Cedar Bay Generating Company, 67 F.E.R.C. ¶ 61,350, at 62,214-15 (1994);

[278] New Charleston Power I, L.P., 65 .F.E.R.C. ¶ 61,378, at 63,027 (1993).

Essentially, this would force the QF to shut down or scale back its production during the repair period to stay within the fuel use requirements.

4. *Criteria for Ownership*

Whether cogenerator or small power producer, a QF must not be primarily owned by an electric utility, an electric utility holding company, or a subsidiary of either.[279] Implementing rules define greater than fifty percent cumulative equity ownership by any such regulated electric utility entities as disqualifying the project from QF status.[280] A partially- or wholly-owned subsidiary of an electric utility or a utility holding company is treated as utility ownership in applying the fifty percent limitation.[281] There are very limited but critical exceptions to this definitional structure which allow certain wholly-owned subsidiaries of electric utility holding companies to wholly own QFs.[282]

PURPA itself is silent regarding ownership by utility subsidiaries. In one sense, FERC conservatively construed the PURPA statutory limitation by restricting utility subsidiary ownership of a QF by the same parameters as the restriction of parent utility company ownership. In another sense, FERC liberally construed the statutory ownership limitation by defining utility ownership as ownership only in excess of a fifty percent equity share. State regulatory commissions can further limit investments in QFs by the electric utilities they regulate.[283]

FERC bases QF certification on the sale of a facility's net output power measured at the point of sale.[284] For purposes of size and efficiency determinations, net output power is the gross output power of a facility minus the power utilized on-site.[285] Therefore, a facility may exceed the fifty percent utility ownership limitation until the point of commercial operation without jeopardizing

---

[279] 18 C.F.R. § 292.206(a) (2003).

[280] *Id*. § 292.206(b).

[281] *Id*.

[282] *Id*. § 292.206(c).

[283] States have plenary power over investments of regulated investor-owned utilities. *See* CHARLES F. PHILLIPS, JR., THE REGULATION OF PUBLIC UTILITIES 87-88 (3d ed. 1984).

[284] Conn. Valley Elec. Co. v. Wheelabrator Claremont Co., 82 F.E.R.C. ¶ 61,116 (1998)

[285] *Id*.

ultimate QF status.

FERC interprets the fifty percent utility ownership limitation as permitting the subsidiary of a regulated electric utility to invest more than fifty percent of the capital in a QF project as long as it retains no more than fifty percent of the equity interest.[286] If capital contributions do not reflect management control they do not affect equity. A partner's entitlement to profits, losses, and surplus (stream of benefits) is the most determinative factor in determining a partner's equity position in a facility.[287] FERC has limited its discussion of equity interests to situations where partners own facility assets on an undivided basis and no shares of stock are outstanding.

In a 1987 ruling, FERC held that a return of capital contribution is a mere return of debt and not part of the equity interest.[288] This effectively allowed the utility partner to receive larger distributions of cash flow until its initial capital contribution is repaid.[289]

In 1988, FERC granted QF status to a project where the utility subsidiary co-owner received more than fifty percent of the tax depreciation on the facility for the first five years of operation. All other streams of benefits were distributed equally.[290] FERC agreed that, by taking all of the tax depreciation benefits, the utility

---

[286] Ultrapower 3, 27 F.E.R.C. ¶ 61,094, at 61,184 (1984). One of the two general partners was a wholly owned subsidiary of Tucson Electric Power Company which made an initial capital investment of $5 million; the other nonutility partner contributed $2.5 million. The partnership agreement provided a half interest in all decisions, profits, losses, and tax consequences to each general partner. Even though capital contribution provided one partner greater balance sheet assets, FERC indicated that the capital contribution was debt and not equity. Therefore the utility partner did not exceed the fifty percent equity limitation by contributing twice as much capital as the nonutility partner.

[287] *Id.*

[288] Prodek/Hydro Resources Joint Venture, 41 F.E.R.C. ¶ 61,152 (1987). This 25 kW hydro project is owned by a general partnership with Prodek and a utility subsidiary each retaining fifty percent control. The utility partner contributed ninety percent of the initial capital contribution, while Prodek supplied services in-kind. Net cash flow would be distributed to the two partners in proportion to capital contribution until repayment of the entire contribution, thereafter equally. This arrangement was rejected due to imbalance in payment resulting from the time value of money. *But see* NYSD Ltd. P'ship, 53 F.E.R.C. ¶ 62,223 (1990) (utility partner taking more than fifty percent tax benefit can be offset by its greater than fifty percent capital contribution).

[289] *Id.*

[290] James River Cogeneration Co., 44 F.E.R.C. ¶ 61,352 (1988).

partner's claim to assets at the dissolution of the joint venture correspondingly lessened. Although the utility partner received more than fifty percent of the tax depreciation, the nonutility partner received more than fifty percent of the claim at dissolution.[291] Provided the partnership takes the time value of money into account, utility partners may trade away future capital account assets for current tax depreciation benefits.[292]

Since 1991, FERC has let utility partners take more than fifty percent of the stream of benefits early in the partnership, in an exchange for a promise that over the life of the partnership, it will not exceed the fifty percent equity limitation.[293] In 1996, FERC found that where a utility holding company took more than fifty percent of the stream of benefits from a project, it would lose its QF status.[294] The stream of benefits calculated the value of loans to the project by the utility owner and the resultant control over the facility's management committee.

The Commission also effectively may waive the ownership limit by declaring that a retail sale of electricity does not qualify

---

[291] *Id*. at 62,189.

[292] *Id*.

[293] Zond Sky River Dev. Co., 57 F.E.R.C. ¶ 62,019, at 63,027 (1991). "[The utility partner] has committed that, when it ceases its participation in this facility, it will submit a report showing the net present value of the actual benefits it has received . . . and will pay to the remaining nonutility participants any amount required to limit its share of benefits to 50% over the years of its participation." *Id*. The record mentioned in *Zond* is called a true-up agreement. Some partnerships employ "on-going" true-up agreements which mandate that prior to certain transactions or at specific times in the partnership (end of power sales agreement, annually, sale of any interest, etc.) the partners must make an accounting and ensure the fifty percent limitation has not been exceeded. Acme Posdef Partners, L.P., 63 F.E.R.C. ¶ 62,127, at 64,204 (1993).

[294] FERC found:

> While Brooklyn may be correct in stating that [the utility holding company] cannot unilaterally change allocation of half of the profits from the facility, [the holding company] in fact can take actions that result in additional payments to [it] for interest or services that would be above the level which would be paid to an independent entity . . . thus [the utility holding company] can accomplish indirectly (by charging excessive service fees or interest rates) what it cannot do directly (take more than half of the facility's profits).

Brooklyn Navy Yard Cogeneration Partners, L.P., 74 F.E.R.C. ¶ 61,015, at 61,048 (1996). Shortly after this ruling, the project's owners amended their partnership agreement to require approval of both parties for loans and services provided to the project, and refiled with FERC for QF certification.

the selling entity as an "electric utility."[295] In particular, FERC sanctioned QF status for a real estate development corporation generating and reselling electricity to building tenants, based on the theory that the corporation was not an "electric utility" and thus could wholly own the QF project.[296] A sale-leaseback to an electric utility, however, may not avoid the ownership limitation.[297]

5. *Utility Purchases of Power from QFs*

a. *Rates for Purchase*

Regulated and unregulated electric utilities are directed to purchase energy and capacity offered to them by QFs.[298] PURPA provides that rates for purchase of this power are required not to be in excess of the "incremental cost" of the power supply to the purchasing utility, and must be both "just and reasonable" to electric utility customers and be in the public interest.[299]

By regulation, FERC defined the "incremental cost" of a purchasing utility as its "avoided cost" and dictated that this avoided cost was the requirement for electric utilities purchasing QF power.[300] FERC regulations define "avoided costs" as "the incremental costs to an electric utility of electric energy or capacity or both which, but for the purchase from the qualifying facility, such utility would generate itself or purchase from another source."[301] The Supreme Court upheld FERC's discretion to set the price that utilities must pay for QF power at the ceiling value allowed by the Congress.[302] All electric utilities must purchase

---

[295] Riverbay Corp., 25 F.E.R.C. ¶ 61,316, at 61,718 (1983); Lawrence Park Heat, Light & Power Co., 25 F.E.R.C. ¶ 61,315 (1983).

[296] Riverbay Corp., 25 F.E.R.C. ¶ 61,316, at 61,718 (1983).

[297] Allegheny Elec. Coop., Inc., 47 F.E.R.C. ¶ 61,015 (1989). A lessee entity that fails the electric utility ownership limitation, controls the power facility and enjoys an option to purchase at the end of the lease term, "owns" the facility for the purposes of this test. Substance is emphasized over form of the transaction in evaluating which party (the lessee) enjoys the "stream of benefits" and is the putative "owner." *Id.*

[298] 18 C.F.R. § 292.303(a) (2003).

[299] 16 U.S.C. § 824a-3(b) (2000); 18 C.F.R. § 292.304(a) (2003).

[300] 18 C.F.R. § 292.304(a)(2), (b) (2003).

[301] *Id.* § 292.101(b)(6).

[302] Am. Paper Inst. v. Am. Elec. Power Serv. Corp., 461 U.S. 402, 413 (1983).

power offered to them by QFs.[303] This obligation is absolute whether QF power is supplied by a QF within the service territory, or transmitted—wheeled—to it through the service territory and transmission system of another utility.[304]

Rates required to be paid by utilities for QF power must simultaneously satisfy three criteria: (1) they must be "just and reasonable" to electric consumers of the purchasing utility, (2) in the public interest, and (3) not discriminatory against QFs.[305] One rate determination must simultaneously satisfy all three criteria. The purchasing utility's avoided cost satisfies the criteria.[306] Nothing in PURPA requires a purchasing utility to pay more than avoided cost.[307] States cannot set QF power purchase rates at less than utilities' avoided costs for new capacity.[308] However, some states initially required utilities to pay in excess of avoided cost for QF power.[309] Although QF rates are necessarily estimated for the purposes of entering a long-term contract, the avoided cost concept is not violated by such estimates.[310]

Each state regulatory commission, for each electric utility it regulates, and unregulated electric utilities on their own accounts, must calculate the variable costs and fixed capacity costs that the utility avoids by purchasing blocks of QF power.[311] The constitutionality of this federal action-forcing statute vis-à-vis the states, was initially held unconstitutional by a federal district court; however, on appeal, the Supreme Court narrowly upheld the statute.[312]

FERC announced that once a contract for power sale is

---

[303] *Id*. § 292.303(a).

[304] *Id.*

[305] *Id*. § 292.304(a).

[306] *Id*. § 292.304(b)(2).

[307] *Id*. § 292.304(a)(2).

[308] *Id*. § 292.304(b)(1), (3). "New capacity" is defined by regulation as QF capacity constructed after November 9, 1978. *Id*. § 292.304(b)(1).

[309] New York established a minimum $0.06/kWh rate (later repealed) in excess of short-term avoided cost. *See* Consol. Edison Co. v. Pub. Serv. Comm'n of N.Y., 472 N.E.2d 981 (N.Y. 1984).

[310] 18 C.F.R. § 202.304(b)(5) (2003).

[311] *Id*. § 292.304(e). Relevant factors include peak loads, purchased power agreements, the value of electric power, the ability to defer capacity additions and net line losses. *Id.*

[312] Fed. Energy Regulatory Comm'n v. Mississippi, 456 U.S. 742, 762 (1982).

signed, it thereafter is too late to challenge whether a particular power sale rate exceeds avoided costs.[313] Several circuit courts have stated that FERC may not entertain any requests to invalidate on preemption grounds any preexisting contracts where the avoided cost issue could have been previously raised.[314] A federal district court ruled that it had no authority to deal with rates or regulation at the state level affecting an individual QF. [315] Instead, it ruled that it only had authority to ensure that states implemented QF regulations.[316]

FERC regulations specify three considerations each state regulatory commission should consider in establishing "avoided cost" rates.[317] First, all QF power quality is not identical. State regulatory commissions are directed to evaluate the availability of any particular QF power to be available at daily and seasonal peak demand times.[318] Factors relevant to availability include the dispatchability of the power, reliability, maintenance requirements that take the QF off-line, and availability at times of system emergencies.[319]

Second, avoided costs may only reflect the particular capacity situation faced by each electric utility.[320] Therefore, utilities may offer very different avoided cost rates. A QF offering capacity and energy to the utility is entitled to the utility's full avoided capacity costs for any year in which the utility has capacity additions in its supply forecast or plan.[321] This comports with the federal requirement to pay the QF the purchasing utility's full avoided

---

[313] Conn. Light & Power Co., 70 F.E.R.C. ¶ 61,012 (1995).

[314] Williams Natural Gas Co. v. Fed. Energy Regulatory Comm'n, 3 F.3d 1544, 1554 (D.C. Cir. 1993) (denying retroactive effective date to an agency rule to protect expectations of those relying on preexisting rule); Aliceville Hydro Assocs. v. Fed. Energy. Regulatory Comm'n, 800 F.2d 1147, 1152-53 (D.C. Cir. 1986); Perlman v. Fed. Energy Regulatory Comm'n, 845 F.2d 529, 534 (5th Cir. 1988) (no retroactive effect to a new FERC rule);.

[315] Mass. Inst. of Tech. v. Mass. Dep't of Pub. Utils., 941 F. Supp. 233, 238 (D. Mass. 1996).

[316] *Id*. at 237.

[317] 18 C.F.R. § 292.304(e) (2003).

[318] *Id*. § 292.304(e)(2). Peak periods of demand are usually during the period approximately from 8:00 A.M. to 9:00 P.M. during warmest summer and/or coldest winter months.

[319] *Id*. These are qualitative variables which indicate whether the QF can be controlled as can power generating facilities owned and operated by the utility.

[320] *Id*. § 292.304(e)(3).

[321] *Id*. § 202.304(b)(5).

costs, which include avoided capacity and avoided energy. Third, the avoided cost paid by a purchasing electric utility can reflect the net power actually delivered to the utility's load center.[322]

It is permissible under PURPA to sell QF power to a neighboring territory rather than to a host utility. If the host territory utility refuses to wheel QF power, it must offer to purchase the power.[323] The Energy Policy Act of 1992 allows QFs to obtain wholesale power wheeling. FERC has the power to order utility wheeling.[324]

Small QFs producing 100 kW or less are entitled under federal law to benefit from standardized tariffs.[325] Several states extend the standardized tariff to larger facilities.[326] Utilities are also allowed to temporarily suspend purchasing power from QFs in situations in which such purchases would increase the operating costs of the utility.[327]

b. *Net Versus Gross Power Sale*

There is a controversy presented in several states regarding whether a QF is entitled to sell only net power,[328] or if it can sell gross power output, regardless of its on-site power requirements. Many QFs were purchasing supplemental power from the host native utility in an amount equal to their internal needs, thereby allowing the maximum sale of nameplate generating capacity output back to the utility at avoided cost rates. The question arises as to *whose* power is actually being (re)sold to the purchasing utility.

The issue of sale of gross versus net QF power output was touched upon in early FERC decisions but never squarely addressed until 1998.[329] Early in the QF era, the commission

---

[322] A certain amount of electricity transported by wire is lost as by-product heat in the process of transmission. Power purchased can be net of line losses under conventional power transactions. *Id*. § 292.304(e)(4).

[323] *Id*. § 292.303(a), (d).

[324] 16 U.S.C. § 824a-3(a) (2000).

[325] 18 C.F.R. § 292.304(c) (2003).

[326] Pennsylvania raised this limit to 500 kW; 52 PA. CODE § 57.34(b)(3) (2004); Massachusetts has a 1 MW limit. MASS. REGS. CODE tit. 220, § 8.05 (2004).

[327] 18 C.F.R. § 292.304(f) (2003).

[328] Net power is defined as gross facility power output, reduced by the amount of native load, or power consumed by the QF for its own internal needs.

[329] Conn. Valley Elec. Co. v. Wheelabrator Claremont Co., 82 F.E.R.C. ¶

determined that the "power production capacity" of a geothermal QF is equal to the maximum net output that the facility safely and reliably achieves under the most favorable operating conditions likely to occur over its lifetime.[330] The net output was determined to be what the QF sends out after all station use of power for auxiliary equipment and other electricity uses at the facility.[331] FERC later clarified that line losses incurred while moving power from its point of generation to its point of grid interconnection must be deducted to determine net output.[332]

FERC interpreted that the prohibition on selling in excess of net output could cause a QF to violate the PURPA prohibition that the unit must be owned by a person not primarily engaged in sale of electric power, unless such sale of power was solely from cogeneration facilities or small power production facilities.[333] In its 1991 decision in *Turners Falls*, FERC first articulated that while QFs are entitled to simultaneously buy and sell power, they are not allowed to sell power in excess of their net outputs.[334] FERC explains the meshing of these two principles—simultaneous QF buy-sell and sale only of net output—as necessary to separate the production and consumption functions of a QF.[335]

FERC distinguishes between the power purchases of a cogeneration QF and a small power producer QF. First, for purposes of auxiliary station power requirements, FERC does not allow any QF to displace native power with power supplied by the purchasing utility, and it may not sell gross power and buy back from the utility power it requires for such station uses.[336] By contrast, a cogeneration QF is deemed to be able to supply its host facility's electricity needs, depending upon whether such a sale is permitted under state law. A cogenerator could sell its entire net

61,116 (1998), *reh'g denied*, 83 F.E.R.C. ¶ 61,136 (1998).

330 Occidental Geothermal, Inc., 17 F.E.R.C. ¶ 61,231 (1981).

331 *Id*. This case construed whether the net or gross output facility was used for purposes of determining whether the facility was below the 80 MW limitation of PURPA for geothermal QF projects.

332 Malacha Power Project, Inc., 41 F.E.R.C. ¶ 61,350, at 61,945 (1987).

333 Turners Falls Ltd. P'ship, 55 F.E.R.C. ¶ 61,487, at 62,668 and n.24 (1991). Loss of QF status would subject a project to regulation as a utility and sale of power under FERC-approved rates.

334 *Id*. at 62,671.

335 *Id*.

336 Conn. Valley Elec. Co. v. Wheelabrator Claremont Co., 82 F.E.R.C. ¶ 61,116 (1998).

output to the utility and buy back from the utility such power as is necessary for host uses not associated with electric generation at the QF.[337]

FERC elected to measure the quantity of power sales on a rolling hour-to-hour basis, so that there must be a constant limitation of sale to no more than net power output.[338] FERC also held that the purchase of a line loss service for losses beyond the point of interconnection or some other ancillary service by a QF from a third party does not result in the QF engaging in a sale for resale of power.[339]

FERC declared that the penalty for selling gross power in lieu of net power that takes account of station use and line losses is loss of QF status.[340] If a QF loses its QF protections, it files rates pursuant to section 205 of the Federal Power Act.[341] If a QF facility that has been selling more than net output decides thereafter only to sell net output, it could then regain QF status on a prospective basis from the date of this change. However, the temporary loss of QF status could retroactively jeopardize the QF power sale agreement with the purchasing utility, depending upon whether retention at all times of such QF status is mandated by the power sale contract.[342]

---

[337] *Id*. Union Carbide Corp., 48 F.E.R.C. ¶ 61,130, at 61,506 (1989), *reh'g denied*, 49 F.E.R.C. ¶ 61,209 (1989).

[338] Conn. Valley Elec. Co., 82 F.E.R.C. ¶ 61,116, at 61,420. This is also deemed by FERC to be consistent with how FERC measures a facility's net capacity. Am. Ref-Fuel of Bergen County, 54 F.E.R.C. ¶ 61,287, at 61,817 (1991) (measurement of output for purposes of the 80 MW small power production limitation based on a rolling one hour period). FERC asserts that a one-hour period for measuring customer demand also is typical in the industry, and that the use of a rolling one-hour period does not allow the potential for manipulation of maximum power outputs as would a longer measuring period. Conn. Valley Elec. Co., 82 F.E.R.C. ¶ 61,116, at 61,420.

[339] Conn. Valley Elec. Co., 82 F.E.R.C. ¶ 61,116, at 61,419.

[340] *Id*. at 61,419. To lose QF status once a QF is certified with FERC, there must be an affirmative petition filed by a complainant questioning that QF status under 18 C.F.R. 385.207 (2003). Pending that, it is possible that a purchasing utility ultimately might refuse to pay the QF contract or QF avoided cost price to a QF for that amount of power sold in excess of its net station output.

[341] LG&E-Westmoreland Southampton, 76 F.E.R.C. ¶ 61,116, at 61,603 (1996).

[342] Medina Power Co., 71 F.E.R.C. ¶ 61,264 (1995), *reh'g denied*, 72 F.E.R.C. ¶ 61,224 (1995). FERC policy dealing with QF contracts is not to impose new rules on pre-existing contracts retroactively. This is particularly true on issues of revision of existing QF contracts at the unilateral request of a single party. FERC acknowledges that its rules regarding net versus gross power sales

The two 1998 *Connecticut Valley* decisions do not address directly whether, even though QF status is retained by continuing to sell gross output under a pre-1991 QF contract, the purchasing utility must pay the contract price up to full avoided costs for that output in excess of net station output. FERC does declare *in dicta* that the price paid for power under a QF contract should be the price specified in the contract with the utility up to the net output of the QF facility, suggesting that the contract price is paid for all output in a pre-1991 "grandfathered" contract.[343] FERC granted rehearing and issued a clarifying decision in May 1998.[344] FERC clarified that it had ruled as a matter of federal law that "a QF may not sell in excess of its net output."[345] The determining date for implementing this new rule by revoking QF status for any sale in excess of net power is contracts entered into before June 25, 1991, the date of promulgation of the *Turners Falls* decision.[346] The two

---

were ambiguous, at least until the point of the *Turner Falls* decision in 1991. Any contract executed before this decision, in which the contract explicitly, or the conduct of the parties implicitly, indicates that gross output may be sold to the utility with station requirements purchased from the utility, will be respected by FERC without the loss of QF status. Conn. Valley Elec. Co., 82 F.E.R.C. ¶ 61,116, at 61,420.

[343] Because the *Connecticut Valley* case involved a challenge to QF status rather than *per se* a QF pricing dispute, this issue was not at the focal point of this matter. The *Connecticut Valley* decision does state that

> [w]hile a QF can never sell more power than its net output at its point of interconnection with the grid, its location in relation to its purchaser (and thus its losses) may be relevant in the calculation of the avoided cost which it is entitled for the power it does deliver to its electric utility purchaser.

Conn. Valley Elec. Co., 82 F.E.R.C. ¶ 61,116, at 61,421. Later the decision continues, "The rate for all amounts sold up to the facility's net output should be the contract rate reflected in the parties' agreement, assuming such rate is no higher than the applicable avoided cost rate established by the State regulatory authority or nonregulated electric utility." *Id*. at 61,421-422. FERC stated in its reconsideration of the *Connecticut Valley* decision:

> In the event that a court were to determine that a QF with a pre-*Turners Falls* contract that has not previously sold up to gross output does in fact have the contractual right to sell up to gross output, and that right has not been modified through, for example, the parties' course of performance, we would consider that contract to be "grandfathered in," as is the case for those pre-*Turners Falls* contracts under which a QF has consistently sold up to gross output.

Conn. Valley Elec. Co. v. Wheelabrator Claremont Co., 83 F.E.R.C. ¶ 61,136, at 61,611 (1998).

[344] Conn. Valley Elec. Co., 83 F.E.R.C. ¶ 61,136.

[345] *Id*. at 61,610.

[346] *Id*. at 61,611.

1998 *Connecticut Valley* FERC opinions do not specifically discuss the remedy, other than loss of QF status, if a QF sells more than net output.

6. *Utility Power Sales to QFs*

Electric utilities must offer to sell necessary backup,[347] interruptible,[348] maintenance[349] or supplemental[350] power to QFs.[351] PURPA requires that such power sales by a utility to a QF be nondiscriminatory, and must be "just and reasonable and in the public interest."[352] Essentially, there must be a cost basis and justification for any QF power sale activity that is inconsistent with economic principles.[353]

A QF is entitled to simultaneously purchase from, and sell power to, a utility.[354] In essence, the purchase and sale relationships between a QF and a utility are legally separated; each transaction is independent and self-contained as a matter of regulatory and contract law. The Supreme Court upheld this provision against challenge by utilities.[355]

Rates for backup and standby power must be nondiscriminatory to hosts which self-generate or have a third-party self-generate power at their facilities.[356] Under *Alcon*, hosts are allowed to receive backup power from the utility notwithstanding acquiring primary power from a private third party.[357] Rates for backup power vary dramatically. In some jurisdictions, these rates are set and standardized, in others they must be negotiated with the utility.

---

[347] This is electric energy or capacity during an unscheduled outage to supply power generally self-generated. 18 C.F.R. § 292.101(b)(9) (2003).

[348] This is power or capacity supplied by an electric utility to a QF subject to interruption under specific conditions. *Id.* § 292.101(b)(10).

[349] This is power or capacity supplied by an electric utility to a QF during periods of scheduled outages. *Id.* § 292.101(b)(11).

[350] This is power or capacity supplied by an electric utility to a QF to augment self-generated electricity. *Id.* § 292.101(b)(8).

[351] *Id.* § 292.305(b).

[352] *Id.* § 292.305(a).

[353] *Id.* § 292.305(a)(2).

[354] *Id.* § 292.303(a)-(b). There is no requirement that only "excess" electricity of a QF must be purchased by the electric utility. Consequently, for bookkeeping purposes, the QF can sell all electrical output to the utility, if it so desires.

[355] Am. Paper Inst. v. Am. Elec. Power Serv. Corp., 461 U.S. 402 (1983).

[356] 18 C.F.R. § 292.305(a)(ii) (2003).

[357] Alcon (P.R.), Inc., 32 F.E.R.C. ¶ 61,247, at 61,579 (1985).

There are several factors outlined by the FERC to be considered by utilities when determining standby rates.[358] They are:

> (1)The expected timing of forced outages of the QF, if there is any reason to expect they could not occur with random probability;
>
> (2)The expected frequency of forced outages of the QF;
>
> (3)The expected duration of forced outages of the QF;
>
> (4)The expected demand placed on the supplying utility's generating resources in the event of a forced outage of the QF;
>
> (5)The expected cost of electrical energy associated with the capacity to be used to meet the demand in the event of a forced outage of the QF;
>
> (6)The cost, if any, associated with transmission and distribution facilities used to meet the demand resulting from a forced outage of the QF, and
>
> (7)The terms of backup service, in regard to its position as firm or interruptible service, and the cost of such terms of service imposed on the supplying utility.[359]

There are other major issues and concerns for utilities beyond those factors mandated by FERC when creating standby rates. In an effort to recognize all costs imposed, utilities may consider the changes from a standby customer to a full requirements customer, or alternatively, the changes from full requirements to standby customer, timing and probability of peak load outages, need to provide operating reserves, number and size of backup customers, the metering of energy and demand, and system protection requirements.[360]

The goal in standby rate design is cost recovery. Rate design must contemplate unit size and outage rates of standby rate customers. The utility system tries to maintain a given loss-of-load probability in designing its standby rates. To determine

---

[358] Administrative Determination of Full Avoided Costs, Sales of Power to Qualifying Facilities, and Interconnection Facilities, 53 Fed. Reg. 9331 (proposed Mar. 22, 1988).

[359] *See id*.

[360] EDISON ELEC. INST., STANDBY RATES: METHODS AND DESCRIPTIONS 35-39 (1991).

standby rates, which are designed on a cost recovery basis, utilities must first consider the costs of providing this service.

The methodologies for standby rate design vary. Most utilities price standby service through a modification of general service rates, while others use complex costing and pricing analyses for this service.[361] The stochastic method of analysis is a statistical determination of the level of power generation required to provide a sufficient level of reliability to standby service customers.[362] This approach takes into account the unit sizes and outage rates of each individual standby customer. A second approach, called the reserve rationale approach, provides utility generation reserves for the standby customer based on a utility planning reserve factor multiplied by the standby customer's peak load.[363]

The third method, the dispatch model, is based on an assessment of a utility's entire system, as well as an individual standby customer's outage rate and size. A determination of requisite capacity is made to maintain the same system-wide loss-of-load probability; the standby rate is set according to the cost of producing this level of power.[364] The fourth method is called the customer-based standby rate approach. This market-driven approach sets the price for standby service based on what the customer would pay if the customer provided standby service.[365]

As a result of these methods, demand rates for standby service are normally lower than a utility's general service rates.[366] Energy charges, however, usually exceed the comparable general service rates.[367] Interestingly, there is no correlation between the amount of self-generation or its penetration on the utility system and the type of methodology employed to determine the standby rate.[368] Therefore, rates and methodologies are not necessarily less

---

[361] *Id*.

[362] Alexander J. Zakem, *Principles of Standby Service*, PUB. UTIL. FORT., Nov. 24, 1988, at 19. The stochastic analysis considers the standby customer class only. *Id*.

[363] *Id*.

[364] *Id*.

[365] *Id*.

[366] EDISON ELEC. INST., *supra* note 360, at 29. The lower demand rate reflects the probability of usage of the standby service on the utility system. *Id*.

[367] *Id*.

[368] *Id*. at 12.

favorable to QFs and independent power producers in service territories where there is extensive penetration of independent power.[369]

B. *The Federal Government Inconsistently Defines Renewable Resources*

Renewable resources other than hydropower constitute about two percent of energy sales in the U.S.[370] As set forth below, while states vary in their definitions and treatment of "renewable energy" sources, the federal government has not been a model of clarity. Congress has varied the definition of renewable resources depending on the objective of each program. Congress's most general and expansive definition of renewable energy is found in the Renewable Energy Initiative:

> any energy resource which has recently originated in the sun, including direct and indirect solar radiation and intermediate solar energy forms such as wind, ocean thermal gradients, ocean currents and waves, hydropower, photovoltaic energy, products of photosynthetic processes, organic wastes and others.[371]

Congress's definition of renewable resources in its Plan for Energy Efficiency is less enumerated than the definition under its Renewable Energy Initiative by defining renewable resources as "non-depletable sources of energy."[372] For purposes of foreign aid, Congress defines renewable resources with a five point test, requiring that a renewable resouce:

> 1. "meets the needs of rural communities;"
>
> 2. "saves capital without wasting labor;"
>
> 3. "is modest in scale and simple to install and maintain,and which can be managed by local individuals;"
>
> 4. "is acceptable and affordable; and"

---

[369] Standby and backup rates for more than sixty-five utilities are provided in FERREY, *supra* note 43, § 4:33, Table 4.1. These rates are disaggregated for demand charges, capacity charges, energy charges, peak and off-peak periods, and voltage at delivery.

[370] Rader & Short, *supra* note 134, at 72.

[371] 42 U.S.C. § 7372 (2000).

[372] *See Id.* § 6326.

5. "does not damage the environment."[373]

Under PURPA, alternative energy sources are grouped into four categories: biomass, waste, renewable resources, and geothermal resources.[374] These federal renewable energy definitions have several practical differences.

1. *Biomass*

Traditionally, scientists define biomass as organic plant matter produced by solar energy through photosynthesis, including wood, agricultural wastes, and organic garbage.[375] FERC interpreted PURPA's definition of biomass to include "any organic material not derived from fossil fuels."[376] FERC includes municipal solid waste, by-product materials from lumber and paper mills, wood chips, peanut shells, almond tree prunings, wheat straw, corn straw, barley, rice straw, and cotton stalks.[377] In 1982, FERC expanded its definition of biomass to include most of the combustible material in garbage, which is principally derived from biomass.[378] More specifically, FERC regulations provide that "municipal solid waste conversion (MSW) may be classified as a biomass technology as long as 50 percent of the energy input is organic material not derived from fossil fuels."[379]

---

[373] *See* 22 U.S.C. § 262j(b) (2000).

[374] 16 U.S.C. § 796(17)(A)(I) (2000) (defining possible sources for small power generating facility). However, these distinctions do not exclude any technologies that would be eligible under the Renewable Energy Initiative.

[375] *See* G. TYLER MILLER, JR., LIVING IN THE ENVIRONMENT: PRINCIPLES, CONNECTIONS, AND SOLUTIONS 403 (13th ed. 2004). Animal wastes used as fuel are also encompassed by this definition. Biomass can be directly burned or converted to a gaseous (synthetic natural gas) or liquid state (ethanol, methanol, gasohol) known as biofuel. In 1989, biomass, mostly from the burning of wood and nature to heat buildings and cook food, supplied four percent of the energy used in the United States, and over half of the energy used in the lesser developed countries. *Id*. at 403-04.

[376] Small Power Production and Cogeneration Facilities—Environmental Findings, 10 F.E.R.C. ¶ 61,314 (1980).

[377] *See* Tulsa Energy Corp., 19 F.E.R.C. ¶ 61,331, at 61,633 (1982); Biomass Power Corp., 23 F.E.R.C. ¶ 62,143, at 63,216 (1983); Five Points Biomass Power Plant Assocs., 41 F.E.R.C. ¶ 62,246, at 63,547 (1987); El Nido Biomass Ltd. P'ship, 39 F.E.R.C. ¶ 62,263, at 63,609 (1987).

[378] *See* Tulsa Energy Corp., 19 F.E.R.C. ¶ 61,331 (1982). To be a waste as provided in PURPA, the material must have "little or no commercial use." 18 C.F.R. § 292.204 (2003).

[379] Small Power Production and Cogeneration Facilities—Environmental Findings, 10 F.E.R.C. ¶ 61,314 (1980). For an analysis of the liability schemes

It should be noted that some forms of waste-fueled generation emit more, not fewer, pollutants than conventional generation.[380] Congressional tax incentives promoting the use of renewable energy sources limit renewable energy sources to solar, wind, geothermal, and any other "inexhaustible energy supply."[381] While wood is considered "biomass" under PURPA, a wood burning stove does not qualify as a renewable energy source for purposes of these tax incentives.[382]

2. *Geothermal*

Geothermal energy is a second technology with differing federal definitions. The scientific community describes geothermal energy as heat taken from various underground cavities where the earth's crust has heated water in the form of dry steam (steam without water droplets), wet steam (a mixture of steam and water droplets), and hot water trapped in fractured or porous rock.[383] Some scientists consider geothermal energy to be both renewable and non-renewable, depending on whether the harvesting rate of a source exceeds its rate of replenishment.[384]

Geothermal energy has been the focus of considerable deliberation in the United States Tax Court, principally concerning what temperature the hot water source must be for it to qualify as geothermal energy.[385] Section 1.23 of the Income Tax Regulations (ITR) defines geothermal deposit as "a geothermal reservoir consisting of natural heat which is from an underground source and is stored in rocks or in an aqueous liquid or vapor (whether or not under pressure), having a temperature exceeding 55 degrees Celsius as measured at the well head."[386]

PURPA treats geothermal energy as it does biomass and waste energy sources by creating a distinct definition from other

---

of hazardous waste laws, see generally Steven Ferrey, *Allocation and Uncertainty in the Age of Superfund: A Critique of the Redistribution of CERCLA Liability*, in 3 N.Y.U. ENVTL. L.J. 36 (1994).

380 *See* FERREY, *supra* note 43, § 6:18, Table 6.14.

381 26 C.F.R. § 1.23-6(c)(2)(i) (2003).

382 Olson v. Comm'r of Internal Revenue, 81 T.C. 318, 323 (1983).

383 *See* MILLER, *supra* note 375, at 409-10.

384 *See id*. at 410.

385 *See* Herbert v. Comm'r, 51 T.C.M. (CCH) 983 (May 6, 1986).

386 26 C.F.R. § 1.23(h) (2003).

renewable resources.[387] California statutes include geothermal energy in the definitions of renewable resources and renewable resource devices.[388] Ironically, the California Appellate Court has found otherwise that geothermal energy is depletable.[389]

3. *Hydropower*

While the renewable benefits and detriments of hydroelectric power have raised considerable controversy,[390] it is the dominant renewable resource worldwide. In an executive order issued by President Clinton in 1999, requiring more federal government use of renewable energy, hydropower was excluded as a renewable resource.[391] The federal definition of energy from wind is more consistent.[392]

---

[387] 16 U.S.C. § 796(17) (2000).

[388] *See*, CAL. PUB. RES. CODE § 25,741(a)(1) (West 2004); CAL. HEALTH & SAFETY CODE 44,511 (West 2004).

[389] Geothermal Kinetics, Inc. v. Union Oil Co., 141 Cal. Rptr. 879 (Cal. Ct. App. 1978). The court held that the general grant of minerals in, on, or under the property includes a grant of geothermal resources, including steam. While deciding this issue the court found that: "[u]nlike the surface and subsurface waters, the origin of geothermal water is not rainfall, but water present at the time of the formation of the geologic structure." *Id*. at 883. The court continued to reason that: "[b]ecause rainfall does not replenish geothermal water, it is a depletable deposit." *Id*.

[390] Although hydroelectric power does not emit any air pollutants, large scale dams have the potential to flood areas, destroy wild life habitats, uproot people, drain agricultural land of natural fertilization below the dam, and interfere with fishing by decreasing fish harvests below the dam. *See* City of Aberdeen, Wash., and City of Tacoma, Wash., 40 F.E.R.C. ¶ 62,316 (1987). Groups and agencies including the Sierra Club, Save Our Streams, EPA, and the National Marine Fishery Service (NMFS) wanted FERC to reject a report recommending that PURPA benefits apply to projects that use new dams because of the adverse effects new dams have on the environment. Electric Consumers Protection Act, Section 8(d) Study, 45 F.E.R.C. ¶ 61,051, at 61,175 (1988). The various groups cited environmental problems such as the impact dams have on the fish population and on flooding. *Id.* FERC sided with the National Hydropower Association and issued a recommendation to Congress that PURPA benefits should continue to be applied to qualifying projects that use new dams and diversions, subject to the environmental constraints specified in Section 210(j) of PURPA, as amended by Section 8(a) of ECPA. *Id*. at 61,179. PURPA "does not exclude projects that use new dams, and the term 'renewable resource' applies equally to water that is used to produce hydroelectric energy at new dams and existing dams." *Id*. at 61,180.

[391] Exec. Order No. 13,123, 3 C.F.R. 180 (1999).

[392] Howden Wind Park I, 33 F.E.R.C. ¶ 62,207 (1985). In his order, the director stated that there were no protests to Howden's facility. *Id*. at 63,282. *See also* Wind Energy Co., 24 F.E.R.C. ¶ 62,154 (1983). Wind Energy

These definitional variations are more than curiosities. The Clinton administration proposed a 7.5 percent national renewable energy portfolio standard by 2010.[393] Democrats were unsuccessful in preventing deletion in conference committee of a ten percent renewable energy portfolio standard amendment to the late 2003 Bush energy legislation, which itself passed the House but fell two votes short of invoking cloture in December 2003.[394] These proposals, which would not recognize hydroelectric power as a renewable resource, both contained mandatory net metering of power sales from independent producers to the local utility. How one defines a particular renewable resource at the state or federal levels determines what resources qualify for the state or potential future portfolio requirement.

The European Commission has a goal of increasing the current six percent renewable energy target to twelve percent by 2010.[395] Each EU country will set its own national target. While country subsidies typically are discouraged, for the promotion of renewable resources, an exception is made for state support for ten years until 2010. Under European Union regulations, subsidies for renewable energy would have to end by 2010.[396] Up until 2010, where the amount of state support for renewable power exceeds five percent of domestic electricity production, it must open its subsidy scheme to renewable projects in other EU countries. In operation, this allows limited duration and amount of in-country renewable subsidy. This in-state subsidy in the U.S. raises commerce clause issues confronted by renewable subsidy schemes.

Development Corporation—Culebra Facility, 28 F.E.R.C. ¶ 61,309 (1984). In this case, the Puerto Rico Electric Power Authority (PREPA) challenged Wind Energy Development Corporation's application, but the Commissioner held that PREPA's challenge was not valid. *Id.* at 61,568.

[393] H.R. 1828, 106th Cong. § 611 (1999).

[394] *See supra* notes 116-117.

[395] *Euros to Subsidize Renewables to 2010*, ELECTRICITY DAILY, Nov. 1, 1999. EU member states can apply for exemptions to allow subsidies to continue beyond 2010.

[396] *European Commission Drafting Renewables Policy*, ELECTRICITY DAILY, Nov. 10, 1999.

IV
CONSTITUTIONAL ANALYSIS: STATE RENEWABLE ENERGY SUBSIDY SCHEMES AND THE COMMERCE CLAUSE

As eighteen states deregulate their power sectors and implement these various renewable trust funds and portfolio standards, what is often overlooked is whether these plans pass legal requirements. Deregulation measures may overstep state powers and discretion. Also, the state schemes may violate provisions of the U.S. Constitution. The next two Parts analyze commerce clause and federal preemption issues.

A. *Commerce Clause Requirements*

The specific mechanism for structuring any state renewable subsidies must not run afoul of Constitutional requirements. The regulation of utilities is a traditional function of local police power in the states.[397] The generation and transmission of electric energy is an activity particularly likely to affect more than one state.[398] Under the Federal Power Act of 1935, the federal government exercises regulatory power over the wholesale power market, while the states are left alone to regulate most retail transactions.[399]

While the Commerce Clause grants affirmative powers to Congress to regulate in a variety of areas, the so-called "dormant Commerce Clause" also is interpreted as a limitation on the power of states to regulate in particular areas. The Commerce Clause provides that "[t]he Congress shall have Power . . . [t]o regulate Commerce . . . among the several States."[400] In creating this power, the framers sought to "avoid the tendencies toward economic Balkanization that had plagued relations among the Colonies and later among the States under the Articles of Confederation."[401] Although the Commerce Clause is an affirmative grant of power, the Supreme Court has also interpreted

---

[397] Ark. Elec. Coop. v. Ark. Pub. Serv. Comm'n, 461 U.S. 375, 377 (1983) (citing Munn v. Illinois, 94 U.S. 113 (1877)).

[398] *Id*.

[399] 16 U.S.C. §§ 824-824n (2000).

[400] U.S. CONST., art. I, § 8, cl. 3.

[401] Or. Waste Sys., Inc. v. Dep't of Envtl. Quality, 511 U.S. 93, 98 (1994); *see* Boston Stock Exch. v. State Tax Comm'n, 429 U.S. 318, 328 (1977) (declaring that the Commerce Clause creates "an area of free trade among the several States.")

it as limiting the States' ability to "unjustifiably . . . discriminate against or burden the interstate flow of articles of commerce."[402]

Although the Commerce Clause affirmatively grants Congress the ability to regulate interstate commerce, there is no clear directive limiting states' abilities to regulate where Congress has remained silent.[403] The U.S. Supreme Court consistently holds that the Commerce Clause exerts a prohibitive force limiting states' powers to regulate interstate commerce in certain situations even in instances where Congress has not regulated.[404]

State statutes that clearly discriminate against interstate commerce are routinely found to be impermissible.[405] "This 'negative' aspect of the Commerce Clause prohibits economic protectionism."[406] Therefore, although states are permitted to promote in-state businesses, they are not permitted to protect those businesses from out-of-state competition by enacting laws that "benefit in-state economic interests by burdening out-of-state competitors."[407]

B. *Court Standards*

Depending on the type and design of state regulation, courts apply different levels of judicial scrutiny and different standards of review. If local regulations discriminate facially or by intent against interstate commerce based on geographic location, whether by regulation or taxation, courts apply a "strict scrutiny" standard and there is a high probability that the regulation will be invalidated.[408] The construction of the dormant Commerce Clause

---

[402] Or. Waste Sys., Inc., 511 U.S. at 98; *accord* H.P. Hood & Sons, Inc. v. DuMond, 336 U.S. 525, 534-38 (1949); Cooley v. Bd. of Wardens, 53 U.S. 299 (1851).

[403] *See* Maine v. Taylor, 477 U.S. 131, 137-138 (1986) (the Commerce Clause limits, but does not forbid, state commercial legislation).

[404] *See, e.g.*, Case of the State Freight State Tax, 82 U.S. (15 Wall.) 232, 279-80 (872); Brown v. Maryland, 25 U.S. (12 Wheat.) 419, 448-49 (1827); Gibbons v. Ogden, 22 U.S. (9 Wheat.) 1, 208 (1824).

[405] *See, e.g.*, Sporhase v. Nebraska ex rel. Douglas, 458 U.S. 941, 957-58 (1982); Lewis v. BT Inv. Mgrs., Inc., 447 U.S. 27 (1980); Dean Milk Co. v. Madison, 340 U.S. 349 (1951).

[406] New Energy Co. of Ind. v. Limbach, 486 U.S. 269, 273 (1988) (citing Bacchus Imports, Ltd. v. Dias, 468 U.S. 263, 270-273 (1984); H.P. Hood & Sons, Inc., 336 U.S. at 532-533; Guy v. Baltimore, 100 U.S. (10 Otto) 434, 443 (1879)).

[407] *Id.*

[408] *See* H.P. Hood & Sons, Inc., 336 U.S. (1948); City of Philadelphia, 437

is one of the most litigated environmental and energy issues before the Supreme Court in the last quarter century.[409]

Where a regulation "clearly" on its face discriminates against interstate commerce or in its practical effect, that regulation violates the Constitution unless there is some *demonstrable* justification for the discrimination unrelated to protectionism.[410] Point of origin discrimination in favor of local interests to the detriment of interstate commerce "is *per se* invalid," unless the state can identify a legitimate and compelling local interest that can be served by no other means.[411] State and local measures undertaken for an admitted rationale for protecting the local economy based on geographic discrimination against certain commerce will be struck down almost always as *per se* constitutionally impermissible.[412]

On the other hand, if a state is exercising traditionally recognized jurisdiction (including protection of health, environment, natural resources, and safety) and not discriminating based on geographic locus, but the effect is to discriminate against the free flow of interstate commerce, the court will balance the interest of the state against the burden on commerce, alternatives, and evaluate less offensive means of effectuating the purpose of local regulation.[413] A nondiscriminatory regulation supported by a legitimate state interest, incidentally burdening interstate commerce, can be constitutional unless the burden on interstate commerce clearly is excessive in relation to the local benefits.[414]

U.S. 617 (1978) (ban on interstate waste disposal in private facility impermissible); West v. Kansas Nat. Gas Co., 221 U.S. 229 (1911) (attempt by a state to prohibit export of natural gas discriminated against interstate commerce on such basis).

[409] The issue of bans or discouragement of interstate waste transport has been before the Supreme Court seven times since 1978. *See* FERREY, *supra* note 145, at 132-36.

[410] C & A Carbone, Inc., v. Town of Clarkstown, 511 U.S. 383, 402 (1994) (citing Wyoming v. Oklahoma, 502 U.S. 437, 454 (1992); Maine v. Taylor, 477 U.S. 131, 138 (1986)).

[411] C & A Carbone, Inc., 511 U.S. at 392 (1994).

[412] See City of Philadelphia, 437 U.S. at 624; Baldwin v. G.A.F. Seelig, Inc., 294 U.S. 511, 526 (1935).

[413] *See* Hughes v. Oklahoma, 441 U.S. 322, 342 (1979); City of Philadelphia, 437 U.S. at 624; Dean Milk Co. v. City of Madison, 340 U.S. at 354 (1951) (the city must use a less discriminatory means of regulating the quality of milk sold and choose a nondiscriminatory method to effectuate such purpose).

[414] *See* Pike v. Bruce Church, Inc., 397 U.S. 137, 142 (1970) ("[w]here the statute regulates even-handedly to effectuate a legitimate local public interest,

With such a balancing it is not necessary to demonstrate that the state statute is necessarily the least restrictive means to accomplish the stated purpose.[415]

Because no bright line separates regulation that does and does not discriminate, and the judicial standard applied by the court is so distinct between the two, the critical determinants are the court's initial conclusion as to whether or not a regulation is discriminatory, and if so, whether such discrimination is based on point-of-origin regulation.[416] Even in the absence of a discriminatory intent, courts are able to find Commerce Clause violations to prevent the "Balkanization" of various states' regulations.[417]

However, a local regulation is not per se invalid merely because its means or effects are discriminatory. A balancing test will be applied and the ordinance may, in certain circumstances, be upheld. Under the so-called *Pike* balancing test, the challenged statute must advance a legitimate public interest without imposing a burden on commerce that is clearly excessive in relation to the local benefits.[418] This balancing test will tolerate a greater burden where the local interest is significant and the interest could not be

---

and its effect on interstate commerce are only incidental, it will be upheld unless the burden imposed on such commerce is clearly excessive in relation to the putative local benefit. . . . And the extent of the burden that will be tolerated will of course depend on the nature of the local interest involved, and on whether it could be promoted as well with a lesser impact on interstate activities.").

[415] *See* Minnesota v. Clover Leaf Creamery Co., 449 U.S. 456, at 472-73 (1981) (Minnesota statute banning as environmentally unacceptable plastic milk containers served a legitimate purpose and was sustained, notwithstanding the fact that it promoted local industry at the expense of out-of-state industry). *Cf.* Pike, 397 U.S. at 143-44 (the state may not restrict packaging because of the burden of interstate commerce).

[416] *See* Wash. State Apple Adv. Comm'n, 432 U.S. at 353.

[417] *See* Hughes v. Oklahoma, 441 U.S. 322 (1979) (invalidating statute that placed no limit on number of minnows that could be taken by licensed minnow dealers but forbade any person from leaving the state with more than three dozen minnows). In this case, the Supreme Court refined the *Philadelphia per se* test to accommodate potentially offensive laws that may not discriminate in construction, but have the practical effect of burdening out-of-state competitors. The Supreme Court articulated three inquiries: (1) "whether the challenged statute regulates evenhandedly with only 'incidental' effect on interstate commerce, or discriminates against interstate commerce either on its face or in practical effect; (2) whether the statute serves a legitimate local purpose; and, if so, (3) whether alternative means could promote this local purpose as well without discriminating against interstate commerce." *Id*. at 336.

[418] *See* Pike, 397 U.S. at 142.

promoted as well with a less burdensome approach.[419] However, with such a balancing it is not necessary to demonstrate that the state statute is necessarily the least restrictive means to accomplish the stated purpose. Under this test, it would first be necessary to show that a local ordinance was enacted for a legitimate purpose; alternative means to effectuate the purpose also would be considered.[420]

There is an important exception. In a proprietary mode, a state may marshal and control its *own* energy resources, even if that discriminates in favor of in-state interests, and against out-of-state interests or interstate commerce. In *Hughes v. Alexandria Scrap Corp.*, the Court held that in a proprietary mode, a state can burden "commerce which would not exist if [the state] had not decided to subsidize a portion of the . . . business."[421]

In *Arkansas Electric Cooperative Corp. v. Arkansas Public Service Commission*,[422] the Court upheld a public service commission order asserting jurisdiction over wholesale rate charges to a retail distributor by a rural power provider, because the state regulated evenhandedly to effectuate a legitimate local public interest, and found its effect on interstate commerce to be "only incidental."[423] Thus, the test articulated in *Alexandria Scrap* is valid as applied to state regulation of public utilities, despite state jurisdiction over the retail electric industry. However, with the indirect techniques of resource portfolio management as well as direct subsidies, the state is acting in a regulatory, rather than proprietary, role.

---

[419] *See id*. In *Pike*, the Court stated that "the State's tenuous interest in having the company's cantaloupes identified as originating in Arizona cannot constitutionally justify the requirement that the company build and operate an unneeded $200,000 packing plant." *Id*. at 145. Subsequent courts reduced this analysis to a four factor inquiry: (1) the nature of the local benefits forwarded by the statute; (2) "the burden the [statute] imposes on interstate commerce;" (3) the degree to which the burden clearly exceeds the benefit, and (4) will a different approach promote the local interests as well with a lesser impact on interstate commerce. Blue Circle Cement v. Bd. of County Comm'rs, 27 F.3d 1499, 1512 (10th Cir. 1994).

[420] *See Minnesota v. Clover Leaf Creamery Co.*, 449 U.S. 456. *Cf. Pike v. Bruce Church, Inc.*, 397 U.S. 137.

[421] Hughes v. Alexandria Scrap Corp., 426 U.S. 794, 815 (1976).

[422] Ark. Elec. Coop. v. Ark. Pub. Serv. Comm'n, 461 U.S. 375 (1983).

[423] *Id*. at 393-394.

1. *Direct Regulation of Energy*

The most common source of potential Commerce Clause violations is direct state regulation of aspects of commerce. Similarly, all-out bans against the importation of certain goods may handicap out-of-state competitors.[424] The Supreme Court prohibits a state statute banning the importation of out-of-state goods as violating the Commerce Clause.[425]

From Supreme Court jurisprudence, where a regulation is facially discriminatory by protecting in-state entities at the expense of out-of-state entities, the statute is virtually *per se* invalid under the dormant Commerce Clause. The Court consistently strikes down state rules that expressly discriminate against interstate commerce.[426] Invalidation is not automatic, however. The Court has granted exceptions where the state employs the measure for a purpose unrelated to economic protectionism.[427]

A portfolio standard alone, however, does not raise commerce clause issues. A limitation on the in-state location of resources for inclusion in the portfolio likely could run afoul of the commerce clause.[428] As long as the state regulation does not intend to or actually does discriminate on the basis of geography of supply, it will be evaluated under the *Pike* balancing test.[429]

Therefore, in designing any resource portfolio, it is important that only the *types* of energy resources in the portfolio be regulated, not their place or geography or production. Obviously, any individual state can only regulate at retail those retail entities

---

[424] *See* City of Philadelphia, 437 U.S. at 624.

[425] *Id.*

[426] *See* Or. Waste Sys., Inc., v. Dep't of Envtl. Quality, 511 U.S. 93, 99 (1994) (declaring that facially discriminatory rules are "virtually *per se* invalid"); New Energy Co. of Ind. v. Limbach, 486 U.S. 269, 274 (1988) (noting that "clearly" discriminatory state provisions are "routinely struck down . . . unless the discrimination is demonstrably justified by a valid factor unrelated to economic protectionism").

[427] *See* Maine v. Taylor, 477 U.S. 131, 151 (1986) (upholding Maine's ban on imported baitfish because of the state's legitimate interest in maintaining its aquatic ecosystems and the unavailability of reasonable alternatives).

[428] Wyoming v. Oklahoma, 502 U.S. 347 (1992) (requiring use of indigenous fuel resources for in-state electricity production is unconstitutional); New Energy Co. of Ind. v. Limbach, 486 U.S. 269 (1988) (Ohio income tax credit limited to in-state ethanol producers is unconstitutional); Alliance for Clean Coal v. Miller, 44 F.3d 591 (7th Cir. 1995) (Illinois preference for use of Illinois coal while satisfying Clear Air Act Amendment requirements unconstitutional).

[429] *See supra* note 414.

within its boundaries.

The Federal Power Act conclusively vests the federal government with authority over the sale of electric power at wholesale in interstate commerce and the transmission of electric power in interstate commerce.[430] It is clear that the state cannot set the price of wholesale or interstate transactions.[431]

2. *Taxation of energy*

a. *Validity*

Another regulatory method which can impair interstate commerce is state taxing power. A state tax or tariff imposed solely on goods imported from another state is the "paradigmatic example" of a state law that violates the dormant Commerce Clause.[432] A state tariff on imported goods violates the Commerce Clause "by handicapping out-of-state competitors, thus artificially encouraging in-state production even when the same goods could be produces at lower cost in other States."[433] Such tariffs are held to be "so patently unconstitutional" that precedent does not reveal a single recent attempt by a state to enact one.[434] This holds even where the disparate tax treatment is not explicit on its face.[435]

The Court has addressed and overturned a number of interstate taxation schemes. In *Boston Stock Exchange*, the Court struck down New York's stock transfer tax.[436] In 1978, the Court overturned Louisiana's first-use mineral/energy tax.[437]

Tax credits don't fare much better if they discriminate against

---

[430] Fed. Power Comm'n v. S. Cal. Edison Co., 376 U.S. 205, 216 (1964).

[431] See discussion *supra* Part V.A.

[432] West Lynn Creamery, Inc. v. Healy, 512 U.S. 186, 193 (1994).

[433] *Id*.

[434] *Id*.

[435] Hillside Dairy, Inc. v. Lyons, 539 U.S. 59, 62 (2003).

[436] Boston Stock Exch. v. State Tax Comm'n, 429 U.S. 318, 331 (1977). The transfer tax applied to all sales and transfers, except those sales completed in New York, and was designed to encourage sellers to work through New York brokers. The Court determined that the exemption offended the Commerce Clause by "foreclos[ing] tax-neutral decisions." *Id*.

[437] Maryland v. Louisiana, 451 U.S. 725, 731 (1981). Louisiana enacted a tax of $0.07 per thousand cubic feet on the "first use" of any natural gas imported into Louisiana that was not previously taxed by another state or the federal government. The statute defined "first use" as selling, transporting, processing, treating, using in manufacturing, or "other ascertainable action."

interstate commerce. The Court declared discriminatory income tax credits unconstitutional in *Westinghouse Electric Corp. v. Tully*.[438] *New Energy Co. of Indiana v. Limbach* invalidated a tax credit preference for locally produced fuel.[439] However, In *General Motors Corp. v. Tracy*, the Court considered whether an exemption from Ohio's general sales and use taxes for all "natural gas companies" violated the Commerce Clause.[440] Ohio's natural gas and local distribution companies satisfied the statutory definition of "natural gas companies," but the Ohio Supreme Court excluded producers and independent marketers from this definition because they do "not own or control any physical assets to . . . distribute natural gas."[441] In finding the exemption did not violate the Commerce Clause, the Court distinguished the local distribution companies that provide "gas bundled with services and protections [mandated by law]"[442] from the marketers' "unbundled" gas services.[443] The Court found that possible

[438] Westinghouse Elec. Corp. v. Tully, 466 U.S. 388, 394 (1984). New York negated a federal income tax exemption for certain companies by subjected those same companies to a tax directly proportionate to the amount of income resulting from the company's New York exports.

[439] New Energy Co. of Ind. v. Limbach, 486 U.S. 269 (1988). An Ohio statute provided a state tax credit against the fuel sales tax for ethanol fuels where the ethanol was produced in Ohio or in a state that allows similar tax credits for Ohio-produced ethanol fuels. *Id.* at 272. Ohio argued that the reciprocity provision did not discriminate against other states, but encouraged those states to adopt similar credits to promote commerce. The Court rejected this reasoning as inconsistent with prior reciprocity rulings and not justify discrimination. *Id*. at 280. The Court rejected Ohio's health-based justification because "there is no reason to suppose that ethanol produced in a State that does not offer tax advantages to ethanol produced in Ohio is less healthy . . . ." *Id*. at 279. Other states could subsidize ethanol production through mechanisms other than giving a tax credit to Ohio-produced ethanol. *Id*. at 278-79.

[440] Gen. Motors Corp. v. Tracy, 519 U.S. 278, 281-82 (1997).

[441] *Id*. at 285 (quoting Chrysler Corp. v. Tracy, 652 N.E.2d 187 (Ohio 1995)).

[442] *Id*. at 297. The "services and protections" include annual forecasting, state approval for financing, "just and reasonable" rates, limited return on investment, and non-discriminatory pricing. *Id*. at 295-96.

[443] *Id*. at 301. The Court noted that any Commerce Clause analysis must begin with a "comparison of substantially similar entities." *Id*. at 298. If the entities serve different markets, eliminating the preferential exemption will not serve the Commerce Clause's purpose of preserving the national market. In this case, the LDC's core market was the small, captive gas users, typically residential gas customers, whereas marketers tended to serve large industrial customers. The Court found that eliminating the exemption would do little to foster competition in the captive market, but might have some impact on the noncaptives. *Id*. at 307-08.

competition for the noncaptive customers did not justify treating the LDCs and marketers alike for Commerce Clause purposes.[444]

b. *Nexus and Apportionment*

Any valid tax on energy must have a substantial and sufficient state nexus, which can be established by a physical presence in the state[445] or when service is billed or charged to a service address, or paid by an addressee, within the taxing state.[446] If a state requires electric distribution companies to remit payment to the renewable trust fund, a significant state nexus is established either by the distributor's physical presence or because the distributors will bill service to in-state addresses and these bills will be paid by in-state addressees.

Taxes also must be fairly apportioned, in order to ensure that no state taxes any entity more than its fair share.[447] The Constitution does not demand that the states use a single method of apportioning a tax, but a tax is fairly apportioned when it is internally and externally consistent.[448] Internal consistency is satisfied when no multiple taxation would occur if every state imposed an identical tax.[449] A tax is externally consistent as long as it does not reach beyond that portion of the economic value attributable to the economic activity within the taxing state.[450] Unlike the internal consistency test, this inquiry requires an analysis of the economic justification and practical impact the tax

---

[444] *Id*. at 302-09. There were three reasons for the majority's conclusion: (1) potential disruption to residential customers, (2) lack of institutional expertise on the matter, and (3) the ability of Congress to effectively legislate in this area.

[445] *See* D.H. Holmes Co. v. McNamara, 486 U.S. 24, 32-34 (1988) (relying on Holmes' "significant presence" of thirteen stores and over $100 million in sales in Louisiana); Nat'l Geographic Soc'y v. Cal. Bd. of Equalization, 430 U.S. 551, 561 (1977) (finding two in-state offices sufficient to establish a significant state nexus).

[446] Okla. Tax Comm'n v. Jefferson Lines, Inc., 514 U.S. 175, 184 (1995) (citing Goldberg v. Sweet, 488 U.S. 252, 263 (1989)).

[447] *See* Goldberg v. Sweet, 488 U.S. 252, 260-61 (1989) (citing Container Corp. of Am. v. Franchise Tax Bd., 463 U.S. 159, 169 (1983)); Wash. Rev. Dep't v. Ass'n of Wash. Stevedoring Cos., 435 U.S. 734, 747-48 (1978).

[448] *See* Goldberg, 488 U.S. at 261.

[449] *Id*.

[450] *See* Jefferson Lines, 514 U.S. at 185; Goldberg, 488 U.S. at 262 (asking whether the State taxed "only that portion of the revenue from the interstate activity which reasonably reflects the in-state component of the activity being taxed").

measure has on the interstate conduct of the activity being taxed.[451]

The purpose of the state tax is less important than its impact. A state can implement a tax for the express purpose of promoting development and investing in the taxing state.[452] The state must not place the tax burden upon people who do not benefit from the state.[453] This requirement is read expansively.[454]

The tax *impact* does matter. The "critical consideration is the overall effect of the [tax] statute on both local and interstate activity."[455] In many instances, states combine a complex web of regulation, tax, and/or subsidy to craft their controls. An analysis of the "overall effect" of a statute on both local and interstate activity requires consideration of such complementary regulations. The Court has prohibited certain combinations of taxes and credits, such as the combination of an excise tax on all sales of wholesale liquor coupled with an exemption for two locally-produced alcoholic beverages,[456] and the coupling of a motor fuel tax with a tax credit designed to encourage the in-state production of ethanol.[457] A statute need not be discriminatory on its face. Regulatory purpose and design matter collectively and in the alternative. Economic protectionism can be proven by showing discriminatory effect or discriminatory purpose.[458]

---

[451] *See* Goldberg, 488 U.S. at 262 (stating that courts must "examine the in-state business activity which triggers the taxable event and the practical or economic effect of the tax on that interstate activity").

[452] *See* Trinova Corp. v. Mich. Dep't of Treasury, 498 U.S. 358, 385-86 (1991).

[453] *See* Goldberg, 488 U.S. at 266-67; Commonwealth Edison Co. v. Montana, 453 U.S. 609, 627 (1981).

[454] *See* Goldberg, 488 U.S. at 267 (rejecting the suggestion that this requirement be limited to the services provided directly to telecommunications equipment located within the taxing State).

[455] Brown-Forman Distillers Corp. v. N.Y. State Liquor Auth., 476 U.S. 573, 579 (1986).

[456] Bacchus Imports, Ltd. v. Dias, 468 U.S. 263, 271 (1984).

[457] *See* New Energy Co. of Ind. v. Limbach, 486 U.S. 269 (1988). Ohio provided a tax credit against the state's motor fuel tax for each gallon of ethanol sold as a component of gasohol, but only if the ethanol was produced in Ohio or in a state that granted similar tax benefits to Ohio-produced ethanol.

[458] City of Philadelphia, 437 U.S. at 627 ("[A] State may not accord its own inhabitants a preferred right of access over consumers in other States to natural resources located within its borders."); Minnesota v. Clover Leaf Creamery Co., 449 U.S. 456, 471 n. 15 (1981); N.Y. State Trawlers Ass'n v. Jorling, 16 F.3d 1303, 1307 (2d Cir. 1994) ("Provided a state does not discriminate against non-residents, however, it may impose incidental burdens on interstate commerce when exercising its police power to promote safety or general welfare.").

Where a regulation has the practical economic effect on interstate commerce of a tariff, it is impermissible.[459] The courts have been particularly protective of the federal scheme to prevent states from setting up a variety of tariffs and regulatory barriers to interstate commerce. Congress may, at its discretion, confer upon a state an ability to restrict the flow of interstate commerce.[460] However, there is nothing in the legislative history or language of the Federal Power Act that indicates any intent "to alter the limits of state power otherwise imposed by the Commerce Clause."[461] When Congress has not "expressly stated its intent and policy" to sustain state legislation from attack under the Commerce Clause, the courts do not have authority to rewrite such legislation.[462]

A direct tax from general state funds, not tied to retail electric rate surcharges, can promote or subsidize renewable energy in a state. There is precedent for differential tax policy for different energy resources.[463] States are using system benefit charges to fund both DSM and renewable resources. DSM and energy efficiency resources typically are not taxed, even when subsidized by utility rates—there is no "sale" at retail when DSM is deployed.[464] Therefore, DSM actually reduces the amount of retail electric transactions that can be taxed. By contrast, renewable energy resources may produce electricity used on-site or sold to the host utility, whereupon it is resold to other customers and subject to taxation as part of such sale.

There is a long history of both federal and state tax policy to promote renewable resources.[465] FERC has sanctioned the use of

---

[459] *See* Baldwin v. G.A.F. Seelig, Inc., 294 U.S. 511, 527 (1935) (New York's imposition of a minimum milk price had the "aim and effect of establishing an economic barrier against competition with the products of another state of the labor of its residents.").

[460] Middle South Energy, Inc. v. Ark. Pub. Serv. Comm'n, 772 F.2d 404, 414 (8th Cir. 1985) .

[461] United States v. Pub. Util. Comm'n of Cal., 345 U.S. 295, 304 (1953); New England Power Co. v. New Hampshire, 455 U.S. 331, 341 (1982) (citing Pennsylvania v. West Virginia, 262 U.S. 553 (1923); West v. Kansas Natural Gas Co., 221 U.S. 229 (1911)).

[462] Prudential Ins. Co. v. Benjamin, 328 U.S. 408, 427, 431 (1946); New England Power, 455 U.S. at 343.

[463] *See* STEVEN FERREY, LAW OF INDEPENDENT POWER § 10:70 (2004), for analysis of disparate tax policy.

[464] Since DSM typically is expensed for ratemaking purposes, it is not taxed.

[465] Federal tax credits were previously in force for both residential and commercial solar energy equipment. *See* Steven E. Ferrey, *Solar Banking:*

tax credits to promote certain supply-side QF technologies.[466] Where the ratepayers are not directly charged a higher nominal price paid to certain QFs, this higher price can be financed through non-ratebased state taxes or incentives, and does not violate PURPA or federal regulation of wholesale transactions.[467]

However, a tax that is levied by a state on out-of-state goods but not levied against goods produced in state is the archetypal unconstitutional tax scheme.[468] The Court also declares certain income tax credits unconstitutional.[469] However, in *Complete Auto Transit, Inc. v. Brady*,[470] the Court upheld a "privilege of doing business" tax on sales of income of transportation-oriented businesses.

While even-handed taxes are permissible, they may not discriminate against interstate commerce.[471] Coupling an even handed tax with a directly linked subsidy to in-state interests can have the same discriminatory result on interstate commerce as a

---

Constructing New Solutions to the Urban Energy Crisis, 18 HARV. J. ON LEGIS. 483, 485 (1982). However, this may or may not involve the sale of power back to the utility. Several states also provide tax credits or tax deductions for residential or commercial renewable energy equipment. Many states also exempt by state law certain renewable energy or waste reduction technologies from assessment of local property taxes. *See, e.g.*, MASS. GEN. LAWS ch. 59, § 5 (2004).

[466] CGE Fulton, L.L.C., 70 F.E.R.C. ¶ 61,290 (1995). Where amounts paid above avoided costs were paid by taxpayers through tax credits, rather than by ratepayers through rates, subsidy of renewable energy or waste-fueled facilities was permissible. The QF was required to reimburse the cumulative value of tax credits to the state after its indebtedness was repaid. This makes the tax credit more of a tax deferral or non-interest loan to the QF. *Id*. at 61,844.

[467] *Id*.

[468] *See* West Lynn Creamery v. Healy, 512 U.S. 186, 193 (1994); *see also supra* notes 432-437 and accompanying text.

[469] *See supra* notes 438-439 and accompanying text.

[470] Complete Auto Transit, Inc. v. Brady, 430 U.S. 274 (1977). The Court overturned the existing per se rule against "privilege of doing business" taxes (rejecting the per se rule established in *Spector Motor Serv., Inc. v. O'Connor*, 340 U.S. 602 (1951)), focusing not on the formal language of the statute but on its practical effect. *Id*. at 288-89. The Court announced four hurdles a state tax must overcome to be valid: (1) the activity taxed must have sufficient nexus with the state, (2) the tax must be fairly apportioned, (3) the tax must not discriminate against interstate commerce, and (4) the tax must be fairly related to the service provided by the state. *Id*. at 279. Mississippi assessed the tax on all companies "operating a pipeline, railroad, airline, bus, truck, or any other transportation business. . . ." *Id*. at 275.

[471] *See supra* notes 440-444 and accompanying text (discussion of *General Motors v. Tracy*, 519 U.S. 278 (1997)).

discriminatory tax scheme, according to the Court in *West Lynn Creamery*.[472]

C. *State Renewable Trust Fund Surcharge and Subsidy*

The trust funds set up by several states as a means to subsidize renewable energy projects by means of a surcharge or tax on retail utility sales are a different concoction legally than an isolated subsidy. Subsidies are generally constitutional,[473] unless the subsidy is partnered with a tax in such a manner that the scheme as a whole discriminates against interstate commerce.[474] The renewable energy trust funds' linkage to a rate surcharge on interstate power distribution and sale parallels this kind of tax-subsidy partnering scheme.

The rationale for states to try to internalize the economic and environmental benefits of renewable energy promotion are obvious: renewable trust fund revenues are raised by taxing power sales within the taxing state. If the portfolio standard could be satisfied by out-of-state generating projects, the local environmental and economic benefits of renewable energy would not be captured within the state, but would rather be exported to other states. The desire of both schemes is to encourage in-state business and reap the local environmental benefits of renewable energy.

Milk subsidy schemes during the Depression and more recently, have bracketed the court's adjudication of these issues. As predicate to the key *West Lynn* precedent, in *Baldwin v. G.A.F. Seelig*, the Court struck a New York law establishing a single minimum price for all milk sold in the state, whether produced in New York or elsewhere.[475] Although the law applied to all milk sold in New York regardless of origin, the "aim and effect" of the statute was to protect New York's dairy farmers from the adverse

---

[472] *See* discussion *infra* Part IV.C.1.

[473] *See* West Lynn Creamery, Inc. v. Healy, 512 U.S. at 199 (a subsidy "ordinarily imposes no burden on interstate commerce, but merely assists local business."); New Energy Co. of Ind., 486 U.S. at 278 ("Direct subsidization of domestic industry does not ordinarily run afoul of [the Commerce Clause]."); *see also* C & A Carbone, Inc. v. Town of Clarkstown, 511 U.S. 383, 390 (1994) (town could subsidize a municipal landfill facility through general taxed or bond financing).

[474] *See supra* notes 436-439 and accompanying text.

[475] Baldwin v. G.A.F. Seelig, 294 U.S. 511 (1935).

effect of competition principally from Vermont.[476] Because the minimum price regulation had the same effect on competition as a tariff by neutralizing the cost advantage of out-of-state producers, it was held to violate the Commerce Clause.[477]

1. *The* West Lynn *Case*

The combination of a tax or charge with a subsidy, where the former is uniformly applied and the latter is selectively applied based on point of origin of the articles in commerce, bears a resemblance to some of the state trust funds. In *West Lynn Creamery, Inc.*, the Supreme Court underscored that direct subsidization of in-state industry does not ordinarily run afoul of the dormant Commerce Clause.[478] However, when combined with a funding mechanism that is imposed on interstate commerce, including those out-of-state not eligible for subsidy, the Court found a violation of the dormant Commerce Clause.[479]

In *West Lynn*, the Court conceded that either part of the program considered alone—the tax or the payments—would probably be constitutional.[480] However, the Court assessed the "entire program," unable to "divorce the premium payments from the use to which the payments [were] put."[481] The pricing order imposed the entire net burden of the tax on out-of-state producers.[482]

The pricing order's "avowed purpose" was to enable Massachusetts dairy farmers to compete with lower cost out-of-state farmers.[483] The Massachusetts scheme was comprised of two parts. First, the state issued a regulatory pricing order requiring every milk dealer selling in Massachusetts, regardless of location,

---

[476] *Id*. at 527.

[477] *Id*.

[478] West Lynn Creamery, Inc. v. Healy, 512 U.S. 186, 199 n. 15.

[479] *Id*. at 199-200.

[480] *Id*. at 199. The state argued that each component of the program was valid, therefore the sum of the parts must also be valid.

[481] *Id*. at 201. The *West Lynn* Court observed that its "Commerce Clause jurisprudence is not so rigid as to be controlled by the form by which a State erects barriers to commerce. . . . [O]ur cases have eschewed formalism for a sensitive, case-by-case analysis of purposes and effects." *Id*.

[482] *Id*. at 200-01.

[483] By the time Massachusetts declared a "state of emergency" in early 1992, the number of dairy farms in the state had declined from approximately 850 in 1978 to approximately 380 in late 1991.

to make a monthly "premium payment" into the "Massachusetts Dairy Equalization Fund."[484] The amount of such payments was determined by the amount of the individual dealer's "Class I" milk sales in Massachusetts.[485] In other words, the extraction was a direct function of the quantity sold.

Second, the fund's proceeds were distributed monthly to Massachusetts milk producers. Each Massachusetts producer received a share from the total fund equal to his or her proportionate share of the state's total production of raw milk.[486] Out-of-state milk dealers were ineligible to receive funds.[487] This disbursement operated as a state subsidy of in-state dairy farmers, the initial link in the milk production process, by a tax imposed on all wholesalers participating in the state market—a subsequent link in the chain of commerce affecting this good. The state in *West Lynn* pled numerous distinctions and arguments. It argued that because its pricing order or tax was applied only to in-state wholesalers, it was "non-discriminatory."[488] In other words, a state should be allowed to tax or penalize its own in-state transactions. The Supreme Court has upheld state taxation of sales, properly measured by the gross charge for the purchase, "regardless of any activity outside the taxing jurisdiction that might have preceded the sale or might occur in the future."[489] Similarly, a sale of services can be treated as a local state event similar to a sale of tangible goods solely within the state of final services delivery.[490] Therefore, "even gross receipts derived from sales of services to be performed wholly in one State are taxable by that State."[491]

The state also argued that since the direct subsidization of domestic industry is *per se* constitutional, the combination of tax and subsidy—each allowed in its own right—would not violate the

---

[484] West Lynn Creamery, Inc. v. Healy, 512 U.S. at 190.

[485] *Id*. at 190-91.

[486] *Id*. at 191.

[487] *Id*.

[488] *Id*. at 198.

[489] Okla. Tax Comm'n v. Jefferson Lines, Inc., 514 U.S. 175, 186 (1995) (citing McGoldrick v. Berwind-White Coal Mining Co., 309 U.S. 33 (1940) (upholding tax on coal shipped into taxing state)).

[490] Jefferson Lines, Inc., 514 U.S. at 188 (citing Goldberg v. Sweet, 488 U.S. 252 (1989)).

[491] *Id*.

dormant Commerce Clause.[492] The Court disagreed:

> A pure subsidy funded out of general revenue ordinarily imposes no burden on interstate commerce, but merely assists local business. The pricing order in this case, however, is funded principally from taxes on the sale of milk produced in other States. . . . [W]hen a nondiscriminatory tax is coupled with a subsidy to one of the groups hurt by the tax, a State's political processes can no longer be relied upon to prevent legislative abuse, because one of the in-state interests which would otherwise lobby against the tax has been mollified by the subsidy.[493]

The Court focused on how combined tax and subsidy schemes undercut normal political checks and balances. In-state dairy farmers, who would normally be expected to lobby against the milk tax in *West Lynn*, were provided incentives by the subsidy to support the combined scheme.[494]

The state further argued that because the milk dealers who incurred the charges were wholesalers, and thus not direct competitors of the Massachusetts dairy farmers who received the subsidies, who were producers, the scheme imposed no discriminatory burden on commerce.[495] The court rejected this argument by holding that "the imposition of a differential burden on any part of the stream of commerce—from wholesaler to retailer to consumer . . . is invalid, because a burden placed at any point will result in a disadvantage to the out-of-state producer."[496]

The state argued that any incidental burden on interstate commerce resulting from the pricing order is outweighed by local benefits, including "protecting unique open space and related benefits."[497] The environmental argument is one that has been raised in most of the commerce clause adjudications of solid waste regulation that has occupied the courts.[498] The Court here was not convinced that the protection of unique open space was a "central" purpose of the pricing order, and did not accept the state's stated

---

[492] West Lynn Creamery, Inc., 512 U.S. at 198.

[493] *Id*. at 199-200.

[494] *Id.*

[495] *Id*. at 202.

[496] *Id*. at 202 (citing Brown v. Maryland, 25 U.S. (12 Wheat.) 419, 444, 448 (1827)).

[497] *Id*. at 204 n.20.

[498] *See, e.g.*, C & A Carbone, Inc., 511 U.S. at 393.

purposes at face value.[499] In addition, the Court states that "even if environmental preservation were the central purpose of the pricing order, that would not be sufficient to uphold a discriminatory regulation."[500] The use of facially discriminatory economic means taints an otherwise laudable end and violates the dormant Commerce Clause.[501]

The court found Massachusetts' pricing charge and subsidy regulatory scheme to be "clearly unconstitutional" because "[i]ts avowed purposed and its undisputed effect [are] to enable higher cost Massachusetts dairy farmers to compete with lower cost dairy farmers in other States."[502] Because the pricing order's effect on Massachusetts producers was entirely offset by the subsidy provided exclusively to Massachusetts dairy farmers, the court equated the combined tax and subsidy scheme to the legal equivalent impact of an ordinary tariff.[503]

The concurring opinion of Justices Scalia and Thomas found the majority's opinion too extensive. Justice Scalia distinguishes the *West Lynn* scenario of a non-discriminatory tax upon industry, the revenue from which is placed in a segregated fund and is disbursed as subsidies to in-state members of the industry, from a non-discriminatory tax on industry coupled with a subsidy for the in-state members of the industry funded directly from the state general revenues.[504] Although the two tax-subsidy combinations are functionally indistinguishable in impact, Justice Scalia found the formal mechanics provide a "rational line" by which to distinguish dormant Commerce Clause cases.[505] Some commentators have argued that the conservative position of

---

[499] West Lynn Creamery, Inc. v. Healy, 512 U.S. at 205.

[500] *Id*. at 204 n. 20 (citing City of Philadelphia, 437 U.S. at 626-627 ("[W]hatever New Jersey's ultimate purpose, it may not be accomplished by discriminating against articles of commerce coming from outside the State unless there is some reason, apart from their origin, to treat them differently.")).

[501] *Id*. In a later decision, the Court stated that even nonfacially discriminatory taxing schemes may violate the Commerce Clause. Hillside Dairy, Inc. v. Lyons, 539 U.S. 59, 62 (2003).

[502] West Lynn Creamery, Inc. v. Healy, 512 U.S. at 194.

[503] *Id.*

[504] *Id*. at 210-211 (Scalia, J., concurring).

[505] Scalia argues that the difference between these two methods "is the difference between assisting in-state industry through discriminatory taxation and assisting in-state industry by other means. I would therefore allow a State to subsidize its domestic industry so long as it does so from nondiscriminatory taxes that go into the State's general revenue fund." *Id*. at 211.

Justices Scalia and Thomas [506] is the preferable position when analyzing state efforts to promote renewable energy.[507] However, until there is a fundamental change in the significant majority of the Court on these issues, the trust fund concept is suspect as enacted in many states.

2. *Can One Distinguish Renewable Trust Funds to Salvage Their Legality?*

Power is not milk, and renewable energy trust funds are not local dairy subsidies. Although there are significant factual distinctions between milk and power distribution, the legal distinction between them is debatable.

a. *Which Link in the Chain of Commerce is Impacted*

The imposition of the charges is imposed on different stages of commerce for milk and renewable energy. In *West Lynn*, the "tax" was imposed on wholesalers at the level of the wholesale sale transaction. The tax to fund the renewable trust fund is imposed on the retail transaction.[508] The renewables charge could also be imposed on the distribution of electricity at the wholesale level, depending on what the state elects.

---

[506] See *Id.* at 210-11 (Scalia, J., concurring in judgement); Tyler Pipe Indus., Inc. v. Wash. State Dep't of Revenue, 483 U.S. 232, 254-65 (1987) ((Scalia J., concurring in part and dissenting in part); Camps Newfound/Owatonna, Inc. v. Town of Harrison, 520 U.S. 564, 609 (1997).

[507] Kirsten H. Engel, *The Dormant Commerce Clause Threat to Market-Based Environmental Regulation: The Case of Electricity Deregulation*, 26 ECOLOGY L.Q. 243, 323-46 (1999). The arguments are made that strict commerce clause scrutiny should not be applied by the Court where the state purpose in enacting regulation is to correct market failures that exacerbate environmental degradation, that the market participant exception should be expanded by the courts to encompass prevention of state loss of environmental public goods to polluting industries in other states, and that the dormant Commerce Clause should not apply where a state action promotes the health and safety of a foreign states's environment and population, as well as in-state welfare.

With a failure to demand or deploy renewable resources, there is not really a conventional market failure. Many consumers just prefer lower cost electrons to more expensive renewable electrons. Consumers vote with their dollars for products that are identical at the retail level, but which have different by-products of their production. American markets have seldom internalized the long-term costs of consumption choices.

[508] The state regulatory commission creating the rate surcharge for renewable energy only has jurisdiction over retail rates and local distribution of power, so it may only impose charges on retail electric commodities or retail distribution of power. *See infra* Part V.A.

It is debatable whether this distinction has legal significance. Effectively, the *West Lynn* regulatory scheme taxed wholesalers to subsidize producers. The equivalent for the electric market would be to tax wholesale transactions in power to subsidize renewable generators of power. The distinction is that the renewable energy trust fund revenues are taxes or charges imposed one step further down the chain of commerce, at the retail level.

This occurs for two reasons. First, under the Federal Power Act, states have jurisdiction only over retail electric markets, while FERC regulates all wholesale transactions.[509] Jurisdictionally, this is the logical place for such a charge on power. Second, because there is a history of various, often hidden, state taxes on retail electric power bills, including for energy conservation purposes, this is the traditional place of imposition.[510] The fact that the charge to fund the renewable trust fund is imposed only on in-state consumers is irrelevant, as every state tax can be imposed only within that state. The *West Lynn* Court addressed this issue and found that discriminatory impact on commerce, not the ultimate burden of the tax, is the impermissible element.[511]

Regardless of which level of commerce incurs the tax, the result has the same impact on consumer costs and, since all power must be either used at the retail level or lost, does not fundamentally alter any market incentives. Such factual differences have already been addressed by the Supreme Court. In *West Lynn*, the Court looked at the options for imposition of the charge or tax and noteda burden placed at any point [in the stream of commerce] will result in a disadvantage to the out-of-state producer."[512] The court continues: "the imposition of a differential burden on any part of the stream of commerce—from wholesaler to retailer to consumer—is invalid, because a burden placed at any point will result in a disadvantage to the out-of-state producer."[513]

b. *Taxing Commodity Sale or Distribution Service*

While most states' renewable trust fund legislation does not distinguish at what stage of commerce the tax or charge will be

---

509 *See infra* Part V.A.

510 *See* FERREY, *supra* note 43, §§ 10:60-10:68 (2004).

511 West Lynn Creamery, Inc., 512 U.S. at 203 (1994).

512 *Id*. at 202.

513 *Id*. (citing Brown v. Maryland, 25 U.S. (12 Wheat.) 419, 444, 448 (1827)).

imposed,[514] this may make a difference. If a state were savvy, it could elect to impose the tax on the local distribution service, rather than on the sale of the electric good or service. This result might make the tax more acceptable: the state would be taxing a purely in-state *service*, rather than taxing interstate *sales* of power, which can be regarded as a commodity.[515]

Despite the common moniker "deregulated," residual regulation abounds in the competitive market. It might be better labeled "competitive regulation" than deregulation. Who may sell, market, and purchase power is still regulated by the states.[516] While the market is regulated, the price for the sale of power is significantly, but not entirely, deregulated.[517]

California, prior to its recent energy market implosion, was typical of how the competitive, but still regulated, market operates in fact.[518] Non-utility generators may sell power to a customer or a retailer through any scheduling coordinator, while utilities sell through the Power Exchange.[519] Each scheduling coordinator is required to submit hourly balanced generation and demand bids[520]

---

[514] A review of most state legislation reveals that a tax is imposed on all electricity transacted at retail, but it is not indicated whether that tax is imposed on the retail sale of the electricity or the distribution of that electricity to the consumer. Strategically, states might wish to tax the distribution of such electricity, which most clearly is within state jurisdiction.

[515] See discussion of goods versus services in STEVEN FERREY, THE NEW RULES: A GUIDE TO ELECTRIC MARKET REGULATION 211-31 (2000).

[516] For a general treatment of the rules regulating the new marketplace, see generally STEVEN FERREY, THE NEW RULES: A GUIDE TO ELECTRIC MARKET REGULATION (2000).

[517] In many states, utilities are compelled to provide a Standard Offer regulated electric supply for those customers who do not choose a competitive supplier, and a default service supply for those who lose or leave an alternative generation provider. Standard Offer service is scheduled to be no longer available after a multi-year transition period. *See*, *e.g.*, MASS. REGS. CODE tit. 220, § 11.02 (2004).

[518] For a discussion of the California energy market debacle, see Ferrey, *supra* note 20.

[519] CAL. PUB. UTIL. CODE §§ 365(a), 367(e)(2) (2004). The scheduling coordinator provides a forum for market clearing sales. The Power Exchange is a special scheduling coordinator operating pursuant to orders approved by the Federal Energy Commission and under regulations promulgated by the Public Utilities Comm'n and approved by FERC, determined a minimum price per kilowatt hour, the market clearing price, for each hour of the day based on participants' initial bids.

[520] Demand denominates the rate of energy delivered to a customer. *See* FERREY, *supra* note 43, at App. B. A customer or retailer places demand bids into a scheduling coordinator indicating the quantity of energy that a participant

to the Independent System Operator governing board (ISO).[521] Taking these balanced bids, the ISO controls the dispatch of generation, manages the reliability of the transmission grid, provides open access to transmission facilities, and provides ancillary services.[522]

Retail customers in California could purchase power directly from a third-party generator, from a utility, or from an independent energy service provider.[523] Most of the power purchased from each of these entities at retail will have previously passed through a wholesale transaction to arrive at the Power Exchange. Any of these retailers can market electricity generated from a defined portfolio of renewable energy sources.

The implications of a centralized power exchange and ISO are that the precise power taxed will vary day to day, hour to hour. The bilateral contracts for power resale or sale will not dictate the actual operation and flow of power. The ISO will dispatch those power generation resources that are least-cost at each hour of each day, within the parameters of reliability. Therefore, all that will be consistent will be that the consumer will pay the renewable resource trust fund charge based on retail electric purchases.

That particular quantity of power, day to day and hour to hour, will be supplied by an array of different wholesale power resources. It would become an administrative muddle to attempt to track and assess this charge on the kaleidoscope of wholesale power sales. This makes the charge distinct from that on milk in *West Lynn* because the renewable energy tax is imposed at the

---

wishes to buy during a particular time for a particular price.

[521] *See* CAL. PUB. UTIL. CODE § 335 (2004). ISO is a state-created non-profit corporation that manages the utility-owned transmission grid. Creating ISOs gives operating control of the transmission system to an independent organization of the generating facilities using the network. The operating responsibilities of an ISO would include having final authority over the dispatch of generation, ensuring open access to the transmission grid, administering nondiscriminatory service tariffs subject to FERC jurisdiction, and maintaining compliance with reliability standards. Open Access Same-Time Information System and Standards of Conduct, Order No. 889, 75 F.E.R.C. ¶ 61,078 (1996) (amending 18 C.F.R. Part 35). In most situations, utilities will retain ownership of existing transmission facilities while relinquishing operational power to the ISO.

[522] *See* CAL. PUB. UTIL. CODE §§ 345-350 (2004).

[523] A utility retailer buys electric power from the Power Exchange and resells. An energy service provider buys electric power through scheduling coordinators, which can include the Power Exchange, and resells that power.

retail rather than wholesale level. But the tax remains very similar in that it is assessed based on gross sales within the state.

In the unconstitutional Massachusetts milk stabilization scheme, the tax added $0.02 to a gallon of milk, while the renewable trust fund may be slightly more or less depending on the state, but is in the same general range.[524] For example, a $0.0015/kWh charge on an average $0.08/kWh cost of delivered energy, represents a 1.875 percent levy. A $0.02/gallon milk levy on a gallon of milk retailing at a Massachusetts supermarket for $3.09/gallon (representing the price of 2% milk, which is more expensive than skim milk, but less expensive than full fat whole milk), represents a 0.655 percent levy. The tax on electricity is proportionately greater.

Second, typically milk constitutes a much smaller annual expenditure for a Massachusetts consumer than the cost of electricity.[525] The tax impact on gross income is less with milk. Third, one does not typically shop competitively just for milk; it is one item in a cart-full of grocery products purchased. With electricity, in a deregulated competitive state it can be independently sourced and purchased; it is a deliberately competitive market choice, and typically is invoiced as a distinct electric purchase. Therefore, the milk tax appears less significant.

A state also could assert that its renewable energy public goods charge is intended to be an exaction fee. This would be a tax imposed on the distribution of electricity, which takes place entirely within state borders and therefore does not violate the dormant Commerce Clause precedent.[526] However, what offended the Court in *West Lynn* was the total impact of the tax and subsidy scheme. The tax standing alone, or the subsidy standing alone, was permissible. When combined, they had a discriminatory

---

[524] West Lynn Creamery, Inc., 512 U.S. at 201. The $0.001/kWh renewable energy surcharge adds proportionately more to the delivered price of energy than the milk tax adds to a gallon of milk. Therefore, there is more, not less financial impact from the renewable energy trust fund than from the milk charge. Moreover, there are substitutes for milk, while there are no substitutes for electricity for a variety of residential and commercial end-use.

[525] The typical average Massachusetts electric bill is about $700/year, and more if one has electric heating. Energy Information Administration, U.S. Dep't of Energy, U.S. Average Monthly Bill by Sector, Census Division, and State 2002, *at http://www.eia.doe.gov/cneaf/electricity/esr/table1.xls* (last visited Apr. 29, 2004).

[526] *See* Okla. Tax Comm'n, 514 U.S. at 186.

impact based upon point or origin of the commerce.[527] The renewable energy tax and subsidy is more significant in impact than the stricken milk tax and subsidy. Whether imposed upstream or downstream in the course of commerce, and whether imposed on the sale or the distribution of the article in commerce, the levy, when coupled with a selective subsidy based on point of origin, likely is unconstitutional.

c. *Selective Subsidies*

In *West Lynn*, every in-state dairy producer was entitled to receive a portion of the eventual subsidy. With a renewable energy trust fund, only certain in-state generators receive subsidies. There is no automatic entitlement to subsidy. Moreover, some minority of the funds raised in certain of the states employing a renewable energy trust fund will be used for public information and promotion, where no individual power generator directly is subsidized. However, this likely will be a small percentage of total trust funds in each state.

This creates two types of selective subsidy: Only some in-state renewable energy generators benefit, and only some renewable energy projects benefit. More importantly, it decouples the subsidy from direct proportionate receipt by all in-state market participants. This discriminatory subsidy, standing alone, should be within state policy discretion and not violate the Commerce Clause.[528]

In *West Lynn*, approximately one-third of the milk tax was imposed on milk in-state, and two-thirds on interstate commerce from out-of-state producers.[529] So, the two-thirds out-of-state subsidized the one-third of the producers located in-state. In some of the electricity deregulated states, less than two-thirds of the taxed power may come from out of state.[530] But whether the

---

[527] *See supra* notes 480-482 and accompanying text.

[528] C & A Carbone, Inc., 511 U.S. 383 (1994) (town could subsidize its solid waste processing facility through regulation); New Energy Co. of Ind., 486 U.S. at 278 ("Direct subsidization of domestic industry does not ordinarily run afoul of" the Commerce Clause); South-Central Timber Dev., Inc. v. Wunnicke, 467 U.S. 82, 99 (1984) ("state could support its [timber] industry . . . by direct subsidy.").

[529] West Lynn Creamery, Inc., 512 U.S. at 188, 190 n.5.

[530] On average, about fifty percent of power ultimately sold proceeds through an interstate wholesale transaction prior to its retail sale. As recently as 1984, only about eight percent of all power arrived via a wholesale transaction. By the

power taxed from out of state is one-third or two-thirds does not alter the basic legal distinction based on point of origin of the power. The Court in *West Lynn* focused on the ultimate economic impact, noting:

> The [assessment is] effectively a tax which makes milk produced out of State more expensive. Although the tax also applies to milk produced in Massachusetts, its effect on Massachusetts producers is entirely . . . offset by the subsidy provided exclusively to Massachusetts dairy farmers.[531]

What is important in *West Lynn* is not the discretionary or nondiscretionary nature of the subsidy (although this exacerbated its economic impacts) but the legal nature of the combined effect of tax and subsidy.[532] Though not all in-state generators benefit, all out-of-state generators are not included in the subsidy but must pay the tax. The subsidy system still is discriminatory based solely on point of origin. The fact that the benefits are targeted to certain in-state projects still maintains the basic distinction between the taxed and the benefitted based on point of origin.[533]

d. *Market Segmentation and Energy Services*

While milk is a classic good, states vary as to whether electricity is considered a good or a service.[534] While the trend at FERC appears to be to consider electricity a "good"[535] (with state law being mixed in those states that have considered the issue),[536] it should not fundamentally alter the Commerce Clause analysis. States have the ability to license and restrict certain services (for

---

1987, this number had increased to thirty-seven percent. *See* FERREY, *supra* note 43, §§ 8:3-8:4 (2004).

[531] West Lynn Creamery, Inc., 512 U.S. at 194.

[532] *Id*. at 199-200.

[533] In *Bacchus Imports, Ltd.*, 486 U.S. at 273, only a limited number of Hawaiian liquor producers were benefitted by the tax credit. The fact that other Hawaiian liquor dealers would be bearing the same discriminatory burden as out-of-state competitors did not protect the tax credit from constitutional attack.

[534] For a discussion of the "goods" versus services distinction for electricity, *see* FERREY, *supra* note 515. *See also* Steven Ferrey, *Defining Power: Electrons and the Law*, 32 Envtl. L. Rep. (Envtl. L. Inst.) 10,038 (Jan. 2002).

[535] FERC has applied the Uniform Commercial Code to electricity disputes, thereby implying that electricity is a good. Commonwealth Elec. Co. v. Boston Edison Co., 46 F.E.R.C. ¶ 61,253 (1989); Village of Jackson Center, 91 F.E.R.C. ¶ 63,013 at 65,123-124 (1994); Cent. Ill. Pub. Serv. Co., 20 F.E.R.C. ¶ 61,043 at 61,089 (1982); Golden Spread Elec. Coop., 40 F.E.R.C. ¶ 61,348 (1987).

[536] *See* Ferrey, *supra* note 534.

example, legal services) so as to protect the consumer public. However, electricity is not a *traditional* service in this sense. While a state might license retailers of power to protect consumers, this is distinct from the tax/subsidy scheme to create a renewable trust fund.

Assuming that a state has the authority to tax a service, and that electricity was deemed by the courts in that state as a service, there still is discrimination based on the point of origin that creates the commerce. As a matter of basic physics, an electron is an electron. The entire regulatory scheme still is based on point of origin and evaluated under a strict scrutiny test rebuttably presuming *per se* invalidity.

States can segment the market to promote renewable energy. FERC expressly acknowledged a state's ability to promulgate regulations favoring particular generation technologies over others, in holding that a "state may choose to require a utility to construct generation capacity of a preferred technology or to purchase power from the supplier of a particular type of resource."[537] FERC suggests that the mechanism to do this may be for "a state [to] account for environmental costs of all fuel sources including an all source determination of avoided cost."[538] This provides a means, as long as the price paid is not more than the general market or administratively set price. While states may not violate federal law, they retain jurisdiction to structure the resource composition of the power supply market.

Applied to renewable energy, the American Wind Energy Association, a renewable energy trade group, suggests that once a state decides to introduce a renewable energy portfolio standard, it has segmented the state retail power market into renewable and conventional energy resources.[539] They suggest that in segmented markets, prices should not be comparable; the resultant divergent prices set by market forces in these two submarkets would then be legitimate.[540]

Certain pieces of this segmentation puzzle would be legally legitimate under prevailing precedent. As long as renewable

---

[537] S. Cal. Edison Co., 70 F.E.R.C. ¶ 61,215, at 61,676 (1995).

[538] *Id.*

[539] *See* Am. Wind Energy Ass'n, The Mechanics of a Renewables Portfolio Standard Applied at the State Level (1997), *at http://www.awea.org/policy/rpsmechste.html* (last visited Apr. 17, 2004).

[540] *Id*.

energy portfolio requirements[541] are not discriminatory based on point of origin of the power, they could be legitimate conditions on licensure of participants in the local retail market. This makes a critical distinction: since renewable energy portfolio standards will not typically discriminate facially or in application based on point of origin, they should be evaluated legally under the less stringent *Pike* "balancing" test or be permitted because there is no significant burden on interstate commerce. Under these tests, portfolio standards should pass legal muster.

Mandating by regulation that retail portfolios be comprised of a set percentage of resources, or watching as separate submarkets result in divergent competitive prices, is distinct from a regulatorily-mandated combined tax/subsidy trust fund scheme based on point of origin of the power resource. The former provisions are not based on point-of-origin regulation, while the latter may well be depending on state design. A trust fund that facially or in application discriminates against interstate power will be evaluated under the *Philadelphia* strict scrutiny *per se* standard, and will likely be found unconstitutional. Despite the fact that there is a legitimate local purpose for a trust fund scheme, if it discriminates it can smack of traditional protectionism and could be accomplished in a less restrictive geographic manner.

While the state can segment the market, a state can not discriminate in price or require a renewable QF to be paid more than the price paid for other power.[542] In some states, where regulated utilities divest themselves of their generating assets, utilities are proposing to pay the average or hourly wholesale market-clearing price paid by the ISO or power exchange, as the post-deregulation avoided cost.[543] In such circumstances, a renewable energy QF, on a short-term basis, could not be paid more than the average price paid for all power sources at

---

[541] See discussion of renewable energy portfolio standards *supra* Part II.A.2.

[542] FERC held that "[w]hether a benchmark process alone, a bidding process alone, or a combination benchmark-bidding process is used to establish the actual price paid for QF power, it must take into account all sources, i.e., all technologies and all types of sellers." S. Cal. Edison Co., 71 F.E.R.C. ¶ 61,269, at 62,078 (1995).

[543] For example, Massachusetts sets short-term avoided cost PURPA rates for QFs smaller than 1 MW at the average ISO market-clearing price, because the regulated utilities no longer produce or purchase power, except for purposes of Standard Offer power supply during a multi-year transitional period. MASS. REGS. CODE tit. 220, § 8.05 (2004).

market.[544] Where a contract is freely negotiated, even if covered by PURPA, or if operating under a PURPA waiver, the unitary avoided cost price ceiling does not apply.[545]

In *New England Power Co. v. New Hampshire*, the Court overturned a New Hampshire Public Utilities Commission regulation that restricted the export of privately owned hydroelectric energy produced within the state by a multi-state wholesale company.[546] The New Hampshire regulation of power, based exclusively on its point of origin, attempted to husband cheaper hydroelectric power within the state.[547] The Court held the regulation to be facially discriminatory and a violation of the dormant Commerce Clause in spite of the states' traditional power to regulate the electric market.[548] Whether considered a "good" or a service, there does not appear to be a basis to discriminate based on point of origin even in a segmented energy market.

e. *Environmental Protection Purpose*

In some instances, the Court has deferred to, and made central to its reasoning, the state's stated purpose for a particular regulation.[549] The underlying purpose of the milk subsidy was to promote in-state milk production against cheaper out-of-state competition.[550] The purpose of a renewable trust fund can be justified by energy source diversity, environmental, economic development, and national security goals,[551] while a milk tax is

---

[544] Of course, where QFs enjoy a long-term pre-set contract price, that price may not be unilaterally changed. *See* Steven Ferrey, *The QF Cost Dilemma: PURPA Enforcement and Deregulation*, ELECTRICITY J., Mar. 1997, at 62, 65-66. It is not clear whether a renewable energy QF could renounce its QF status and thereafter assert that the FERC precedent on avoided cost did not apply in a segmented market. For more detailed discussion of avoided cost rules, *see* FERREY, *supra* note 43, §§ 7:1-7:31.

[545] Kansas City Power & Light Co. v. State Corp. Comm'n, 676 P.2d 764, 766 (Kan. 1984).

[546] New England Power Co. v. New Hampshire, 455 U.S. 331 (1982).

[547] *Id*. at 335-36.

[548] *Id*. at 339.

[549] *See*, for example, Pac. Gas & Elect. Co. v. Cal. Energy Resource and Dev. Comm'n, 461 U.S. 190, 207-08 (1983) (Court defers to the stated purpose of economic planning where a regulation appears to have been enacted to block nuclear power based on its health and safety impacts, which are exclusively within federal jurisdiction).

[550] West Lynn Creamery Co, 512 U.S. at 190-91, 194, 204-05.

[551] *See generally* TELLUS INST., *supra* note 138. The legal analysis of this report for the New England governors was prepared by Professor Ferrey.

justified by a narrower and more parochial set of goals, such as protectionism. While trust funds can be justified on a variety of purposes, some renewable energy trust funds are expressly predicated, in part, on a goal to encourage the continued survival of the state's renewable energy industry.[552]

There are few compelling local police power justifications, aside from economic protectionism for host-state interest, for limiting a renewable portfolio or tradable portfolio credits to in-state resources.Because the primary environmental benefits of renewable power deployment are air quality, CO_2 and criteria emissions improvements, and thus are ambient and regional in scope, there is only a partial linkage between the loci of renewable power generation and the local environment. This linkage becomes even more tenuous as wholesale power markets deregulate and power trades over greater distances before reaching consumers.

Moreover, for the foreseeable future, the percentage contribution of renewable power to the national energy mix is expected to remain quite modest, even though it should be increasing significantly.[553] Therefore, whether deployment of renewable resources in a region is within or outside of a particular state, may not dramatically alter the local environment in the state.

While purpose and motive may matter, it is quite possible that these renewable energy goals could be accomplished in a manner less discriminatory against interstate commerce. Quite simply, the subsidy could be afforded to all renewable projects regardless of state loci. There are other means to promote renewable technologies.[554] The burden to demonstrate the unavailability of less discriminatory alternatives adequate to protect the local interest falls on the state.

However, there would likely be state resistance to this on two levels. First some states would be loath to subsidize out-of-state renewable energy industry that does not contribute directly to state property tax or state economic development. Second, since deregulation is occurring sporadically among the states at varying

---

[552] *See, e.g.*, MASS. GEN. LAWS ch. 40J, § 4E (West 2003).

[553] Even those states that have adopted a portfolio standard start with a modest percentage that increases by one-half or one percent annually. *See, e.g.*, discussion of Massachusetts' program and others *supra* Appendix.

[554] *See supra* Part II for a description of various promotional techniques.

paces, a broad subsidy could result in aiding out-of-state renewable projects in states that have not yet opened their markets.[555] Out-of-state renewable energy projects could sell across state lines into the deregulated and open market state affording the subsidy, but not the converse. While this would still promote the often-stated goal of encouraging the development of renewable energy technologies, it would invoke in-state criticism of subsidizing foreign commerce in states that would not themselves allow such foreign-originated energy commerce.[556]

While there are good policy reasons to promote renewable energy by correcting through regulation ordinary consumer market choices that have long-term environmental impacts, this policy rationale exists for every industry that uses the environment for discharge of pollutants. There may be no particular reasons to treat power production differently than industry in general. Commerce Clause jurisprudence to date makes no distinction that would recognize certain types of facial discrimination based on point of origin, while invalidating others. It is the impact on interstate commerce, not the motivation or importance of a particular commercial activity to the regulating state, that raises constitutional issues.

Moreover, where protectionism of in-state interest is involved, the *West Lynn* Court did not accept the environmental purpose or rationale at face value. The Court was not convinced that the protection of unique open space was a "central" purpose of the Massachusetts milk pricing order.[557] In *City of Philadelphia*, the Court held that however legitimate a state's ultimate environmental protection purpose, such may not be accomplished by discriminating against out-of-state articles of commerce, unless justified by some rationale apart from place of origin.[558]

---

[555] For a discussion of state progress, see FERREY, *supra* note 43, §§ 10:8, 10:12 (2003).

[556] However, under PURPA, most renewable energy projects would have the right to sell power output to utilities. Under the Energy Policy Act of 1992, these projects can move that power across state lines to other utilities who must then purchase the power. 18 C.F.R. § 292.303(a) (2003). However, this is distinct from being permitted to sell directly at retail, which is solely a function of state regulation of its retail markets.

[557] West Lynn Creamery, Inc., 512 U.S. at 204 n. 20.

[558] City of Philadelphia, 437 U.S. at 626-627; *see also* C & A Carbone Inc., 511 U.S. at 393 (town cannot "justify the flow control ordinance as a way to steer solid waste away from out-of-town disposal sites that it might deem

The Court in *West Lynn* found that even if environmental preservation were the central purpose of the milk pricing order, that would not be sufficient justification to uphold a discriminatory regulation.[559] The purpose of most trust funds, to develop and deploy new environmentally benign technologies, could be served equally well by technologies developed in different and foreign states. There is unlikely to be sufficient justification to subsidize differently out-of-state renewable energy generation. The Court has consistently maintained that Commerce Clause violation occurs from either discriminatory purpose or discriminatory effect—either by the design or application of regulation.[560] The trust funds for renewable energy find no legal exception based on their purpose.

f. *Market Participation Exception*

There is a market participant exception to Commerce Clause limitations. However, renewable energy portfolio standards and trust funds do not qualify as state market participation but rather are implemented by regulation. The market participant exception is applied by the Court only where the state owns the resource or article in commerce, or creates such commerce entirely by state tax expenditure or subsidy.[561] Therefore, trust funds do not qualify under the market participant exception to Commerce Clause limitations.

In one instance, the Second Circuit allowed discrimination based on point of origin where it was accomplished by a private entity contracting with the government, which imposed restrictions on the private party's implementation of the contract.[562] While a portfolio standard in a deregulated competitive electric market cannot be accomplished by direct state ownership of the article in

---

harmful to the environment. To do so would extend the town's police force beyond its jurisdictional bounds.").

[559] West Lynn Creamery, Inc., 512 U.S. at 204 n. 20.

[560] Bacchus Imports, Ltd., 468 U.S. at 270; Clover Leaf Creamery Co., 449 U.S. at 471 n.15.

[561] *See* Hughes v. Alexandria Scrap, 426 U.S. 794 (1976); White v. Mass. Council of Construction Employers, Inc., 460 U.S.204 (1983); Reeves v. Stake, 447 U.S. 429 (1980). In these cases, the state was allowed to favor its residents in the allocation of bounties (cash rewards), employment opportunities, and in-state goods, when the state owned the resources which were created by the use of tax dollars.

[562] *See* SSC Corp. v. Town of Smithtown, 66 F.3d 502 (2d Cir. 1995).

interstate commerce, there could be an option to contract certain state functions to private contractors. States have traditionally been involved in promotion of renewable resources.[563] If a state contracted with private entities to somehow provide this function, then a facial discrimination or subsidy based on point of origin as a condition of the contract might be less objectionable.

While certain state renewable trust funds delegate allocation of the subsidy to a quasi-private board, this is not the same as privatization of this function.[564] Even where the state owns a utility itself, where it requires by regulation other private utilities to implement a facially discriminatory program based on point of origin, it acts in a suspect *regulatory*, rather than proprietary, mode.[565] To attempt to fit under this exception accepted by the Second Circuit, a state would have to delegate its renewable energy subsidy administration to a private entity, subject to contractual restrictions on out-of-state allocations. It is not clear that this program distinction would be acceptable to other courts, or even to the Second Circuit.[566]

Ultimately, this in-state preference must not be accomplished by regulation or restriction of private industry. To date, all state renewable trust fund systems are implemented by industry regulation to implement the tax and subsidy scheme. The linkage of the tax and the subsidy are regulatory, and thus will be evaluated judicially under the strict scrutiny *per se* test. They will most likely fail constitutional muster if they discriminate based on geographic origin of the commerce.

g. *Political Checks and Balances*

The Court in *West Lynn* was concerned about how combined tax and subsidy schemes undercut normal political checks and balances, by neutralizing those affected by the tax in-state who

---

[563] See discussion of federal promotion of renewables *supra* Part III.

[564] For example, the Massachusetts deregulation legislation delegates the subsidy allocation to the Massachusetts Technology Park Corporation. See discussion *infra* App.A.

[565] Wyoming v. Oklahoma, 502 U.S. 437 (1992) (notwithstanding state ownership of a utility, state could not require by regulation private utilities to burn local coal, to the discrimination against out-of-state coal).

[566] On the same day that the Second Circuit allowed the exception in the decision in *SSC Corp. v. Town of Smithtown*, 66 F.3d 502 (2d Cir. 1995), it decided to the contrary in a very similar waste case. *Cf.* USA Recycling, Inc. v. Town of Babylon, 66 F.3d 1272, 1282-83 (2d Cir. 1995).

could lobby politically against such a tax.[567] In many, but not all, states, renewable energy trust funds are enacted by legislation. The milk stabilization act in *West Lynn* was a regulatory order, not an act of the legislature.[568] The renewable surcharge and the renewable subsidy are created by the same legislation, revenues raised are earmarked for subsidy to an in-state subset of the taxed population, and that subsidy neutralizes the political group that normally would provide a check against such a tax.

Even if suspect, the question remains who will challenge the renewable energy incentives. In most cases, the utilities have agreed to the renewable incentives as part of the legislative process. In return for agreeing to be the collectors of this tax, the utilities do not bear any of this cost. In return, legislatures in most states have agreed to allow utilities full recovery of stranded costs. The trade-off for participants in the deregulation process is obvious.[569]

There is a factual difference in impact of these two regulatory schemes. In *West Lynn*, all in-state milk producers were subsidized in direct proportion to their share of the total in-state market.[570] With the typical renewable energy trust fund, only certain selected renewable projects will be subsidized, with no relationship under many of the schemes to their actual or projected market shares. In addition, renewable energy in most states constitutes only a few percent of total power generation. Therefore, a renewable energy trust fund is targeted to a small subset of market participants who develop projects that are deemed to be in the public interest. The goals and microeconomic distributional benefits are different under the two schemes.

What is quite similar of both renewable energy trust funds and

---

[567] *See* West Lynn Creamery, Inc., 512 U.S. at 200. The Court identified three potential groups that would lobby against the tax: milk producers (farmers), milk dealers, and consumers. *Id*. Because the former group was eliminated from lobbying because of the automatic subsidy that it received, the "State's political process can no longer be relied upon to prevent legislative abuse." *Id*.

[568] *Id*. at 189-190. While a statute is less subject to constitutional attack, the key distinction is whether a state acts in a regulatory/statutory mode or in a proprietary mode for purposes of Commerce Clause analysis. While a renewable energy trust fund enacted at the legislative level is less capable of challenge on process grounds, there is no difference between a regulatory and a legislative requirement for purposes of Constitutional analysis.

[569] *See* FERREY, *supra* note 43, §§ 10:08-10:11; FERREY, *supra* note 515, at 233-42.

[570] West Lynn Creamery, Inc., 512 U.S. at 191.

the milk subsidy is that both extract a charge exclusively as a function of gross sales or transactions. The more one sells, the more one pays. This raises the possibility that if those in-state renewable energy projects subsidized become able to produce less expensive electricity, then they would gain market share and pay more tax, while unsubsidized competitors would lose market share and therefore not have to pay the tax.

While at first blush this appears to inject some self-balancing equity in the scheme, it really only underscores the impermissible result of the scheme: protected selected in-state industry gains market share at the direct expense of unsubsidized out-of-state industry. Fundamentally, it is the in-state use of the proceeds, not the particular individual recipients, that makes the scheme suspect constitutionally.

With a renewable subsidy that only reaches a small portion of competitive generators, and not even all renewable energy generators, that normal political process is not so significantly distorted. However, nonrecipient renewable energy generators might still be intimidated from speaking out against the scheme, for fear that they would be "blackballed" from future discretionary decisions of the state regarding subsidy recipients. This concern about the political process, ultimately likely did not weigh as heavily in Commerce Clause jurisprudence as the point of origin distinction in the regulation.

V
CONSTITUTIONAL ANAYLYSIS: FEDERAL PREEMPTION OF CERTAIN STATE AUTHORITY OVER RENEWABLE ENERGY PRICE PROMOTION

FERC may preempt state regulation of wholesale power transactions and prices. Where federal law occupies the field and there is evidence of a pervasive federal scheme in a given area, by inference, courts will find state or local legislation preempted.[571] The federal government does not have as pervasive a need for national uniformity nor does it demonstrate pervasive federal interest in the area of environmental regulation.[572]

---

[571] *See* City of Burbank v. Lockheed Air Terminal, Inc., 411 U.S. 624, 649 (1973) (federal government occupied field of noise regulation for aircraft).

[572] *See* City of Milwaukee v. Illinois, 451 U.S. 304, 325-28 (1981).

Environmental protection is a traditional local power, and many of the federal environmental statutes set federal minima, with express license to local authorities to regulate more stringently. [573] "[A] federal decision to forgo regulation in a given area may imply an authoritative federal determination that the area is best left *un*regulated, and in that event would have as much pre-emptive force as a decision to regulate."[574] Even where there is no evident congressional intent to federally occupy a field, the conflict principle requires that a court strike inconsistent state or local law.[575] State regulation is not allowed to veto the regulatory scheme of a superior level of government.[576] Correspondingly, courts hold that where state and federal laws complement each other, there is no preemption.[577]

Where the area of regulation is one traditionally reserved for local or state police power regulation, courts must exercise a strong presumption against implied federal preemption in the absence of evidence of the "clear and manifest purpose of Congress."[578] The Court will not presume that merely because Congress regulates in an "intricate and complex" manner, even where that regulation is broadened repeatedly over the years, that preemption is implied by the legislature.[579] It is an important legal issue whether a state may promote renewable energy projects by causing directly or indirectly higher prices for power produced from renewable energy projects. When deploying techniques it is essential that states carefully consider the distinctions between

---

[573] *See* FERREY, *supra* note 145, at 149-50 (discussing savings clauses as are found in the Clean Air Act and Clean Water Act).

[574] Ark. Elect. Coop. v. Ark. Pub. Serv. Comm'n, 461 U.S. 375, 384 (1983).

[575] *See* Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 230 (1947); Hill v. Florida ex rel. Watson, 325 U.S. 538, 541-42 (1945).

[576] *See* Granite Rock Co. v. Cal. Coastal Comm'n, 768 F.2d 1077, 1082 (9th Cir. 1985).

[577] *See* N.Y. State Dep't of Soc. Servs. v. Dublino, 413 U.S. 405, 421 (1973) (no preemption where complementary state and federal statutes); Merrill Lynch, Pierce, Fenner & Smith, Inc. v. Ware, 414 U.S. 117, 138 (1973) (state policy allowed absent conflict with federal scheme). For some courts, even where the federal act is pervasive, local regulation is permitted. *See* Huron Portland Cement Co. v. City of Detroit, 362 U.S. 440, 443 (1960).

[578] Hillsborough County v. Automated Med. Labs., Inc., 471 U.S. 707, 715 (1985) (citing Jones v. Rath Packing Co., 430 U.S. 519, 525 (1977)). The Supreme Court held that for purposes of assessing preemption under the Supremacy Clause of the U.S. Constitution, there is no distinction between local and state statutes. *Id*. at 713 (1985).

[579] *Id*. at 716-17 (quoting Dublino, 413 U.S. at 415).

wholesale and retail jurisdiction, the constitutional requirements of the Filed Rate Doctrine,[580] the distinctions that are created when these techniques are employed in a deregulated, rather than regulated, environment, as well as limitations on state discretion.

A. *Preemptive Federal Regulation of Power Sales and Terms*

The North American power grid is composed of many individual pieces, owned by local transmission companies, which operate under the overlapping jurisdiction of fifty-five state and provincial government agencies, as well as three national regulatory authorities.[581] FERC regulates entirely wholesale power transactions. The Federal Power Act defines "sale of electric energy at wholesale" as any sale "to any person for resale."[582] FERC also regulates power generation (to a limited degree), power transmission in interstate commerce, and interstate power sales.[583] FERC jurisdiction is plenary and extends to all sales in interstate commerce.[584]

FERC does not regulate the local distribution of power, power solely in intrastate commerce, or the self-generation and use of power.[585] Section 212 of the Federal Power Act, as amended by the Energy Policy Act of 1992, addresses retail sales of electricity.[586] It contains a prohibition on FERC orders inconsistent with any state law that governs retail-marketing areas of electric utilities.

"Interstate commerce" is a broad legal term.[587] Sales of power that appear to be intrastate or local in character may be considered interstate for purposes of FERC jurisdiction. A utility, even if it sold its power first to an intermediate utility that then

---

[580] *See infra* Part V.B.

[581] The others are Natural Resources Canada and Comision Reguladora de Energia (Mexico).

[582] 16 U.S.C. § 824(d) (2000).

[583] 16 U.S.C. § 824(a) (2000). Federal regulation extends "only to those matters which are not subject to regulation by the States." *Id*.

[584] N. States Power Co. v. Minn. Pub. Util. Comm'n, 344 N.W.2d 374, 378 (Minn. 1984), *cert. denied*, 467 U.S. 1256 (1984).

[585] *See* Conn. Light & Power Co. v. Fed. Power Comm'n, 324 U.S. 515, 523 (1945); City of Batavia v. Fed. Energy Regulatory Comm'n, 762 F.2d 64, 68 (D.C. Cir. 1982) (FERC regulates wholesale transactions; states regulate retail transactions).

[586] 16 U.S.C. § 824(g) (2000).

[587] 16 U.S.C. §824(c) (2000).

places the power in interstate commerce, may be regulated by FERC.[588] FERC jurisdiction can extend from the point of the power's origin on the basis that the entire sale affects interstate commerce.[589] There is no statutorily or judicially imposed threshold amount of interstate sale of power which triggers FERC jurisdiction. Although the amount of power an electric utility may place in interstate commerce is *de minimis* compared to the same utility's sales in intrastate commerce, FERC may assert its regulatory authority over such a utility.[590] If a small amount of interstate power is commingled with interstate power, the entire amount of power becomes "interstate" for purposes of vesting FERC with the authority to exercise jurisdiction.[591] Once FERC exercises jurisdiction over a utility, the entire wholesale structure of the entity's operations becomes subject to FERC regulation.

Jurisdiction over transactions between utilities and their affiliates is vested primarily in the Securities and Exchange Commission (SEC).[592] Even though the SEC has primary jurisdiction over such transactions, FERC's rate-making jurisdiction allows FERC to decide the reasonableness of affiliated entity contracts.[593]

The transmission of electricity in interstate commerce, an additional basis for FERC jurisdiction, is defined as electricity transmitted from one state and consumed at any point outside the state.[594] However, this provision has consistently been interpreted

---

[588] The burden is on FERC to assert and prove jurisdiction. Fla. Power & Light Co. v. Fed. Power Comm'n, 430 F.2d 1377, 1385 (5th Cir. 1970), *rev'd on other grounds*, 404 U.S. 453 (1972).

[589] Jersey Cent. Power & Light Co. v. Fed. Power Comm'n, 319 U.S. 61 (1943).

[590] Fed. Power Comm'n v. S. Cal. Edison Co., 376 U.S. 205, 208 n. 5 (1964); Ark. Power & Light Co., v. Fed. Power Comm'n, 368 F.2d 376, 382 (8th Cir. 1966).

[591] United States v. Public Util. Comm'n of Cal., 345 U.S. 295 at 316-17 (1953); Cincinnati Gas & Elec. Co. v. Fed. Power Comm'n, 376 F.2d 506, 508 (6th Cir. 1967), *cert. denied*, 389 U.S. 842 (1967); Pub. Serv. Co. of Ind. v. Fed. Power Comm'n, 375 F.2d 100, 103 (7th Cir. 1967), *cert. denied*, 387 U.S. 931 (1967);

[592] Public Utility Holding Company Act of 1935, 15 U.S.C. §§ 79 to 79z-6 (2000).

[593] Arcadia v. Ohio Power Co., 498 U.S. 73 (1990) (FERC determination of excessive payments to affiliate of utility for supply of coal can result in refund pursuant to Section 318 of the Federal Power Act, notwithstanding primary jurisdiction of the SEC).

[594] 16 U.S.C. § 824(c) (2000).

to mean that FERC has jurisdiction when the system is interconnected and capable of transmitting energy across the state boundary, even though the contracting parties on the electric contract pathway between them are wholly within one state. Similarly, transmission of power over a utility transmission grid that is used in interstate commerce is subject to FERC jurisdiction, even when all parties to the wheeling transaction are located within the same state.[595]

Thus, the most common basis for FERC jurisdiction is a transaction in interstate commerce. Transmission systems that primarily operate in intrastate commerce can be tainted by their relationship to interstate commerce. If so, they subject the utility that owns the transmission system to FERC regulation. The burden is on FERC, however, to prove the jurisdiction that it asserts.

Assuming that a generating entity does not own the transmission facility used to transmit power in interstate commerce, the power generating entity generally will not become subject to FERC regulation merely because it used another's interstate transmission system.[596] If a transmission agreement provides for the movement of power from one state to another, that transmission agreement and the obligations of all parties to it are subject to FERC jurisdiction.[597] If the utility's power moves in interstate commerce, although it does not own all transmission facilities, FERC may construe the generating entity's contracts, accounts, and records as "facilities" for the purpose of asserting jurisdiction over the power sale.[598]

FERC established that the rates for wheeling power produced by QFs are subject to the commission's jurisdiction where the transmission occurs in interstate commerce.[599] Such jurisdiction is exclusive and preempts state regulation of the rates for

---

[595] In *Fla. Power & Light Co.*, 404 U.S. at 458-62 (1972), the Supreme Court made clear that federal jurisdiction attaches even if the utility has no direct connection with another utility outside the state but is interconnected with another utility that in turn has interstate connections with other utilities.

[596] Fla. Power & Light Co., 430 F.2d at 1380.

[597] Appalachian Power Co. v. Pub. Serv. Comm'n of W. Va., 630 F. Supp. 656, 662 (S.D. W. Va. 1986), *aff'd*, 812 F. 2d 898 (4th Cir. 1987).

[598] Hartford Elec. Light Co. v. Fed. Power Comm'n, 131 F. 2d 953, 961 (1942), *cert. denied*, 319 U.S. 741 (1943).

[599] Fla. Power & Light Co., 29 F.E.R.C. ¶ 61,140 at 61,292 (1984).

transmission that occurs in interstate commerce.[600] If a QF sells power to a local utility under the auspices of PURPA, and owns no transmission facilities that transmit power in interstate commerce, it is not subject to either FERC, state, or local regulation as a "public utility."[601] The QF's local connection with a utility transmission network will not render the QF as placing power in interstate commerce regardless of where that power ultimately is consumed.[602]

B. *Filed-Rate Doctrine*

If a utility or independent power producer is subject to FERC jurisdiction and regulation, state regulation of the same operational aspects is preempted as a matter of federal law.[603] Principles of preemption require a state regulatory agency to accept and pass through in retail rates all cost items deemed by FERC to be "just and reasonable," and which are otherwise allowed.[604] Therefore, a FERC determination regarding any aspect of a wholesale price is universally binding.

The so-called "filed-rate doctrine" holds that state utility regulatory commissions may not second-guess or overrule on any grounds a wholesale rate determination made pursuant to federal jurisdiction.[605] The Supreme Court in 1986 and again in 1988 upheld the filed-rate doctrine.[606] The filed-rate doctrine extends to

---

[600] *Id.*

[601] 16 U.S.C. § 824a-3 (2000)

[602] 16 U.S.C. § 824(b)(1) (2000).

[603] *See, e.g.*, Ark. Power & Light Co., 368 F.2d at 377 n.1; Nantahala Power & Light Co. v. Thornburg, 476 U.S. 953, 966 (1986); Appeal of New England Power Co., 424 A.2d 807, 811-12 (N.H. 1980).

[604] Appeal of Sinclair Mach. Prods., Inc., 498 A.2d 696, 701-02 (N.H. 1985).

[605] The Supreme Court has determined that Congress, in enacting the Federal Power Act, intended to vest exclusive jurisdiction in the FERC to regulate interstate wholesale utility rates. S. Cal. Edison Co., 376 U.S. at 216 (1964); Narragansett Elec. Co. v. Burke, 381 A.2d 1358, 1361 (R.I. 1977), *cert. denied*, 435 U.S. 972 (1978) (federal preemption of state discretion on retail rate passthrough of wholesale rated established pursuant to federal jurisdiction); Spence v. Smyth, 686 P.2d 597, 600 (Wyo. 1984) (relying on N. States Power Co. v. Hagen, 14 N.W.2d 32, 38 (N.D. 1981)). A state court in Pennsylvania announced the so-called *Pike County* exception, allowing states to review the prudence of utility wholesale purchases or allocations and deny passthrough of FERC-approved wholesale costs. Pike County Light & Power Co. v. Pa. Pub. Util. Comm'n, 465 A.2d 735, 737-38 (Pa. Commw. Ct. 1983).

[606] Nantahala Power & Light Co., 476 U.S. 953, 963 (1986) ("This Court has held that the filed rate doctrine applies not only to the federal-court review at

non-rate matters as well.[607] States, whether regulating QFs, IPPs, or public utilities, must defer to any validly exercised FERC regulation.

According to the Supreme Court, a federal agency acting within the scope of its congressionally delegated authority may preempt state regulation and otherwise negate state and local laws.[608] The Federal Power Act precludes all state regulation of interstate wholesale power transactions.[609] The QF price determination is a wholesale price determination reserved exclusively to federal authority, as articulated by the Supreme Court in *FERC v. Mississippi*.[610]

C. *State Established Retail Prices and Portfolios of Power*

It is clear that the state can regulate non-price aspects of the power sale market within state boundaries.[611] This discretion covers supply planning and energy conservation elements of the resource portfolio.[612] The Supreme Court has held that power need, economics, feasibility, and services are traditionally areas of state regulation.[613] Within this general authority, states have

---

issue in *Montana-Dakota*, but also to decisions of state courts."); Miss. Power & Light Co. v. Miss. ex rel. Moore, 487 U.S. 354, 371 (1988) (filed rate doctrine applies without exception to state regulation of interstate holding companies); Entergy La. v. La. Pub. Serv. Comm'n, 539 U.S. 39, 42-43 (2003). The *Mississippi* decision casts some doubt on the vitality of the Pike County exception (*see supra* note 605), as it preempts a state prudency determination on nuclear facility cost allocation to a subsidiary of an integrated multistate holding company, even though FERC did not engage in such a prudency determination. The *Mississippi* decision may be factually limited to the situation of multistate holding companies.

[607] The Supreme Court extends the filed rate doctrine generally to include most aspects of federal-state utility regulation. Moreover, the filed rate doctrine is not limited to rates; the Court has stated that "our inquiry is not at an end because the orders do not deal in terms with prices or volumes of purchases . . . ." N. Natural Gas Co. v. Kansas Corp. Comm'n, 372 U.S. 84, 90-91 (1963); Nantahala Power & Light Co., 476 U.S. at 966-67.

[608] La. Pub. Serv. Comm'n v. Fed. Communications Comm'n, 476 U.S. 355, 369 (1986).

[609] Nantahala Power & Light Co., 476 U.S. at 965-66; Mississippi Power & Light Co., 487 U.S. 354, 371 (1988).

[610] Fed. Energy Regulatory Comm'n v. Mississippi, 456 U.S. 742, 765 (1982).

[611] *See* S. Cal. Edison Co., 70 F.E.R.C. ¶ 61,215, at 61,676 (1995).

[612] See discussion *supra* App.A.

[613] Pac. Gas & Elec. Co. v. Cal. Energy Res. and Dev. Comm'n, 461 U.S. 190, 205 (1983).

regulated what electric facilities can be sited, where they can be sited, controlling environmental standards of plant operation, and the mix of demand-side and supply-side resources.

California, by legislation, prevents the construction of new nuclear power facilities until such time as there is a solution to the long-term nuclear waste disposal problem.[614] What is particularly important is that the Supreme Court has been willing to accept at face value the stated rationale or purpose articulated by the state in enacting its energy legislation.[615] Other states have upheld the right of states to implement environmental externality schemes.[616]

States have authority over the retail services that are provided directly to end-use consumers.[617] This clearly provides authority to control least-cost planning and retail end-use DSM resources. It also makes it possible to control who offers, and what types of electricity services are offered, at retail.

If there is a state requirement that renewable energy resources be deployed as a certain percentage or component of the portfolios of retail suppliers or sellers, then this decision is within the general authority of the state. If this regulation reaches upstream to regulate the wholesale acquisition of this power, or wholesale prices, then it overreaches the bounds of state authority.[618] A New York decision held that a state cannot compel a utility to purchase the bounds of power from a particular wholesale source.[619] So a state may control the type of *retail* portfolio, but not the *particular wholesale* acquisition, source, or wholesale price.

Because of this distinction, the authority to sculpt the contours of the power sale market is different in a deregulated, than in a regulated, market. In a conventional monopolized retail market, state regulators have clear authority over the relatively small number of regulated retail utilities within their jurisdictions.[620]

---

[614] *Id*. at 194-95.

[615] *Id*. at 213-15. This allows the state to enact regulation of price or type of generation, in the cloak of economic or planning regulation.

[616] See discussion *supra* Part IV A. herein.

[617] *See supra* notes 585-586 and accompanying text.

[618] *See supra* note 609 and accompanying text.

[619] Consol. Edison Co. v. Pub. Serv. Comm'n of N.Y., 472 N.E.2d 981, 987 (N.Y. 1984).

[620] FERREY, *supra* note 43, § 5:2. The Massachusetts Supreme Judicial Court upheld its regulatory commission's authorization of a special reduced rate for low income elderly persons, the costs of which were subsidized by all classes of ratepayers. The court held that, despite the lack of express statutory authority,

These franchises and jurisdictions are established pursuant to state law.[621] However, with deregulation, the extent of regulatory authority becomes more complex.

The authority of state energy regulation already is altered by deregulation legislation.[622] In a deregulated market, electricity will be supplied competitively through many wholesale bulk energy commodity sales and retail contracts. If states reach back upstream to the wholesale level, they cross a fundamental jurisdictional line. Only FERC can establish wholesale prices and markets.

States can, however, promote renewable energy and DSM at the retail level.[623] It is important to note that in taking these initiatives, the state is regulating *retail* rates and *retail* portfolios. There is no incursion into *wholesale* markets, transactions, or prices.

D. *Federal Prohibition of Direct Price Preferences for Renewables*

PURPA allows certain federally permitted means to promote certain waste-fueled and renewable energy supply alternatives.[624] But PURPA does not authorize such promotion beyond the exact requirements of the statute.[625] Attempts by states to promote

---

"[t]here can be no question that the department's jurisdiction over the entire rate structure includes the authority to approve a reduced rate for certain customers. . . . The question is whether the rate is unduly or irrationally discriminatory." Am. Hoechest Corp. v. Dep't of Pub. Util., 379 Mass. 408, 399 N.E.2d 1 (Mass. 1980).

[621] *See* FERREY, *supra* note 43, § 10:7.

[622] *See* FERREY, *supra* note 515, at 135-57 (2000). *See also infra* Appendix. In one regard, there may be something counterintuitive to creating a deregulated market with free entry, only to thereafter attempt to regulate the sources from which retailers must obtain power to include certain renewable resources or DSM. This may be especially true where the requirement increases the cost of power. Deregulation and competition are justified by PUC orders as a means to decrease the cost of power at the retail level. If counterintuitive, it is not beyond the scope of regulatory jurisdiction.

[623] Massachusetts enacted a statute codifying the decision in *American Hoechest* and mandating residential energy conservation measures. Mass. Gen. L. ch. 164 Appl.2-2. Utility companies, therefore, were required to provide the installation of no-cost or low-cost energy conservation measures to its customers with the costs being subsidized by ratepayers as a whole, not just those who participated in these programs.

[624] 16 § U.S.C. 824a-3(a) (2000).

[625] *Id*.

higher energy prices for certain higher-cost QF projects selling at wholesale have been stricken by the courts. In 1994, the Ninth Circuit Court of Appeals rejected the California Public Utility Commission's claim that it had independent authority to regulate QF contract entitlements and prices.[626] Renewables promotion via a price preference above and beyond the price of other wholesale power transactions is not consistent with PURPA's avoided cost concept.[627] The preemption principle of federal law will overturn any inconsistent independent state action or authority with regard to QF power sale prices.[628]

For renewables, FERC has not shown any inclination to grant a preferential price or rate for power procured from renewable resources. And here, there is an interesting conundrum in the preemptive nature of evolving FERC regulation. Traditionally, FERC regulated the "reasonableness" of the acquisition of any wholesale power, based on its cost of production.[629] In other words, higher costs for renewable resources could be justified, as long as they were reasonably related to the costs of producing such renewable energy. Higher costs could be paid as long as higher costs were incurred. FERC traditionally did not reject or disapprove rates merely because the buyer could have secured lower-cost power.

With recent trends, FERC has diverged from its traditional cost-based regulation, in favor of market-based regulation.[630] This market-based regulation approves a wholesale power sale where the price is at or below the market price for power in the relevant wholesale market.[631] Under this test, higher-cost sources of power may be approved, absent extenuating circumstances, only if the

---

[626] Indep. Energy Producers Ass'n v. Cal. Pub. Util. Comm'n, 36 F.3d 848, 853-54 (9th Cir. 1994) (the court found no separate basis for the state PUC to act on a QF entitlement). *See also* Bates Fabrics, Inc. v. Pub. Utilities Comm'n, 447 A.2d 1211, 1214 (Me. 1982) ("We see no language in . . . PURPA which would suggest that Congress intended a state regulatory agency to have the authority to revise binding contractual provisions concerning the price of purchase between a utility and a qualifying small facility.")

[627] *Id.*

[628] Western Systems Power Pool, 66 F.E.R.C. ¶ 61,201, at 61,458 (1994) ("The Commission cannot, in the context of a rate proceeding, deprive QFs of the rights which they have pursuant to regulation upheld by the [Supreme] Court, to implement PURPA.")

[629] *See* FERREY, *supra* note 43, § 5:16 (2004).

[630] *See, e.g.*, Kansas City Power & Light Co., 67 F.E.R.C. ¶ 61,183 (1994).

[631] *See* FERREY, *supra* note 43, § 5:19.

price is similar to that of all other resources. The particular higher costs of production for any particular supplier will not be a factor in setting a market-based wholesale price. In this way, the "market" works against technologies with environmental benefits where such benefits are not internalized into the price calculation of all technologies.[632] The new FERC regulatory paradigm promotes competitive least-cost market-based wholesale power pricing. This paradigm does not sanction higher costs for more environmentally benign power sources.

One of the few means to subsidize renewable wholesale power prices would be to demonstrate that the market for certain (renewable) technologies is functionally separate from that for other non renewable power technologies in the same market. FERC has viewed markets *geographically*, rather than by technology or by type of fuel used in prime mover technologies. In a geographic region, all wholesale power sources are in a single market. Thus, "power is power" within a proximate trading region. A case might be made, since some renewable energy technologies are confined to limited geographic areas,[633] that for

---

[632] The typical way to internalize these costs would be through the use of environmental externality values to capture the external costs of certain technologies into a quantitative format. This often is known as quantification of environmental externalities. This is permissible for purposes of selection of the type of electricity generation to be deployed or selected—assuming that the PUC has either explicit or implicit authority to implement these environmental decisions. In *S. Cal. Edison Co.*, 70 F.E.R.C. ¶ 61,125, at 61,676 (1995), FERC specifically notes that "a state may account for environmental costs of all fuel sources included in an all source determination of avoided cost." Environmental externalities can be used for various purposes. To use them to handicap or otherwise influence the choice of energy capacity is legal at the state level—and may be implemented by the PUC if it has delegated authority from the state constitution or laws.

Second, for purposes of efficient dispatch, environmental externality factors can be utilized along with other more conventional factors, in a conventionally regulated utility market. With deregulation, such environmental factors influencing dispatch will be permissible, as long as adequate notice of this is provided so that private-party contracts are not executed that anticipate a different scheme. Finally, utilizing environmental factors for purposes of providing a pricing premium for certain renewable resources likely is beyond the reach of most state commissions, without a change in law. This does not address the issue of the desirability of such policies. However, pricing issues are a matter of federal law, where such transactions are either wholesale or interstate transactions. Where such transactions are structured as direct retail sales, states gain added authority to regulate these transactions.

[633] For example, landfill gas projects are limited to landfill-proximate areas, wind energy projects are limited to certain land uses where the wind regime is

these technologies, sub-markets should be recognized for the determination of distinct market-based prices.

PURPA compels regulated electric utilities to purchase wholesale power from QFs for a price equal to the utilities' avoided costs.[634] Where a contract is freely negotiated, even if covered by PURPA, or if operating under a PURPA waiver, the unitary avoided cost price ceiling does not apply.[635] California required its utilities to procure the least expensive QF power bid from conventional, and separately but simultaneously from renewable, power resources.[636] The state sought to ensure that renewable power was part of the supply procurement profile. However, it did so by compelling the utility to pay more, if necessary, for the least cost renewable power than for least cost conventional power. Two prices emerged from the auction—one higher for the least cost renewable technologies.[637]

FERC refused to sanction the higher California price for renewables.[638] For regulated utilities, the state commission lacks the power to compel a utility to pay more for PURPA or other wholesale power sales, than the avoided cost of the utility established either by bid or by an administrative proceeding. A state cannot set the price for renewable resources by virtue of selecting the most attractive bid if it is higher than the market price for non-renewable power-generation resources.[639] In other words, renewable resources must be priced by reference to the competitive wholesale market price of *all* other demand-side and supply-side resources in the market.

This is not to say that the price established through a bidding

---

adequate, hydroelectric projects are dependent on sufficient river courses and seasonal flow, etc.

[634] For more treatment of the avoided cost purchase obligation, see *supra* Part III.A.6.

[635] Kansas City Power & Light Co. v. State Corp. Comm'n, 676 P.2d 764, 765-66 (Kan. 1984).

[636] S. Cal. Edison Co., 71 F.E.R.C. ¶ 61,215, at 61,666-67.

[637] *Id*.

[638] *Id*. at 61,677. Holding the costs of renewable energy not to exceed the market or bid price of all other sources of energy makes ratepayers indifferent as to the procurement of wholesale power. FERC declared that even where QF contracts deliberately set price above the full avoided cost, once in place and implemented, they will not be retroactively revised downward without consent. *Id*. at 61,678. The rationale for this is that QFs rely on the power sale contracts and prices that are put into place.

[639] *Id*. at 61,677.

process must be the lowest-priced power sale bid. Many states have systems that do not select the winner based on the lowest bid price alone.[640] In addition, some states price the winning bidders not at the price that they bid, but at the price bid by the least expensive winning or losing bidder.[641] Independent System Operators of wholesale markets also may price all power sales at the last successful bid.[642] But once market price is established by some administrative or bidding mechanism, renewables may not receive a preference.

Nor is there legal leeway in state law to pay a higher price for renewable power. In April 1988, FERC issued the controversial *Orange & Rockland Utilities* decision purporting to federally preempt state authority to establish power purchase rates in excess of the federally specified avoided cost.[643] FERC held that New York may not impose a rate on future purchases that exceeds actual avoided cost. This was a direct reversal of PURPA regulations and is contrary to the noncommittal position taken by FERC less than a month before in its notice of proposed rulemaking on avoided cost.[644] The decision broadly prohibits any state from establishing a rate in excess of avoided cost on any wholesale power purchase in interstate commerce.

Less than two months later, FERC stayed its decision pending judicial review.[645] A state appeal court upheld the six cent minimum rate; the Supreme Court refused certiorari.[646] Subsequently, the state legislature repealed the statute, and the

---

[640] For example, the Massachusetts auction scheme embodied in the IRM regulations at 220 MASS. REGS. CODE tit. 220, § 10 (1999) (now repealed) required that bidding schemes reflect a variety of factors, wherein lowest price is counted for roughly half of the score that determines the winning bidder in an individual utility auction system.

[641] These so-called silent second price auction systems are used in California, for example. *See* FERREY, *supra* note 43, § 9:26.

[642] FERREY, *supra* note 43, § 9:7. This is done by the New England ISO.

[643] Orange & Rockland Utils., Inc., 43 F.E.R.C. ¶ 61,067 (1988). In February 1989, the Second Circuit dismissed an appeal of the FERC decision on the grounds of ripeness pending conclusion of the FERC rule-making in *Occidental Chem. Corp.v. Fed.Energy Regulatory Comm'n*, 869 F.2d 127 (2d Cir. 1989).

[644] Administrative Determination of Full Avoided Costs, Sales of Power To Qualifying Facilities, and Interconnection Facilities, 53 Fed. Reg. 9331 (Mar. 16, 1988).

[645] Orange & Rockland Utils., Inc., 43 F.E.R.C. ¶ 61,547 (1988).

[646] Consol. Edison Co. v. Pub. Serv. Comm'n of N.Y., 472 N.E. 2d 981 (N.Y. 1984), *appeal dismissed*, 470 U.S. 1075 (1985).

utility challenge was dismissed as moot.[647] Therefore, a definitive resolution was never reached.[648]

However, in January 1995, FERC announced in the matter of *Connecticut Light & Power Co.*,[649] that subject to the Federal Power Act, FERC, and not the states, has exclusive jurisdiction over QF power sale prices.[650] FERC delegates this authority to the states to approve the exact price for QF power sales. The state delegated authority is limited to implementing these QF prices, subject to federal law and regulations, according to this precedent.[651] FERC declares that part of the federal requirement is that once a QF power sale price is implemented, it may not later be altered by the state without consent of the affected parties.[652] In a later opinion in *Orange & Rockland Utilities, Inc.*, FERC reiterated that once in place, a QF contract price may not be reopened or changed by the state without the consent of the QF and the utility.[653] In *New York State Electric & Gas Corporation*,

---

[647] Orange & Rockland Utils., Inc., 70 F.E.R.C. ¶ 61,014 (1996).

[648] The petition presented a very narrow question at to state jurisdictional power to regulate a particular aspect of multistate utility operations. Orange & Rockland Utils., 43 F.E.R.C. ¶ 61,067, at 61,187. Niagara Mohawk Power Corporation intervened based on an interest in the legality of the six-cent minimum rate imposed on it as a New York utility, even though it could purchase power at a lesser rate from QFs in Pennsylvania. *Id*. at 61,188. By its intervention it raised the broader question of whether a minimum power purchase rate above avoided cost is permissible on any grounds. *Id.* The petitioning utility objected to the expansion of the issue and stipulated to the validity of a $0.06 minimum rate as applied within state boundaries. *Id*. at 61,189. Petitioners did not contest the application of the precedent of *Consol. Edison Co.*, 472 N.E. 2d 981 (1984).

[649] Conn. Light & Power Co., 70 F.E.R.C. ¶ 61,012 (1995). In the *Connecticut* matter, the price had been deliberately set above the full avoided cost. *Id*. at 61,024.

[650] *Id*. at 61,023.

[651] *Id.*

[652] *Id.*

[653] Orange & Rockland Utils., Inc., 70 F.E.R.C. ¶ 61,034 (1995). This decision specifically construes a situation where the price was deliberately established above known full avoided cost. Even in such a situation, once implemented and in place, the price may not be revised retroactively without consent, according to FERC. *Id*. at 61,147. FERC had stated that the opinion should have no retroactive impact because of the reliance of QFs on the contrary and preexisting FERC regulations. *Orange & Rockland Utils., Inc.*, 43 F.E.R.C. ¶ 61,067, at 61,196. The FERC majority stated that retroactivity of this decision would "impose substantial injustice on states and qualifying facilities that have relied on our previous position." *Id*. (citing *Chevron Oil Co. v. Huson*, 404 U.S. 97, 106-09 (1971)). However, before staying the decision, the Commission

the state sought unsuccessfully to revise downward the contract prices for two QFs that had agreed to prices estimated at the utility's avoided cost at the time of contract signing.[654]

Applicable state precedent holds that once approved and in place, there is no authority for a state commission to subsequently revise any element of an in-place QF power purchase contract or price.[655] Several states addressed this issue and concluded that the state regulatory commissions do not have any authority unilaterally to change the QF power sale price once it is in an executed contract and implemented.[656] They are preempted to influence these wholesale price matters.

---

noted that it may revisit and reallocate cost. *Id*. The FERC majority skates perilously close to the filed-rate doctrine in grounding its decision on plenary federal power to preempt conventional state rate determinations.

[654] N.Y. State Elec. & Gas Corp., 71 F.E.R.C. ¶ 61,027 (1995). FERC held that where that state procedure complies with PURPA, and the QF contract price is approved and implemented, no subsequent attach on the QF price for any reason is allowed (despite expert testimony showing that these contracts would impose up to $1.3 billion in added consumer costs over their lifetime). *Id.*

In *West Penn Power Company*, a QF facility that had not yet invested in construction of the plant was the subject of the utility's efforts to reduce the QF contract power sale prices applying to a thirty-three-year contract term, which it claimed exceeded avoided costs by almost $1 billion. West Penn Power Co., 71 F.E.R.C. ¶ 61,153, at 61,490-91 (1995). However, FERC held that because the price was approved and implemented, a challenge could not later be raised. *Id*. at 61,497.

[655] Ferrey, *supra* note 544, at 65-66.

[656] The Maine Public Utility Commission in 1994 was asked to reopen a 1984 QF contract so as to rescind or amend the contractual power purchase price to a lower value consistent with current actual avoided costs. Me. Pub. Serv. Co., No. 94-301, 1995 Me. PUC LEXIS 53 (Jan. 19, 1995). It was argued that the essential purpose of PURPA was not served where the QF power sale price greatly exceeded avoided cost. *Id*. at *8. The commission dismissed the claim, finding that it did not have jurisdiction to alter the purchase price without the consent of the parties, stating "FERC's rules purposefully protect the contract price afforded to QFs in order to ensure the revenue stream necessary to stimulate investment in the QF industry." *Id*. at *34.

The Oklahoma Supreme Court held that revision of existing QF contracts or prices violates PURPA, which preempts all state jurisdiction on this issue. Smith Cogeneration Mgmt., Inc. v. Corp. Comm. & Pub. Serv. Co., 863 P.2d 1227,1241 (Okla. 1993). The same court held that "regulatory-out" clauses, which were included in all QF contracts pursuant to order of the state utility regulatory commission, conferred no jurisdiction on the state commission to regulate these renewable projects. *Id*. at 1238.

The Pennsylvania Public Utility Commission ordered that existing QF contract prices, once in effect, may not be reopened or changed without the permission of the contracting parties. Petition of Pa. Elec. Co., No. P-870248, 1988 PUC LEXIS 101 (Jan. 21, 1988).

In 1995, the Third Circuit Court of Appeals looked at a situation where there was a "regulatory-out" clause in a QF power sale contract.[657] The utility claimed that by inserting a "regulatory-out" clause in the QF contract, the QF had agreed to the continuing jurisdiction of the state regulatory commission and had waived preemption.[658] The federal court stated that this was not correct directly or indirectly by virtue of the "regulatory-out" clause:

> The present attempt to either modify the [power purchase agreement] or revoke [state commission] approval is "utility-type" regulation—exactly the type of regulation from which [the QF] is immune under Section 210(e) [of PURPA]. . . . [W]e hold that Congress intended to exempt qualified cogenerators from state and federal utility rate regulations. . . . But the important aspect for present purposes is that this [regulatory-out] clause does not purport to confer on the [state utility regulatory commission] any jurisdiction it would not otherwise have. In particular, it reflects no intent on the part of [the QF] to surrender any of the protections from state rate regulation conferred upon it by section 210(a) [of PURPA].[659]

Recently, the Florida Public Service Commission found that there was a single instance when a utility could pay greater than its avoided cost for QF renewable power: when its ratepayers voluntarily agreed to pay more for "green" renewable energy.[660] It found that the prohibition of the federal court in *Independent Energy Producers Association*, and the prohibition of FERC in *Connecticut Light & Power Co.*, against paying more than avoided cost for renewable power, applied only to situations where the utility was compelled to pay more than avoided cost, and not to situations where utility customers voluntarily agreed to pay this excess cost as a premium for "green" power.[661]

But even where states wish to diverge from FERC's price limitations, there are practical problems with the multi-state nature of many transactions, an increasing phenomenon with recent utility mergers. The discretion of state authority to diverge from the avoided cost limit is illustrated by the so-called "Green RFP"

---

[657] Freehold Cogeneration Assocs., L.P. v. Bd. of Regulatory Comm'rs of N.J., 44 F.3d 1178 (3d Cir. 1995).

[658] *Id*. at 1191.

[659] *Id*. at 1192-93.

[660] *Re* Fla. Power & Light Co., 219 Pub. Util. Rep. 4th (PUR) 46 (Fla. Pub. Serv. Comm'n Aug. 6, 2002).

[661] *Id.*

process in New England.[662] The New England "Green RFP" case was initiated in 1993 when the New England Power Company (NEP) solicited bids from project developers for renewable resource technologies.[663] The company received forty-one Green RFP bids representing and annual output of 1.4 million MWh.[664] The companies submitted for state approval contracts for seven selected renewable resource projects representing 36.5 MW.[665] These projects, sited in Massachusetts, Rhode Island, New Hampshire, and Maine, with contracts spanning twenty years or more, consisted of four main types of power generation: wind, municipal solid waste, waste heat, and landfill methane gas recovery combustion facilities.[666]

NEP stated that while six of the seven projects would have a level price below utility avoided costs by the year 2001, the wind project would exceed those costs throughout the life of that particular project.[667] The Massachusetts Department of Public Utilities authorized all of the projects, with the exception of one landfill gas facility.[668] Although the wind project exceeded avoided costs by one percent, Massachusetts found that "procurement of the wind power project is consistent with the Company's obligation to provide reliable electrical service to its ratepayers at the lowest total cost to society."[669]

---

[662] Re Mass. Elec. Co., 157 Pub. Util. Rep. 4th (PUR) 242, 243 (Mass. Dep't Pub. Util. Oct. 31, 1994).

[663] NEP had executed a common Memorandum of Understanding designed to coordinate the resource planning and procurement process of NEP's retail affiliates in New England and the three public utility commissions regulating their operations. *Id*. The goals of the Green RFPs, as stated by NEP, were to provide environmental benefits to customers and to gain integrated resource planning information through the development of pilot scale projects. *Id.* These objectives reflected the retailers' strategic corporate planning initiatives of providing environmental improvement (including significant reductions in air emissions), providing competitive and stable rates for customers, and providing diverse and competitively priced power supply. Re Granite State Elec. Co., 152 Pub. Util. Rep. 4th (PUR) 285, 286-87 (N.H. Pub. Util. Comm'n Feb. 28, 1994).

[664] *Re* Mass. Elec. Co., 157 Pub. Util. Rep. 4th (PUR) at 245.

[665] *Id*. at 246.

[666] *Id*. at 247-50.

[667] *Id*. at 247.

[668] *Id*. at 256.

[669] *Id*. at 254. Under these contracts, the electric bill of the typical residential customer would only increase by approximately $1.50 per year, and, of those Massachusetts residents who participated in a survey conducted by the New England Power Pool, eighty-six percent indicated their willingness to pay a

The New Hampshire PUC approved the Green RFP contracts, finding that the five percent "premium over avoided cost [was] not unreasonable in light of the risk of compliance costs associated with possible future changes in environmental regulations."[670] The commission, however, conditioned its approval on costs not exceeding five percent above utility avoided costs and required that the developers compensate Granite State Electric Company for all costs above that figure for direct refund to the company's ratepayers.[671]

However, the Rhode Island Public Utility Commission, unlike its counterparts in Massachusetts and New Hampshire, completely rejected the proposed Green RFP contracts.[672] Despite its recognition of the need to develop renewable resources, the Rhode Island PUC in its rejection emphasized not only the price in excess of avoided cost, but also the lack of need for additional power until the year 2001.[673] Because unanimous approval of the public utility commissions of the three states was required as a condition in the contract between NEP and the seven facilities, Rhode Island's rejection of the proposal rendered the Green RFP contracts null and void.[674] So even if innovative programs are initiated, multi-state approval can be daunting.

E. *Distinct Markets as a Subsidy Template*

There may remain a legal or policy rationale to pay more for renewable energy as a matter of state law. Certainly, there are policy and environmental reasons to promote non-fossil fuels. Energy produced from renewable energy projects, for example, may merit a higher price than fossil-fuel fired electricity on

---

premium for electricity generated from environmentally friendly sources. *Id.* at 252. The Rhode Island PUC found that the typical residential customer would pay an additional $0.50 per year, while the largest industrial users would pay an additional $162 per year. *Re* Narragansett Elec. Co., 152 Pub. Util. Rep. 4th (PUR) 280, 283 (R.I. Pub. Util. Comm'n May 13, 1994).

670 *Re* Granite State Elec. Co., 152 Pub. Util. Rep. 4th (PUR) at 285.

671 *Id*. at 289.

672 *Re* Narragansett Elec. Co., 152 Pub. Util. Rep. 4th (PUR) at 284.

673 *Id*. Because of its added emphasis on the excess capacity argument, the PUC stated that its decision "not to endorse these projects at this time should not be construed as a death knell for renewable resources." *Id*. The Rhode Island PUC suggested that its decision may have been different had the proposed projects involved more technologically advanced means of power production than methane recovery and waste burning.

674 Mass. Elec. Co., 157 Pub. Util. Rep. 4th (PUR) at 244.

resource diversification and security grounds.[675] Some have argued that because energy markets do not take account of obligations to future generations to conserve energy and environmental balance, renewable energy sources should be deployed now to maintain some intergenerational equity.[676]

This is more easily said than done—from any type of source, a moving electron is a moving electron. There is no engineering difference in the end product.[677] From the perspective of reliability, the intermittent renewable energy project output is often less firm and less reliable than the energy produced by a fossil-fuel fired facility.[678] In such a situation, there is often no easy engineering justification for a higher price for renewable energy. It is clear that states may regulate the mix of generating/efficiency resources that regulated utilities must procure:

> [U]nder state authority, a state may choose to require a utility to construct generation capacity of a preferred technology or to purchase power from the supplier of a particular type of resource. The recovery of costs of utility-constructed generation would be regulated by the state. The rates for wholesale sales would be regulation by [FERC] on a cost-of-service or market-based rate basis, as appropriate.[679]

Assuming, *arguendo*, that the QF precedent applies to renewable energy pricing at the wholesale level, then FERC has not definitively declared the degree to which the market can be segmented by a state for purposes of resource procurement or supply-side planning.[680] There is nothing in the case law that

---

[675] See discussion in LOVINS & LOVINS, *supra* note 32, at 177-213..

[676] Rader & Norgaard, *supra* note 113, at 38. The authors refer to these as environmental market failures.

[677] *See* FERREY, *supra* note 43, § 10:79.

[678] *See id*. § 2:11. Note, however, that Lovins & Lovins argue that while not as reliable hour-to-hour, renewable resources are more reliable than foreign oil. See LOVINS & LOVINS, *supra* note 32, at 268-70.

[679] S. Cal. Edison, 70 F.E.R.C. ¶ 61,215, at 61,676. FERC goes on to note that "in setting an avoided cost rate, a state may account for environmental costs of all fuel sources included in an all-source determination of avoided cost." *Id*. FERC notes that this could include a tax on fossil generators or could provide a subsidy to alternative generation. S. Cal. Edison, 71 F.E.R.C. ¶ 62,080, at 61,269. It is noted by FERC that the costs imposed in such evaluations must be only actual costs incurred by the utility buyer of the power. Therefore, environmental "adders" or "subtractors" must be based on real environmental externality costs, substantiated on a record before the state regulatory agency. *Id*.

[680] S. Cal. Edison, 70 F.E.R.C. ¶ 61,215, at 61,676. When segmentation occurs, there must not be an exclusion of non-QFs in determining the avoided

suggests that segmentation of the market into various fuel types is impermissible. In addition, there is nothing to suggest that division of the wholesale or retail electricity market into demand-side and supply-side resource portfolios is impermissible. In fact, there have been both federal and state initiatives over the years that have required the promotion of demand-side resources at the expense of supply-side resources,[681] as well as special rates for certain customers.

While a state, then, can segment the market as a means to require renewable energy in the supply mix, it cannot establish separate prices for more expensive-to-produce QF resources or for renewable resources deemed more desirable, according to FERC: "PURPA literally means that in calculating avoided cost rates for QF power, state authorities must determine the cost the utility avoids by considering the cost of all alternative sources of power available to the utility, not just the cost of a select group or resources."[682] Following this guidance, the state cannot exclude from its market calculation certain resources as a deliberate means to boost the price of certain other remaining resources.

However, while it cannot do so directly, the state may still be able to make certain recourse procurement decisions that indirectly favor renewable resources at higher prices. If somehow the state restricted the types of resources "available to the utility," such resources would not be in the portfolio utilized to determine the all-resource avoided cost price for power. The state might do this by use of environmental externalities or environmental restrictions to limit the types of resources available for deployment.[683]

At this time, it is not clear how far the state can go in this

---

price of wholesale power for purposes of PURPA avoided cost determinations. *Id*. at 61,677. However, it is important to note that it is the only requirement imposed on the states as a matter of federal law. PURPA only applies to those generators that qualify as QFs. Note also that to the degree that QFs are not afforded the same avoided cost at the same time as is afforded non-QFs, there are important legal issues raised as to whether the spirit and letter or PURPA are honored.

[681] These include the Residential Conservation Service program, required in federal law, which required electric utilities to increase residential electric utility rates so as to subsidize residential conservation audits. National Energy Conservation Policy Act, Pub. L. No. 95-619, §§ 210-25, 92 Stat. 3209 (1978). Many states have required regulated electric utilities to subsidize demand-side management services through rate-based charges.

[682] S. Cal. Edison, 71 F.E.R.C. ¶ 61,269, at 62,080 (order on reconsideration).

[683] For a rundown of these externalities, see FERREY, *supra* note 43, § 3:24.

manner to indirectly influence the all-source price at which renewable resources could be procured as part of the supply mix. FERC has stated, in dicta, that wholesale power transactions may reflect real non-price factors that represent "real costs that would be incurred by utilities."[684] In other words, externalities may reflect real costs. They cannot be manipulated as an artificial means to rig the market.

These "real" costs could be environmental externality values, as long as such non-price factors were consistently applied to all decisions in a non-discriminatory manner pursuant to state law. Alternatively, to the degree that a state taxed QF or IPP renewable resources at a lower basis than either non-renewable resources or utility resources, that would reflect a real cost that could be used to distinguish the net power purchase price for renewable resources.[685] If renewable resource supply options are paid the same price as non-renewable resources, but pay a lesser tax with the proceeds of that revenue, then the net price realized by the renewable resource sponsor would be greater.

The state can control the mix and type of generation assets in the portfolio, but it must allow the FERC to control the pricing of any wholesale transactions behind such resources. Therefore, the authority of the state regarding retail renewable resource pricing is:

> 1. To control the electric retail resource portfolio of those licensed to sell power in the state on defensible nondiscriminatory grounds, based on state law or authority;
>
> 2. To control the pricing of retail transactions; and
>
> 3. To advocate as an intervenor before FERC as to the pricing of wholesale transactions.

What the state cannot do is to attempt to determine the price of a wholesale transaction, which is exclusively within FERC jurisdiction:

> [FERC] cannot ascertain at this date any legal basis under which states have independent authority to prescribe rates for sales by QFs at wholesale [to utilities] that exceed the avoided

---

[684] S. Cal. Edison, 71 F.E.R.C. ¶ 61,269, at 62,080.

[685] For an analysis of taxes applied at the state level on the sale of independently generated and utility generated power, *see* FERREY, *supra* note 43, §§ 10:60-10:74.

cost cap contained in PURPA.[686]

Some of the state trust funds[687] use their subsidies in ways that encroach on this prohibition. They directly subsidize the price for wholesale renewable power from in the state, which directly translates to lower renewable power prices in the wholesale market in the state for those certain favored resources.

It remains to be seen whether FERC's PURPA avoided cost precedent will be applied to renewable energy project pricing for renewable energy projects that could but have not elected, QF status. But even if the PURPA precedent is not determined to be controlling, the Filed Rate Doctrine[688] preempts states from regulatorily interfering in wholesale power prices for renewable energy resources.

1. *Portfolio Standards*

The states have plenary authority over the sale of power within their own borders, regardless of the place of origin, subject to the preemptive jurisdiction of federal law applied through the Filed Rate Doctrine.[689] States can regulate the conditions for, and the retail price of, power sold in the state. A state has no extraterritorial authority to regulate directly the commerce produced in other states. There are constitutional limitations to a state directly taking action that affects persons or property in another state.[690] To the degree that either portfolio standards or environmental adders increase the price of that power, as long as applied in a site-neutral manner, there should be no constitutional impediment.

---

[686] Conn. Light & Power Co., 70 F.E.R.C. ¶ 61,012. This case involved a QF selling to a utility. In this opinion, FERC further articulated that if the seller was not a QF under PURPA, the sale would still be jurisdictional to FERC based on its exclusive authority under the Federal Power Act.

[687] *See infra* App.

[688] *See* discussion *supra* Part V.B.

[689] The Filed Rate Doctrine is discussed *supra* Part V.B.

[690] Shaffer v. Heitner, 433 U.S. 186, 197 (1977) ("[A]ny attempt 'directly' to assert extraterritorial jurisdiction over persons or property would offend sister States and exceed the inherent limits of the State's power."); C & A Carbone, Inc., v. Town of Clarkstown, 511 U.S. 383, 392-93 (1994); *cf*. Baldwin v. G.A.F.Seelig, 294 U.S. 511 (1935) (invalidating New York prohibition on cheaper out-of-state milk being sold in state for less than New York minimum price, thus discriminating against the competitive advantage of foreign producers).

Portfolio requirements or standards can be a condition of market entry and participation.[691] Retail sellers of power are themselves often buyers of wholesale power. Thus, without directly regulating the wholesale transaction, states could indirectly influence the wholesale transaction by regulation of retail sellers, who are themselves wholesale buyers.

Since retailers operate in both retail and wholesale markets—albeit on different sides of the transaction, but with consistent objectives—by carefully controlling who can participate in the retail market as a seller and on what terms, states can exercise an immense sphere of regulatory influence. The states' portfolio standards enacted to date[692] do not raise the same extent of preemption issues raised by some of the renewable subsidy mechanisms, as long as they do not discriminate based on point of origin. There is a basis to prefer renewable energy in order to create diversity in the fuel mix of the state or region. This purpose—of creating a reliable and appropriately mixed fuel supply for the electric power system—is within the jurisdiction of most states. The promotion may only be able to favor the deployment of renewable energy resources at prices equal to those that would be paid to other non-renewable sources in the same market.

With deregulation and increased competition at the state level, and the introduction of brokers, aggregators, and intermediaries, a greater percentage of total power sales will be at wholesale. For the first time, in 1998, wholesale market sales exceeded retail sales of power, representing a 500 percent increase since 1996.[693] With competition in generation, there will be wholesale power transactions as generators sell power to aggregators and retail companies for distribution. The total amount of retail power sales will remain relatively constant with deregulation. However, there will be one or more additional layers of wholesale transactions pancaked in the chain of title to power prior to its retail sale.

This wholesale transaction certainly will characterize renewable power sales. Renewable power producers seldom will

---

[691] See discussion of this *supra* Part II.A.2.

[692] *See infra* Appendix for a discussion of state portfolio standards and trust funds in selected states.

[693] For a discussion of the increasing amount of wholesale power transactions even before deregulation, see FERREY, *supra* note 43, § 8:3.

sell directly at retail to the end-use consumer. With deregulation, and the required functional disaggregation of power generation, transmission, and distribution functions, additional layers of wholesale power transactions are injected into the chain or power sale even where independent brokers or aggregators are not involved. These additional wholesale transactions mean that there will be an increase in the number of power transactions that are federally regulated. Moreover, the key transaction between the deregulated producer of power and the deregulated aggregator, broker or "middleman" is shifted to federal jurisdiction.

With greater federal authority over a larger percentage of total power sales, the likely or predominant FERC legal position on such sales through the Filed Rate Doctrine assumes increased importance at the state level. In the traditional regulated power market, the key transaction between the utility that generated the power and the customer who used the power was subject to plenary state regulation. Deregulation will therefore create more wholesale transactions and thereby shift the governing pricing principle from state to federal law and jurisdiction. The current federal rule as to these transactions does not allow a higher non-market inclusive price to wholesale power transactions emanating from renewable resources. There are variations on how such a portfolio standard can be implemented by the states:

> 1. The eligible renewable portfolio resource can be limited to in-state renewable generators or opened to all generators.
>
> 2. A state can elect to permit the standard to be satisfied with tradable credits, which can be traded regionally or restricted to only those created by in-state renewable facilities.[694]

Most states that have adopted a portfolio standard do not limit the geographic locus of either the renewable resource or a tradable credit. Without any geographic limitation, these schemes are constitutional. However, a state program that makes a distinction based not on technology or generation reliability, but on state of origin, likely violates the Commerce Clause. In enforcing a portfolio standard, the states are acting in a regulatory mode, not as a market participant. This regulation will be evaluated under the *Philadelphia per se* strict scrutiny test, and will not likely be

[694] Arizona and Massachusetts allow transferable credits to be used to satisfy the portfolio standard.

upheld.[695]

F. *Pricing Techniques to Accomplish a Similar Result Under State Authority*

It is incumbent to suggest other legally permissible means to the same end. The state can promote certain generation technologies through capacity equivalent transmission and distribution (T & D) charges, rather than direct price subsidies for certain wholesale generation. States have discretion to allocate plants and equipment between the costs of power generation on the one hand, and the costs of transmission and distribution services on the other.

There can be rational compensating costs based on transmission and distribution services that may compensate for the higher costs of producing renewable energy. For example, wind, solar, and run-of-river small hydroelectric power is intermittent.[696] Where renewable energy production is intermittent, the demand component of T&D charges can be based on capacity equivalence rather than on maximum rated capacity.[697] This lowers total T&D capacity reserved for the renewable generator and lowers the effective cost of transmitting intermittent resources. This policy decision can be implemented neutrally without discriminating for or against any particular technology. This lower cost of transmission would offset the often higher cost of generation by renewable energy resources, thus making them more cost competitive based on total *delivered* cost to the consumer, rather than just the cost of generation delivery to the utility bus bar. To date, no T&D rates have been restructured to reflect intermittent resource delivery. Instead, utilities have been reclassifying T&D lines.[698]

With deregulation, regional ISOs are forming to control the transmission system. FERC has encouraged the formation of ISOs

---

[695] This is discussed at great length *supra* Part IV.

[696] Power is only generated when the sun shines, the river flows, or the wind blows.

[697] In some states, such as New England, to encourage renewable power, transmission rates for intermittent renewable resources reflect the average volume of power transmitted, rather than charges that reflect the maximum amount of power transmitted.

[698] *See* FERREY, *supra* note 515, at 48.

and of Regional Transmission Organizations (RTOs).[699] This entity may be quasi-public, in that it has voluntary rules for generating unit dispatch and ramping. These rules can dispatch on a variety of protocols—essentially determined by the system operating rules and the related computer dispatch programs that drive and control the system.

Intermittent renewable technologies, because of their unreliability,[700] may be barred from bidding power to a power exchange, or may not be dispatched. Typical pool dispatch protocol may relegate certain renewables to a second-class status. Moreover, as renewable power sources may be more expensive than fossil fuel fired technologies, they may not emerge from a spot power pool system that dispatches generation to operate based on least cost—although many renewable technologies do have low marginal operating costs, if not low capital costs.

The dispatch protocol can be predicated on any number of different methodologies and queues. Dispatch could occur based on lowest marginal cost of operation. Or the dispatch could include environmental externalities in the dispatch protocol, if that were consistent with state law. Or, renewable or small QF technologies could be designated as "must run" status to guarantee operation.[701] To the degree that the ISO and power exchange are not directly regulated, but subject to consensus, these factors could be voluntarily included.[702]

---

[699] *See* 18 C.F.R. Part 35, Regional Transmission Organizations, 89 F.E.R.C. ¶ 61, 285 (1999).

[700] *See* FERREY, *supra* note 43, § 2:11.

[701] These projects are given a "reliability-must run" status in the ISO-New England project dispatch model, and therefore are designated to run regardless of their comparative economic disadvantage because of the necessity for reliability support in the subregion in which they are located. Therefore, because of transmission constraints, plants are dispatched out of their normal economic order.

[702] ISOs are differently governed, but their governance structure is subject to FERC approval. Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540, 21,596 (May 10, 1996). For an example of governance rules of one of the longest-standing independent system operators in the nation, see Interim Independent System Operator Agreement, *at http://www.iso-ne.com* (last visited Mar. 31, 2004).

VI
CONCLUSION

A. *The Portfolio Standard and other Techniques Legally Delegated or Reserved to the States*

Even with the larger share of wholesale transactions that will become federally, rather than state, regulated,[703] some techniques that promote renewable resources in a deregulated market remain within state authority. There are a variety of techniques that states can employ to encourage the use of renewable resources.[704] The application of those techniques by a state must be accomplished by means that do not conflict with the federal constitutional or statutory limits.

Three principles apply. First, any such techniques must not violate the Commerce Clause. State electric power regulation cannot unduly discriminate against or burden the unfettered flow of interstate commerce.[705] Electricity production, transmission, distribution, and sale, is a classic commodity or service in interstate commerce. Therefore, regulation that limits the location of certain electricity-producing facilities—as several state schemes do *de jure* or in application, could violate the Commerce Clause by raising funds by wholesale taxes and then discriminating against interstate commerce in the funding scheme.[706]

Second, state techniques that impose above-market pricing for wholesale power transactions cross the boundary of permissible state authority.[707] In a deregulated environment, most supplies of renewable energy will pass through a wholesale transaction initially.[708] Where the state attempts to regulate that wholesale transaction either directly or indirectly, without a specific

---

[703] From a position of about five percent of power wholesaled in 1986, for the first time in 1998 the magnitude of wholesale transactions exceeded the magnitude of retail transactions. *See* FERREY, *supra* note 43, § 8:3.

[704] These techniques are discussed *supra* Part II.

[705] *See supra* Part IV.B.

[706] *See supra* Part IV.C.1.

[707] *See supra* Part V.A.

[708] *See supra* note 703.

delegation of federal authority to the state as occurs under PURPA,[709] its actions are illegal.

Third, states cannot reach back "upstream" to control the wholesale transaction in any way when they regulate, except under federal authority delegated to the states under PURPA or the Federal Power Act.[710] Pursuant to PURPA, FERC precedent requires that a state may not impose a regulated price on wholesale PURPA transactions that discriminates in favor of renewable technologies.[711]

Given these three principles, what techniques to promote renewable energy remain within state authority in a deregulated market? Several, if executed pursuant to otherwise proper state authority, should be legally permissible:

1. Voluntary "green power" marketing;[712]

2. Renewable portfolio standards for retailers of power that do not restrict the loci of renewable power;[713]

3. Segmentation of the market into renewable and nonrenewable retail supply requirements;[714]

4. Distribution service pricing to reflect renewable distribution savings—or the distributed utility concept;

5. Generator dispatch requirements that reflect renewable resources attributes;

6. A nonprofit quasi-public renewable energy corporation (so-called "Cleancos") employing an independent funding source unrelated to retail rates;[715]

7. Expedited state regulatory approval or removal of financial, siting, or other market barriers for renewable projects;[716]

---

[709] PURPA delegates to the states, subject to federal rules, some of the federal duties in setting utility-by-utility avoided cost pricing and administering QF power purchase agreements. *See* 18 C.F.R. § 292.304(a) (2003). *See also* FERREY, *supra* note 43, § 7:2.

[710] 16 U.S.C. 824a-3.

[711] See discussion *supra* Part .

[712] *See supra* Part II.D.

[713] *See supra* Part II.B.

[714] *See supra* Part IV.C.2.d.

[715] *See supra* Part II.H.

[716] *See supra* Part II.C.

> 8. Voluntary state partnering with federal programs to leverage funds or opportunity;
>
> 9. The promulgation and application of efficiency standards for appliances or buildings;[717]
>
> 10. State tax incentives for renewable power generation provided from general state revenues.

The first five of these options, which are capable of implementation by state regulatory authorities without additional legislation, merit additional mention. First, voluntary action of power marketers or retailers to offer so-called "green power," without regulatory compulsion, is acceptable. State encouragement through tax incentives or credits granted to renewable energy producers is permissible to promote this market. Investor-owned utilities and rural electric cooperatives pay billions of dollars each year in various state and local taxes. In 1994, the approximately 200 investor-owned utilities in the nation paid almost $23 billion in taxes.[718] Of this, $13.5 billion represents state and local taxes, while $9.3 billion represents federal taxes.[719] The typical utility pays about seven percent of its revenues in state and local taxes. This is more than double the average tax levy paid by other manufacturing industries.

Second, nondiscriminatory direct state requirement of retail portfolio qualifications to include a certain minimum percentage of renewable power can be justified. States have authority over retail electric service but not wholesale transactions. The state should create a proper administrative record to justify such a program, based on fuel diversity, supply reliability, conservation of fuel, intergenerational equity issues, and other factors. These portfolio standards must be confined to nondiscriminatory regulatory requirements or incentives to the retail conduct of regulated or permitted business entities within the state. These standards cannot unduly promote in-state versus out-of-state businesses. Proposed federal legislation would impose a twenty percent renewable portfolio standard by 2020.[720] This would solve any preemption problem as long as state policy was consistent.

---

[717] *See supra* Part II.I.

[718] FERREY, *supra* note 43, § 10:61.

[719] *Id.*

[720] S. 944, 108th Cong. § 3 (2003).

Third, federal case law indicates that states can segment the supply market to promote certain renewable or other technologies. However, states may not directly regulate or control the price for such transactions, except pursuant to PURPA for QF transactions, and then with no price discrimination in favor of or against renewable power or the loci of such projects selling power in interstate commerce.

Fourth, there is state discretion over retail distribution service pricing and the allocation of costs to distribution services. The so-called distributed utility concept can allocate various costs of the integrated utility system, including transmission and distribution, so as to favor on-site or dispersed generating applications, to the degree that they impose less costs on, or use fewer resources of, the distribution system.

Fifth, discretion of the state or regional regulatory authority over dispatch protocol and curtailment policy also can be employed to stimulate the use of certain renewable resources. With the transition to a deregulated market, there will have to be new protocol devised for system operation, including dispatch and curtailment. This might involve individual utilities, a power pool, or an independent system operator. There is substantial federal FERC authority over these transmission issues.

Correspondingly, there are certain state techniques that might not pass legal muster. The primary concern is crossing over into federal regulatory authority in attempting to regulate certain resources at the state level:

> 1. Directly or indirectly regulating or controlling the price of wholesale power transactions in the deregulating market, or
>
> 2. Environmental externality-based pricing for wholesale resource acquisition.[721]

The problems encountered with the so-called "Green RFP" in New England illustrate the conflicts inherent in sanctioning a higher price for wholesale renewable energy transactions.[722] Of note, the "Green RFP" process was voluntary, rather than imposed on the utility.[723] However, in a deregulated environment, absent

---

[721] *See supra* Part V.

[722] See *supra* Part IV.D for a discussion of the "Green RFP" in Massachusetts.

[723] *See supra* note 663 and accompanying text.

state compulsion or consumer demand for new renewable "green" resources, not all suppliers will voluntarily include renewable energy in their standard power supply portfolios.

B. *Renewable Energy Charges and Subsidies*

Although states enjoy the discretion to sculpt the retail power market as long as they do not transgress limitations under the Federal Power Act, they are restrained by Commerce Clause limitations on how they structure discretionary retail markets, especially when such actions influence wholesale transactions. The structure of the tax and subsidy scheme adopted by some state renewable energy trust funds, where the subsidies are restricted to in-state projects, is similar to the fact pattern in *West Lynn*. The state collects a tax or charge that ultimately is passed on to consumers based on quantity of electricity usage, regardless of whether that power is in in-state or interstate commerce. Where there are wholesale transactions in power, which with deregulation is becoming increasingly common, this ultimately works as a tax on goods or services in interstate commerce.[724]

Although this "tax" is applied to all power sold whether it originates in-state or out of state, it is coupled with a selective subsidy based on the site of origin of the power. As of 2001, the only state program to provide assistance to entities outside of the state with its trust funds was Rhode Island, which provided a grant to a wind project in Massachusetts that was in danger of losing its construction permits.[725] It is reported that Connecticut, Massachusetts, and Pennsylvania have expressed a willingness to fund out-of-state projects.[726] In critiquing these projects and the hesitancy of the majority of states to fund out-of-state projects, two federally funded national energy research laboratories highlight this only as a practical concern.[727] In fact, there are significant legal issues raised by such taxation of interstate electricity sales to fund exclusively in-state renewable energy projects. This is a minority of those states that have implemented such programs.[728]

Otherwise, the funds are used to subsidize select in-state

---

[724] See *supra* Part IV.C.2.b.
[725] BOLINGER ET AL., *supra* note 84, at 19-20.
[726] *Id*. at 43.
[727] *See id*. at 42-46.
[728] *See infra* Appendix.

electric generation projects. Consequently, in-state renewable power trades at a lower price, and in lieu of, out-of-state renewable power. The resultant regulatory tax-subsidy combination causes local electric generation to garner a larger market share than out-of-state generation in the total deregulated "competitive" market. This effect, like a tariff, "neutraliz[es] advantages belonging to the place of origin."[729]

Where the operation of a trust fund is facially discriminatory, a balancing test is inappropriate. Instead, only if the discrimination is *demonstrably* justified by a valid factor unrelated to protectionism, can the tax-subsidy combination pass the Commerce Clause test of Constitutionality.

In only one instance has the Court found that a state regulation facially discriminating based on point of origin passed muster under the strict scrutiny test. In that instance, the limitation resembled a quarantine to prevent parasitic infestation, quarantine-type regulation is a recognized exception.[730] However, there is scant analogy to electric power. The standards of the grid require that all electricity in the system satisfy uniform standards, regardless of state of origin or source of generation.[731] There is a variety of less restrictive means to promote renewable energy without discriminating against interstate commerce, and many state programs have implemented such mechanisms. A quarantine is not applicable to out-of-state power satisfying uniform interstate quality standards.

Philadelphia is the touchstone Commerce Clause precedent construing facial discrimination and creating a *"virtually per se"* conclusion of invalidity, unless no other alternative to implement a compelling state purpose exists.[732] Unless a quarantine exigency is present, there typically will be other, perhaps less burdensome, means to accomplish the state regulatory end. Electric power, even more pervasively than trash cases which have so occupied the

---

[729] *Baldwin*, *supra* note 690, at 527.

[730] Maine v. Taylor, 477 U.S. 131, 146-47 (1986). Maine was allowed to ban out-of-state baitfish from the state, to prevent the introduction of baitfish parasites to the state aquatic ecology. There was a legitimate distinction between the infected and uninfected baitfish. As with any quarantine of infected animals, there was no less burdensome alternative.

[731] *See* FERREY, *supra* note 43, §§ 8:7, 10:79-10:92 (discussing parameters of the U.S. high voltage transmission system).

[732] City of Philadelphia, 437 U.S. at 626 (1978).

Court in Commerce Clause disputes, is in interstate commerce in the United States. If a state cannot Constitutionally protect its environment from the inflow and permanent repository of foreign waste, it is on thin ice Constitutionally attempting to burden out-of-state wholesale electric commerce based on its point of origin.

According to Justice Scalia's concurring opinion in *West Lynn*, it is likely that a trust fund tax would be valid if the monies collected were deposited into the state's general tax fund.[733] By placing the funds into the general tax pool, the use of the money collected would be subject to annual debate, and even if thereafter entirely allocated to renewable subsidy programs, would be subject to traditional political checks and balances.

On its face, a scheme would not violate the dormant Commerce Clause if the subsidies were not restricted to in-state facilities. Notwithstanding such lack of limitation, if the subsidies were effectively denied in application to out-of-state projects despite the elimination of the "in-state" requirement, there could still be a violation in fact. However, it is possible that such a scheme might be reviewed under the less severe *Pike* balancing test, rather than the *Philadelphia* strict scrutiny *per se* test. An application procedure, policies, or proceedings of the state funders that effectively denies sufficient access to out-of-state projects, still should be judged under the stricter *per se* standard.

The selection of this test will be critical. Therefore, how state legislation, regulation, and policies are structured, makes a fundamental difference in the judicial standard applied to evaluate constitutionality. The application of this standard may well be outcome-determinative. Properly drafted, trust funds have a greater chance of constitutional survival.

Moreover, the subsidies funded by a properly imposed surcharge must not cross into the realm of exclusively federal jurisdiction. Transmission services are deemed by FERC to be in interstate commerce and subject to exclusive federal jurisdiction. A state charge or tax on interstate transmission services crosses intricate jurisdictional boundaries. A state charge on state-regulated distribution or other retail services is less problematic. However, to impose a charge limited to distribution services only, a state would have to carefully distinguish distribution from transmission services for each customer transaction. If a state

[733] West Lynn Creamery, Inc., 512 U.S. at 210.

utilizes a power exchange or pool concept, wherein the actual power supplied to a given customer varied hour-to-hour, the transmission and distribution path and services used hour-to-hour to serve a particular customer could vary.

Funds collected from surcharges on electricity in interstate commerce are deployed and allocated through state or quasi-public agencies to influence renewable energy prices in the wholesale market and subsidize the market-clearing price for wholesale renewable power. Thus, state retail regulation is used to indirectly influence the price and outcome of certain wholesale power transactions in a deregulated market. It is the diversion of surcharges to tilt the wholesale power market that could raise legal concerns. The state thereby does indirectly at the wholesale price level what it cannot do directly, by a combination of regulation, surcharge and selective subsidy of wholesale power.

There may be a rationale for limiting the locus of renewable power that qualifies for a portfolio or receives a subsidy. While the entire continental United States, with the exception of a small corner of Texas, is capable of sending power to any other point, this is not a description of the reality of power transactions.[734] For purposes of market transactions, power follows the contract path created by the lawyers. But in fact, power does not arc at the speed of light to any corner of the country. Power moves subject to Kirchoff's Law based on constantly fluctuating load, resistance, and supply.[735]

Many areas, such as New England or Long Island, are severely constrained as to transmission access from areas outside the region: there is extremely limited ability to move power into the region. In such instances, it might be a rational distinction to limit the portfolio standard or trust fund subsidy to power generation facilities in the region whose power can actually reach an in-state retailer.[736] This does not amount to facial discrimination based on point of origin, but it accomplishes the same based on a physical prerequisite of actual transmission

---

[734] *See* FERREY, *supra* note 43, § 10:79.

[735] For a discussion of the U.S. transmission grid see FERREY, *supra* note 43, § 8:2.

[736] The Maine portfolio standard restricts it to power that can be physically delivered to the New England Power Pool, which interconnects all high-voltage transmission in the six New England states. ME. REV. STAT. ANN. tit. 35-A, § 3210 (West Supp. 2003).

access. As such, it is likely that the *Pike* balancing test would apply, and that such a regulation would have a reasonable chance of Constitutional survival.

No court has yet construed the Constitutional aspects of a renewable energy trust fund or a portfolio standard. However, a court has evaluated constitutionally the deregulation legislation of one state, as well as the equal protection aspects of a renewable energy trust fund in Massachusetts.[737] The courts have upheld Pennsylvania's deregulation and competition scheme against Commerce Clause challenge.[738] However, this challenge did not directly construe a renewable energy trust fund or portfolio standard.

Portfolio standards and renewable energy system benefit charges or trust funds are major initiatives in U.S. promotion of renewable energy. Both provide market incentives to increase the supply of renewable energy. There is a natural tendency when actually taxing the sale of interstate power, in the guise of taxing local distribution of power, to distribute the substantial proceeds of this tax to benefit in-state businesses. Some state renewable trust funds do this *de jure* while others do it *de facto*. None of these programs have been challenged on constitutional grounds. However, when they are, Supreme Court precedent suggests that these programs are not factually or legally distinguished from prior tax and subsidy schemes deemed constitutionally discriminatory. And therein lies the challenge: designing and implementing legally permissible constructs to promote the worthy goals of energy diversification and renewable energy deployment.

---

[737] *See* Public Service Co. of N.H. v. Patch, 167 F.3d 15 (1st Cir. 1998); Shea v. Boston Edison Co., 727 N.E.2d 41 (Mass. 2000).

[738] Indianapolis Power & Light Co. v. Pa. Pub. Util. Comm'n, 711 A.2d 1071, 1088 (Pa. Commw. Ct. 1998), *cert denied*, 526 U.S. 1005 (1999). The court concluded that the Pennsylvania statute does not implicate the Commerce Clause for three reasons: it does not discriminate against interstate commerce (unlike the state statutes previously examined under the Commerce Clause); the recovery of stranded costs is consistent with the traditional ability of states to regulate the retail sales of electricity (and thus do not trigger the dormant Commerce Clause); and the Commerce Clause should not be used as an impediment to Pennsylvania's experiment with competition.

APPENDIX
STATE PROGRAMS FOR RENEWABLE ENERGY IN A DEREGULATED ELECTRIC ENVIRONMENT

As of 2004, twenty-four states and the District of Columbia had enacted either a law or an administrative order to create open power markets, thus allowing consumers to choose their electricity supplier.[739] With the collapse of the California energy markets in 2001, California suspended deregulation, and five other states (which had also deregulated) have repealed or delayed the implementation of deregulation.[740] States deregulating their retail electric sectors have implemented renewable portfolio standards and/or trust funds. Fifteen of twenty-four states in the deregulating vanguard have elected one or both of these options.

The renewable resource measures that states have incorporated into electricity restructuring and deregulation statutes

---

[739] States that had passed deregulation laws include Arizona, Arkansas, California, Connecticut, Delaware, Illinois, Maine, Maryland, Massachusetts, Michigan, Montana, Nevada, New Hampshire, New Jersey, New Mexico, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Texas, Virginia, and West Virginia. *See, e.g.*, ARIZ. REV. STAT. ANN. § 40-208 (West 2004); 1999 Ark. Acts 1556, *repealed by* 2003 Ark. Acts 204; CAL. PUB. UTIL. CODE §§ 330-399.16 (West Supp. 2004); CONN. GEN. STAT. ANN. §§ 16-244 to 16-246f (West 1998); DEL. CODE ANN. tit. 26, §§ 1001-1019 (2003); 220 ILL. COMP. STAT. ANN. 5/16-101 to 5/16-130 (West 2004); ME. REV. STAT. ANN. tit. 35-A, §§ 3201-3217 (West 2001); MD. CODE ANN., PUB. UTIL. COS. §§ 7-501 to 7-517 (2003); MASS. GEN. LAWS ANN. ch. 164 (West 2003); MICH. COMP. LAWS §§ 460.10-.10bb (2002); MONT. CODE ANN. §§ 69-8-101 to 69-8-605 (2003); 1997 Nev. Stat. 1890-1901, *repealed by* 2001 Nev. Stat. 16; N.H. REV. STAT. ANN. §§ 374-F:1 to 374-F:8 (2003); N.J. STAT. ANN. §§ 48:3-49 to 48:3-98 (2004); 1999 N.M. Laws 294, §§ 1-23, *repealed by* 2003 N.M. Laws 336; OHIO REV. CODE ANN. §§ 4928.01-.20 (West 2004); OKLA. STAT. ANN. tit. 17, §§ 190.1-190.20 (1998), *amended by* 2001 Okla. Sess. Laws 397, 2003 Okla. Sess. Laws 8; 66 PA.CONS. STAT. ANN. §§ 2801-12 (West 2000); OR. REV. STAT. §§ 757.600-.691 (2001); R.I. GEN. LAWS §§ 39-1-27 to 39-1-27.6 (2003); TEX. UTIL. CODE §§ 39.001-.910 (Vernon 2004); VA. CODE ANN. §§ 30-201 to 30-209 (2004); W. VA. CODE § 24-2-18 (2003); *see also* D.C. CODE ANN. §§ 34-1501 to 34-1520 (2004). New York has ordered a deregulation rulemaking. *Re* Competitive Opportunities Regarding Electric Service, 168 Pub. Util. Rep. 4th (PUR) 515 (N.Y. Pub. Serv. Comm'n May 20, 1996).

[740] *See, e.g.*, 2001 Nev. Stat. 16 (repealing Nevada's deregulation); 2001 Okla. Sess. Laws 397 (delaying Oklahoma's deregulation indefinitely); 2003 N.M. Laws 336 (repealing New Mexico's deregulation); 2003 Ark. Acts 204 (repealing Arkansas' deregulation statute); H.C.R. 27, 2000 House (W.Va. 2000) (provisionally approving West Virginia's deregulation plan, conditional on changes in tax code, still pending); 2001 Or. Laws 819, § 1 (delaying consumer choice until 2002).

vary. Some renewable energy measures create portfolio standards; others create trust funds to invest in the development and utilization of renewable resources. Some adopt both concurrently. How each defines an eligible renewable resource varies significantly.

As Table 3 illustrates, more states have elected to deploy trust funds than portfolio standards. This may be because it allows self-sustaining tax and spending programs by a new public body. But it does not guarantee the realization of renewable energy resources, as does a portfolio standard, which operates as a condition of the license to do business of otherwise unregulated retail power sellers in the state. The diverse pattern of "renewable" resources included under state definitions is set forth in Table 4.

While the New England states have carefully avoided geographic limitations in their programs, Illinois, Nevada, New Jersey, and Texas have not. In these states, geographic limitations to in-state resources are embodied in the trust fund expenditures and/or the sites of renewable resources counting toward the portfolio standard. The tables below set forth those programs in the fifteen states that have adopted them and indicate the range of eligible renewable resources in each state.

TABLE 3

Portfolio Standards and Trust Funds in Deregulated States

STATE	RENEWABLE ENERGY TRUST FUND	PORTFOLIO STANDARDS
Arizona[741]	X	X
California	X	X
Connecticut	X	X
Delaware[742]	X	
Hawaii[743]		X
Illinois	X	
Iowa[744]		X

[741] ARIZ. ADMIN. CODE R14-2-1618 (2003).
[742] DEL. CODE ANN. tit. 26, §§ 1014, 8054 (2003).
[743] HAW. REV. STAT. ANN. §§ 269-91 to 269-94 (Michie 2003).
[744] IOWA CODE §§ 476.41-.45 (2003).

Maine		X
Massachusetts	X	X
Minnesota[745]	X	X
Montana[746]	X	
Nevada		X
New Jersey	X	X
New Mexico		X
New York	X	
Ohio[747]	X	
Oregon	X	
Pennsylvania	X	
Rhode Island	X	
Texas		X
Wisconsin	X	X

TABLE 4

"Renewable" Resources as Defined in State Statutes

State	Solar	Wind	Fuel Cell	Methane/Landfill	Biomass
CA	X	X		X	X
CT	X	X	X	X	X
IL	X	X			X
ME	X	X	X		X
MA	X	X	X	X	X
NV	X	X			X
NJ	X	X	X	X	X
NM	X	X	X	X	X
NY	X	X			
OR	X	X			X
PA	X	X		X	X
RI	X	X		X	X
TX	X	X		X	X
WI	X	X	X		X

[745] MINN. STAT. §§ 216B.1691, 216B.241 (2003).
[746] MONT. CODE ANN. § 69-8-402 (2003).
[747] OHIO REV. CODE ANN. §§ 4928.61-.63 (Page 2004).

State	Hydro	Tidal	Geothermal	Photovoltaic[748]
CA	X	X	X	X
CT	X	X		X
IL	X			X
ME	X	X	X	X
MA	X	X		X
NV	X		X	X
NJ	X	X	X	X
NM	X	X	X	X
NY	X	X	X	X
OR	X	X	X	X
PA	X		X	X
RI	X			X
TX	X	X	X	X
WI	X	X	X	

State	Dedicated Crops	Trash-to-Energy
CA		X
CT		X
IL	X	X
ME		X
MA	X	X
NV		
NJ		X
NM		X
NY		X
OR	X	X
PA	X	X
RI		X
TX		X
WI	X	X

A. *Massachusetts*

1. *Renewables Defined*

Massachusetts encourages renewable resource deployment by

[748] "Photovoltaic" is likely included within "solar" in some states; "methane" and or "trash-to-energy" may be included within a broad definition of "biomass."

creating both a renewable resources trust fund and a portfolio standard.[749] Under its deregulation legislation, the Massachusetts statute defines renewable resources as

> either (i) resources whose common characteristic is that they are non-depletable or are naturally replenishable but flow-limited, or (ii) existing or emerging non-fossil fuel energy sources or technologies, which have significant potential for commercialization in New England and New York, and shall include the following: solar photovoltaic or solar thermal electric energy; wind energy; ocean thermal, wave, or tidal energy; fuel cells; landfill gas; waste-to-energy which is a component of conventional municipal solid waste plant technology in commercial use; naturally flowing water and hydroelectric; and low-emission, advanced biomass power conversion technologies, such as gasification using such biomass fuels such as wood, agricultural, or food wastes, energy crops, biogas, biodiesel, or organic refuse-derived fuel. The following technologies or fuels shall not be considered renewable energy supplies: coal, oil, natural gas except when used in fuel cells, and nuclear power.[750]

Unlike the federal statutes, Massachusetts includes waste-to-energy technologies and landfill gas as renewable resources.[751] A comparison of the definition renewable energy which was enacted into law and the original proposal identifies whole categories that the Department of Public Utilities sought to exclude.[752] Under PURPA definitional applications, waste-to-energy technology is a wholly separate category from municipal landfill waste, which was

---

[749] MASS. GEN. LAWS ANN. ch. 25A, § 11F (West 2004); MASS. GEN. LAWS ch. 40J,§ 4E (West 2004).

[750] MASS. GEN. LAWS ANN. ch. 164, § 1 (West 2004).

[751] *See supra* Part II.B.

[752] For instance, the originally proposed restructuring plan specifically excludes wood from the list of acceptable fuel stock for biomass whereas the enacted definition specifically recognized wood as an acceptable renewable fuel, provided the facility is equipped with the necessary low-emission technologies. Electricity Industry Restructuring Plan: Model Rules and Legislative Proposal, Docket No. D.P.U. 96-100, at B-8 (Mass. Dep't Pub. Util. Dec. 30, 1996). There are a number of other biomass fuels that were excluded from the proposed DPU 96-100 definition which are now included in the statute, such as food wastes and organic refuse-derived fuel. *Id.* A number of categories were added through the legislative process, including ocean thermal, wave or tidal energy, landfill gas, conventional municipal solid waste plant technology in commercial use, waste to energy, and naturally flowing water and hydroelectric. MASS. GEN. LAWS ANN. ch. 164, § 1 (West 2004).

categorized as "biomass."[753] In the new Massachusetts deregulation law, waste-to-energy is a component of conventional municipal solid waste technology in commercial use.

2. *Renewable Portfolio Standard*

The restructuring statute creates a renewable portfolio standard that requires that

> [e]very retail supplier shall provide a minimum percentage of kilowatt-hours sales to end-use customers in the Commonwealth from new renewable energy generating sources, according to the following schedule: (i) an additional 1 percent of sales by December 13, 2003, or one calendar year from the final day of the first month in which the average cost of any renewable technology is found to be within 10 percent of the overall average spot-market price per kilowatt-hour for electricity in the commonwealth, whichever is sooner; (ii) an additional one-half of 1 percent of sales each year thereafter until December 31, 2009; and (iii) an additional 1 percent of sales every year thereafter until a date determined by the division of energy sales every year there after a date determined by the division of energy resources. For the purpose of this subsection, a new renewable energy generating source is one that begins commercial operation after December 31,1997, or that represents an increase in generating capacity after December 31, 1997, at an existing facility.[754]

The NEPOOL generation information system (GIS) in mid-2002 began a process to track the origin, fuel type, pollution emissions, and "green" character of all megawatt hours generated in the New England region. It will track compliance with RPS, emission performance standards (EPS), as well as substantiate green-marketing claims of suppliers. It allows compliance with green portfolio requirements in Maine, Massachusetts, and Connecticut.[755] It also will allow disclosure to end-use customers of the attributes of their power.[756]

The "green" attributes are traded as a separate commodity

---

[753] Small Power Production and Cogeneration Facilities—Environmental Findings, 10 F.E.R.C. ¶ 61,314 (1980).

[754] MASS. GEN. LAWS ANN. ch. 25A, § 11F (West 2002).

[755] NEPOOL GENERATION INFORMATION SYSTEM, OPERATING RULES §§ 5.1-5.8 (2004).

[756] *Id.* § 5.4.

using their GIS tags.[757] This new commodity is meant to allow a transparent and efficient market for renewable energy. Small on-site distributed generators, including those using net metering can receive GIS certificates even if they do not produce positive net energy for the grid.[758] If their electric production is measured by appropriate metering they can bank their green attributes over multiple months, even if used on-site, and receive certificates for their aggregate output.[759] Two months after each quarter ends, any unsold "green" attributes are divided among all market participants for the prior quarter.[760]

3. *Renewable Trust Fund*

The Massachusetts statute also creates a trust fund to invest in renewable energy resources.[761] The fund has the purpose of

> generating the maximum economic and environmental benefits over time from renewable energy to the ratepayers of the commonwealth through a series of initiatives which exploits the advantages of renewable energy in a more competitive energy marketplace by promoting the increased availability, use, and affordability of renewable energy, by making operational improvements to existing renewable energy projects and facilities which, in the determination of the board, have achieved results which would indicate that future investment in said facilities would yield results in the development of renewable energy more significant if said funds were made available for the creation of new renewable energy facilities, and by fostering the formation, growth expansion, and retention within the commonwealth of preeminent clusters of renewable energy and related enterprises, institutions, and projects, which serve the citizens of the commonwealth.[762]

The Massachusetts legislature created a charge to support the renewable energy trust fund initiatives. The charge is calculated

---

[757] *Id*. §§ 3.1-3.7.

[758] *Id*. § 2.1(a).

[759] *Id*. § 3.7.

[760] "Leftover" certificates are deemed part of the "residual system mix" and assigned at no cost to all loadserving entities that lack a sufficient number of certificates to cover their load. Therefore, if not applied or sold within two to five months of its creation, a green attribute is forfeited by its creator at no cost to the system. *Id*. at 17-18.

[761] MASS. GEN. LAWS ch. 40J, § 4E (West 2004).

[762] *Id*. § 4E(b).

by the following amounts:

> three-quarters of one mill ($0.00075) per kilowatt-hour in . . . 1998; one mill ($0.001) per kilowatt-hour in . . . 1999; one and one quarter mill ($0.00125) per kilowatt-hour in . . . 2000; one mill ($0.001) per kilowatt-hour in . . . 2001; three-quarters of one mill ($0.00075) per kilowatt-hour in . . . 2002; and one-half of one mil ($0.0005) per kilowatt-hour in each calendar thereafter.[763]

This 1 mill per kilowatt-hour charge is yielding about forty million dollars annually.[764] The Massachusetts Renewable Energy Fund requires this charge on all electricity consumers in the commonwealth.[765]

The legislature granted oversight of the fund to the Massachusetts Technology Park Corporation, which later changed its name to the Massachusetts Technology Collaborative (MTC), a publicly chartered independent authority of the Commonwealth of Massachusetts, created in 1982.[766] The MTC was created to advance the growth of the technology (not only the energy) sector in the Commonwealth.[767] The MTC's board of directors is authorized to provide "grants, contracts, loans, equity investments . . . or take any other actions" the board deems appropriate, provided the board determines these actions will: (1) encourage development of the commonwealth's renewable energy industry or (2) support technology research and technology transfer and demonstration projects or (3) support conservation of energy resources.[768] A committee composed of persons experienced in the renewable energy industry and academic community advises the board of directors in its decision-making.[769]

The MTC has authority to "expend monies from the fund to make grants, contracts, loans, equity investments, energy production, credits, bill credits, or rebates to customers, to provide financial or debt service obligation assistance, or to take any

---

[763] MASS. GEN. LAWS ch. 25, § 20(a)(1) (West 2004).

[764] A financial statement for the Renewable Energy Fund is at MASS. TECH. COLLABORATIVE, THE RENEWABLE ENERGY TRUST FUND: PROGRESS, CHALLENGES, AND OPPORTUNITIES 27-28 (2002).

[765] MASS. GEN. LAWS ch. 25, § 20(a)(1) (West 2004).

[766] MASS. GEN. LAWS ch. 40J, § 4E (West 2004).

[767] *Id*. § 1A.

[768] *Id*. § 4E(d).

[769] *Id*. § 4E(i).

actions, in such forms, under such terms and conditions and pursuant to such selection procedures as the board deems appropriate and otherwise in a manner consistent with good business practices.[770] Priority for disbursing money shall be given to Massachusetts institutions and enterprises focusing on renewable projects, then to enterprises connected to the regional power grid, and last to all others regardless of location.[771]

The fund is divided into four sub-divisions: "'product and market development' to establish a foundation for growth and expansion of the commonwealth's renewable energy enterprises, institutions, and projects;" "'training and public information' to allow for the development and dissemination of complete, objective, and timely information, analysis, and policy recommendations related to the advancement of public purposes and interests of therenewable energy fund;" "'investment' to support the growth and expansion of renewable energy enterprises, institutions, and projects;" and "'research and development' within the commonwealth and the New England region related to renewable energy matters."[772] What is worth noting is that while not expressly limiting expenditure of the funds to Massachusetts businesses, the implicit direction is to fund the promotion of in-state renewables. Its stated purpose is to cluster renewable energy "within the *commonwealth*" to expand "the *commonwealth's* renewable energy enterprises."[773]

The only category from the list of definitions that is excluded from obtaining fund disbursements is "waste to energy which is a component of conventional municipal solid waste plant technology in commercial use."[774] Instead, the board shall make payments from the trust fund in the form of debt service assistance to municipalities using these facilities to cover the costs of installing pollution control technology.[775]

Suit was brought contesting the renewable energy charge in Massachusetts, on the grounds that it violates the state constitution by imposing an unreasonable excise tax, and violates the Fourteenth Amendment to the U.S. Constitution by imposing that

---

[770] *Id*. § 4E(d).
[771] *Id*.
[772] *Id*.
[773] *Id*. (italics added).
[774] *Id*. § 4E(f).
[775] *Id*.

tax on customers of investor-owned utilities, but not on customers of the forty municipal utilities in the state.[776] Municipal utilities were exempt from the restructuring legislation and from the renewable trust fund charges.[777]

The court agreed with plaintiffs that these renewable energy surcharges were, in fact, excise taxes.[778] It found that the charges were mandatory, noting that the benefits of energy conservation and renewable energy deployment benefitted generally all customers in Massachusetts.[779]

Regarding unequal taxation of municipal and investor-owned utility customers, the court found that the fact that customers of municipal utilities could receive some of the benefits of the renewable energy and conservation expenditures of these excise taxes without paying taxes into the fund did not make them "unreasonable."[780] The court held that the legislature is allowed to make reasonable classifications regarding income and expenses on different classes of customers in imposing a tax.[781] The court held that it was permissible to put customers of investor-owned utilities in a different class that pays into the renewable and conservation trust funds, but that also gets the privilege of selecting renewable energy for their source of supply.[782] Municipal customers remained captive retail customers without choice of retail supply. Because the members of the investor-owned utilities class and the

---

[776] Shea v. Boston Edison Co., 727 N.E.2d 41 (Mass. 2000).

[777] *Id*. at 45-46. At the time of this suit, no Massachusetts municipal electric utilities had elected to participate in restructuring or competitive retail access. *Id*.

[778] *Id*. at 47-48.

[779] *Id*.

[780] *Id*. at 48. Approximately 147 of more than 300 municipalities in Massachusetts have contracts to dispose of their waste at waste-to-energy facilities. *Id*. Of the forty municipal utilities in Massachusetts, twenty-one entered into waste-to-energy contracts with private waste-to-energy facility operators. Therefore, the court concluded that the expenditure of a large portion of the renewable energy fund to subsidize municipalities for higher fees they would have to pay under their contracts to subsidize waste-to-energy facility environmental improvements, were proportionately available to both municipal utilities and IOU-served municipalities in Massachusetts. *Id*. It concluded that all consumers in the Commonwealth would benefit from the environmental improvements at these waste-to-energy facilities in reduced air emissions. However, only a portion of the trust fund expenditures were devoted to these purposes.

[781] *Id*. at 50.

[782] *Id*. at 49.

members of the municipal utilities class of customers were each treated equally within their respective classes, the court held that it was not a violation of equal protection *within the class*.[783] The classification scheme was found rationally related to several legitimate state interests and deemed reasonable.[784]

B. *California*

California's approach to renewable energy resources parallels that of Massachusetts in that both create portfolio requirements and trust funds.[785] AB 1890 amended the California Public Utilities Code, outlined the deregulation of California's investor-owned electric utilities, and called for the competition in the state's electricity market that began on March 31, 1998.[786] AB 1890 also outlined the implementation of public purpose programs designed to encourage energy conservation and efficiency by funding research and development of energy efficient technologies and products.[787]

These public purpose programs are funded by a public goods charge imposed on all California electricity customers. AB 1890 requires each regulated California utility to collect additional charges as part of the distribution service bills: a competition transition charge to cover stranded costs,[788] and a "public goods charge," collected as "a nonbypassable element of the local distribution service and collected on the basis of usage" until January 1, 2012.[789]

Funds collected under this electric rate component are transferred to the State Energy Resources Conservation and Development Commission (Energy Commission) on a quarterly

---

[783] *Id*.

[784] *Id*.

[785] The portfolio requirement can be found at CAL. PUB. UTIL. CODE § 399.15 (West 2004). The trust fund legislation can be found *id*. §§ 381, 383.5, 399.8 (West 2004).

[786] *Id*. §§ 330-399.16.

[787] CAL. PUB. RESOURCES CODE § 25620.1 (West 2004).

[788] *See id*. § 367. "[T]he consumer shall have an obligation to pay the [transition] costs provided in Sections 367, 368, 375, and 376 . . . directly to the electrical corporation providing electricity service in the area in which the customer is located." *Id*. § 370.

[789] *See id*. § 381(a), (g). The original ending date of March 1, 2002, was extended to 2012 by 2000 Cal. Stat. 1050, §4. CAL. PUB. UTIL. CODE § 399.8 (West 2004).

basis and deposited in the State Treasury Renewable Resource Trust Fund (Renewable Resources Fund).[790] From this fund, the utilities satisfy their obligation to "spend" a total of $540 million from 1998 to 2002.[791] The Energy Commission is under an obligation to allocate these funds to "programs which enhance system reliability and provide in-state benefits."[792] These benefits include: 1) "[c]ost-effective energy efficiency and conservation activities;" 2) "[p]ublic interest research and development not adequately provided by competitive and regulated markets;" and 3) [i]n-state operation and development of existing and new and emerging renewable resource technologies . . . ."[793]

California defines in-state renewable energy as: "biomass, solar thermal, photovoltaic, wind, geothermal, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current . . . ."[794]

This funding mechanism is best understood in four tranches: (1) existing, (2) new, (3) consumer demand, and (4) distributed generation. First tranche: The statute allocates twenty percent of the fund for "programs that are designed to improve the competitiveness of existing-in-state renewable electricity generation technology facilities, and to secure for the state the environmental, economic, and reliability benefits that continued operation of those facilities will provide."[795] This subsidy from all power sales will reduce the effective consumer market price of renewable power.

The statute states that "eligibility for incentives . . . shall be limited to those technologies found eligible for funds by the Energy Commission" based on the procedures it adopts.[796] Note that twenty percent of the trust fund is earmarked for existing *in-*

---

[790] *Id*. § 445.

[791] *See id*. § 381(c)(3). The extension of the renewables trust fund requires the three major investor-owned utilities to collect $135 million per year for the renewables fund until 2012. *Id*. § 399.8.

[792] *Id.* at §381(b).

[793] *Id.* §381(b)(1)-(3).

[794] *Id*. § 383.5(b)(1)(A).

[795] *Id*. § 383.5(c)(1). The original AB 1890 set this percentage at forty-five percent. 1997 Cal. Stat. 905, § 4. The current percentage was set in 2002 Cal. Stat. 515, § 15.

[796] *Id*.

state renewable projects, even though the fee is imposed equally on power generated and emanating from out of state.

The existing technologies subsidies from the fund, while applied primarily to in-state projects, can subsidize out-of-state facilities "near the border of the state with the first point of connection to the Western Electricity Coordinating Council (WECC) transmission system located within this state."[797] Subsidy distribution is a per-kWh payment bridging the differential between renewable energy target prices and the actual market clearing price for electricity, for the aggregate kWh generated, with a $0.015/kWh maximum.[798] Through June 2003, over $173 million had been spent to fund these payments.[799] These funds are currently parceled out among three technology tiers as follows: "75 percent shall be used to fund first tier technologies, including biomass and solar electric technologies and 25 percent shall be used to fund second tier wind technologies."[800]

Second tranche: 51.5 percent of the funds are to be invested in programs "designed to foster the development of new in-state renewable electricity generation technology facilities, and to secure for the state the environmental, economic, and reliability benefits that continued operation of those facilities will provide."[801] To be eligible for funds, a facility's output must be sold to customers subject to the benefits charge, that is, California customers.[802] It must also be located in-state or be connected to the WECC grid.[803]

---

[797] *Id*. § 383.5(b)(1)(B).

[798] CAL. ENERGY COMM'N, PUB. NO. P500-97-002, POLICY REPORT ON AB 1890 29-31 (1997). Target prices are per-kWh rates, established for three defined tiers, in order to mimic competitive energy prices for each particular technology, reflecting their approximate average costs. *Id*.

[799] *See* CAL. ENERGY COMM'N, PUB. NO. P500-03-103F, ANNUAL PROJECT ACTIVITY REPORT TO THE LEGISLATURE 32-33 (2003).

[800] Third tier technologies, which were a part of the original AB 1890 funding scheme, include "geothermal, small hydropower, digester gas, landfill gas, and municipal solid waste technologies," and were eligible for seven percent of the entire renewables fund. 1997 Cal. Stat. 905, § 4. These technologies were removed from the 2002 revision of the existing renewables program. 2002 Cal. Stat 515, § 15. The original AB 1890 also included tire-to-energy as a first-tier source, along with solar and biomass. 1997 Cal. Stat. 905, § 4. These sources are entirely absent from the current legislation.

[801] CAL. PUB. UTIL. CODE § 383.5(d) (West 2004). The original legislation assigned thirty percent of the fund to this program. 1997 Cal. Stat. 905, § 4.

[802] CAL. PUB. UTIL. CODE § 383.5(d)(2)(D) (West 2004).

[803] *Id*. § 383.5(d)(2)(B).

Eligible projects submit to an auction process, with projects that request the lowest amount of subsidy receiving support first, subject to a $0.015/kWh maximum.[804] Selected renewable projects receive subsidy for five years beginning before 2002 from their on-line commencement date.[805] On-site generation or other facilities that escape the imposition of stranded cost transition charges are not eligible for either the new or existing renewable resources funding are.[806] Repowering of existing facilities is included in this program.[807]

The $0.015/kWh subsidy exhausted the funds available for the subsidy.[808] The subsidies are paid to green power marketers, who may or may not pass the subsidy on to consumers. Since September 1998, the California subsidies for a typical residential customer range from $1 to $17 per month.

Third tranche: Ten percent of the trust fund is dedicated to directly subsidizing consumer purchases of renewable energy.[809] Since one must receive bills from California electric distribution companies to receive a credit, out of-state consumers cannot benefit from this form of subsidy.[810]

An additional one percent of the fund is allocated "to promote renewable energy and to disseminate information on renewable energy technologies . . . and to help develop a consumer market for renewable energy and for small-scale emerging renewable energy technologies."[811]

Fourth tranche: 17.5 percent of the fund is dedicated to "emerging renewable technologies in distributed generation

---

[804] CAL. ENERGY COMM'N, *supra* note 799, at 19-20.

[805] CAL. PUB. UTIL. CODE § 383.5(d)(5) (West 2004).

[806] *Id*. § 383.5(c)(2)(D)(ii), (d)(2)(C)(ii).

[807] The original legislation limited repowering subsidies to existing wind projects. 1997 Cal. Stat. 905, § 4. Many of these projects were not a success as power generation projects, but were a success economically because of tax incentives at the state and federal levels for these projects. Repowered projects shall be eligible for funding under this subdivision if the new investment is at least eighty percent of the value of the repowered facility. CAL. PUB. UTIL. CODE § 383.5(d)(3) (West 2004).

[808] CAL. ENERGY COMM'N, *supra* note 799, at 20-22.

[809] CAL. PUB. UTIL. CODE § 383.5(f)(1) (West 2004). The original legislation had one percent of the fund, coming out of this tranche, devoted to consumer promotion. 1997 Cal. Stat. 905, § 4.

[810] CAL. PUB. UTIL. CODE § 383.5(f)(2)(A) (West 2004).

[811] *Id*. § 383.5(g).

applications."[812] These incentives reduce the cost of renewable, distributed energy systems, at the consumer's point of use, on a capacity-of-installation basis.[813] However, all recipient distributed generation systems must be connected to the grid.[814] This latter requirement has no logical predicate. In California, even non-grid-connected distributed generation would have saved California from its 2001 energy crisis, if only California had known how to access this potential.[815] Even if not set up to feed power to the grid, operating distributed generation diminishes the demand of the host on the grid for centralized power.[816] Therefore, whether connected to the grid or not, exactly such distributed generation would have abated the California crisis that created more than a $20 billion hole in the California budget and led to the recall of Governor Gray Davis.[817]

This subsidy is not expressly limited to emerging technologies in-state, but such a limitation can be easily implied. In order to receive a subsidy, "[s]ystems and their fuel resource shall be located on the same premises of the end-use consumer" and shall not "be located at a customer site that is not receiving distribution service from an electrical corporation" that contributes to the fund.[818] As a practical matter, only projects located on the site of a California retail consumer and served by a California distribution system are eligible.

Therefore, California's trust fund, through a complex and disaggregated mechanism, subsidizes both the production and

---

[812] *Id*. § 383.5(e). The original legislation had this allocation at fifteen percent. 1997 Cal. Stat. 905, § 4.

[813] CAL. PUB. UTIL. CODE § 383.5(e)(2)(B) (West 2004).

[814] *Id*. § 383.5(e)(2)(C).

[815] One analysis concluded that bringing on just five percent additional power generation capacity, in the form of tapping some of the distributed generation base in California, would have reduced peak period prices by nineteen percent. R. COWART ET AL., NAT'L RENEWABLE ENERGY LAB., NREL/SR-560-32498, STATE ELECTRICITY REGULATORY POLICY AND DISTRIBUTED RESOURCES: DISTRIBUTED RESOURCES AND ELECTRIC SYSTEM RELIABILITY 31 (2002). An estimate of available distributed generation and cogeneration may be found at CONG. BUDGET OFFICE, PROSPECTS FOR DISTRIBUTED ELECTRICITY GENERATION 5-7 (2003).

[816] *See* A. JALALZADEH-AZUR, NAT'L RENEWABLE ENERGY LAB., NREL/TP-550-32754, QUANTIFYING POTENTIAL OF INTEGRATED ENERGY SYSEMS WITH A VARYING LEVEL OF NATIONWIDE DEPLOYMENT 1-2 (2002).

[817] *See* Ferrey, *supra* note 20, at 325.

[818] CAL. PUB. UTIL. CODE. § 381(e)(2)(C) (West 2004).

consumption sides of renewable energy technologies, by an amount that could cut the cost of such energy by one-third or more to make it competitive with conventional power resources. California electric restructuring legislation mandates that "the cost recovery plan set rates for each customer class, rate schedule, contract or tariff option, at levels equal to the level as shown on June 10, 1996, provided that rates for residential and small commercial customers shall be reduced so that these customers shall receive rate reductions of no less than ten percent for 1998 continuing through 2002."[819]

All of these subsidies exclude benefits to out-of-state renewable energy projects or out-of-state consumers. These subsidies allow in-state renewable energy generation projects a competitive advantage. Funds are generated by a tax on the utility distribution of power in interstate commerce, including a tax on that power from eleven states that export power to California. Thus, in-state and out-of-state generated power effectively is taxed to benefit in-state renewable power development.

Because energy used in California is generated both inside and outside of California, this scheme arguably discriminates against out-of-state energy producers. As discussed in detail later, taxing interstate wholesale transactions to support in-state industry raises serious issues under the dormant commerce clause of the U.S. Constitution. Regulatory structures that discriminate against commerce based on its interstate origin are seldom constitutional. The funds collected from California users of energy generated out-of-state are explicitly earmarked to subsidize a subset of the in-state electric generation industry.

In 2002, in response to the California electric restructuring collapse, the state approved legislation that would require state utilities to purchase at least twenty percent of their electricity from renewable sources.[820] While these funds would promote the

---

[819] Ca Pub Util Code § 368 (a). See also, Ca Pub Util Code §§ 381, 383, 368. *See* Ferrey, *supra* note 20, at 299.

[820] CAL. PUB. UTIL. CODE § 399.15 (West 2004). In 2002, California received approximately twelve percent of its electricity from renewable sources, almost all of which came from existing hydropower projects. *California Adopts 20% Renewables Standard*, ELECTRICITY DAILY, Sept. 9, 2002, at 1. The legislation requires that this twelve percent figure increase by one percent annually until one fifth of all power was from renewable resources (no later than 2017). CAL. PUB. UTIL. CODE § 399.15(b)(1) (West 2004).

development of a sufficient renewable resource base to underwrite this goal of electric generation diversification, this linkage to a logical state diversification goal is unlikely to justify interstate discrimination.

C. *Maine*

Maine encourages renewable resource deployment by creating a portfolio standard. Maine does not have a trust fund. A retail electricity provider operating in Maine must demonstrate that no less than thirty percent of its portfolio of electric supply is composed of eligible resources.[821] "If a competitive electricity provider represents to a customer that the provider is selling . . . a portfolio of supply sources that includes more than 30% eligible resources, the eligible resources exceeding 30% of that customer's load may not be applied to meet the aggregate . . . portfolio requirement.[822]

Maine defines a renewable resource as a source

> [t]hat qualifies as a small power production facility or cogeneration facility under the Federal Energy Regulatory Commission rules, . . . or . . . [w]hose total power production capacity does not exceed 100 megawatts and that relies on one or more of . . . [f]uel cells, . . . [t]idal power, . . . [s]olar arrays and installations, . . . [w]ind power installations, . . . [g]eothermal installations, . . . [h]ydroelectric generators, . . . [b]iomass generators, . . . or [g]enerators fueled by municipal solid waste in conjunction with recycling.[823]

The added definitions are consistent with the federal QF definitions, except that they allow a larger (100 MW) size of QF small power producer to be eligible.[824] Hydro-power is recognized in Maine's renewable definition, though methane landfill power is not.[825] Maine differs from California and Massachusetts in that an eligible renewable resource need not be a new resource. Maine's renewable portfolio standard includes all existing, as well as new, renewable power.[826] The 30% threshold is high compared to other states that have set up such systems, but includes existing

---

821 ME. REV. STAT. ANN. tit. 35-A, § 3210(3) (2003).
822 *Id.*
823 *Id.* § 3210(2)(C).
824 *Id.*
825 *Id.*
826 *Id.*

hydroelectric capacity in the New England region.

Maine's statute provides that an "eligible resource" can be a source of electrical generation that "[g]enerates power that *can physically be delivered to the control region in which the New England Power Pool* . . . has authority over transmission . . . ."[827] This language does not appear to be geographically discriminatory. Thus, by defining renewables to include any resource in the region, Maine avoids the in-state exclusivity of California trust fund designs. This avoids potential dormant Commerce Clause problems of discrimination against interstate commerce inherent in the other programs.

Although there is not a renewable resources trust fund, the Maine statute includes a provision for voluntary-funded research and development:[828]

D. *Illinois*

Although not titled an electric restructuring act, Illinois provided for renewable energy investments as part of its Renewable Energy, Energy Efficiency, and Coal Resources Development Law of 1997 (Renewable Energy Act).[829] There is no mention of a portfolio standard requirement, but the Act created the Renewable Energy Resources Trust Fund for the purpose of "provid[ing] grants, loans, and other incentives to foster investment in and the development and use of renewable energy resources . . . ."[830]

Renewable resources are defined as "wind, solar thermal energy, photovoltaic cells and panels, dedicated crops grown for energy production and organic waste biomass, hydropower that does not involve new construction or significant expansion of hydropower dams, and other such alternative sources of environmentally preferable energy."[831] Illinois excluded other resources by providing that "'[r]enewable energy resources' [do] not include . . . energy from the incineration, burning or heating of

---

[827] *Id*. § 3210(2)(B)(1) (emphasis added).

[828] The fund allows customers to make voluntary contrbutions via their transmission and distribution utilities, and distributees funds to "the University of Maine System, the Maine Maritime Academy or the Maine Technical College System for renewable resource research and development." *Id*. § 3210(5).

[829] 20 ILL. COMP. STAT. 687/6-2 to 687/6-7 (2004).

[830] *Id*. at 687/6-4.

[831] *Id*. at 687/6-3(f).

waste wood, tires, garbage, general household, institutional and commercial waste, industrial lunchroom or office waste, landscape waste, or construction or demolition debris."[832]

Of note, there is a lack of inclusion of usual renewables, such as fuel cells, trash-to-energy programs, and geothermal. Second, the statute recognizes hydro-power, but only in limited circumstances, where existing dams are deployed for generation.[833] Finally, Illinois leaves the definitional door open for administrative embellishment with the phrase "other such alternative sources of environmentally preferable energy."[834]

The Renewable Energy Act also provides a funding mechanism for the act, the "Renewable Energy Resources and Coal Technology Development Assistance Charge."[835]

Illinois has geographically limiting language, reminiscent of Maine in that it is mostly addressed to the intent of the statute.[836] While not crystal clear, such language appears to be intended to limit the resources subsidized to those sited in Illinois.

E. *Wisconsin*

Wisconsin has both a portfolio standard[837] and a trust fund.[838] Wisconsin defines a renewable resource as anything that "derives electricity from any of the following," as determined by the state commission: a renewable fuel cell, "tidal or wave action," "solar thermal electric or photovoltaic energy," "wind power," "geothermal technology," or biomass.[839] A renewable resource is also defined as a "resource with a capacity of less than 60 [MW] that derives electricity from hydroelectric power" or "[a]ny other resource, except a conventional resource, that the commission designates as a renewable resource in rules . . . ."[840]

---

[832] *Id*.

[833] *Id*.

[834] *Id*.

[835] The charge ranges from $0.05/month for residential customers to $37.50/month for the largest commercial customers. *Id*. at 687/6-5.

[836] *Id*. at 687/6-2 (describing purpose of pursuing "benefits of new renewable energy resources and clean coal technologies for use in Illinois . . .").

[837] Utilities are required to provide 2.2 percent renewable energy by 2011. WIS. STAT. § 196.378(2) (2003).

[838] *Id*. § 16.957.

[839] *Id*. § 196.378(1)(h).

[840] *Id*.

Wisconsin's definition is more inclusive than most states; though it does not recognize methane or a trash-to-energy system, although these could be included as "biomass." Wisconsin does include hydropower and makes eligible new small dams producing up to 60 MW.[841]

Wisconsin is one of the most geographically inclusive states. Wisconsin has no geographically limiting language on use of proceeds in its trust fund. In fact, in the "History" portion of the statute, the state explicitly includes other states and their resources.[842] Wisconsin even takes into consideration out-of-state facilities for calculating percentages of power for inclusion in the portfolio standard; an "electric provider may include renewable facilities located in this or another state and renewable facilities located on its or another electric provider's system" when calculating certain rates.[843]

In 2004, the Wisconsin Department of Administration allocated $45 million annually for energy conservation and development of renewable resources, and $46 million for support of low-income customer assistance, subject to approval by the Wisconsin legislature.[844] $37 million was allocated to DSM, and $3 million annually is devoted to renewable resource promotion.[845]

F. *Connecticut*

Connecticut encourages renewable resource deployment by creating a portfolio standard[846] as well as a renewable energy trust fund.[847]

Connecticut defines a Class I renewable energy source as a facility using "energy derived from solar power, wind power, a fuel cell, methane gas from landfills, ocean thermal power, wave or tidal power, low emission advanced renewable energy conversion technologies, a run-of the-river hydropower facility provided such facility has a generating capacity of not more than

---

[841] *Id*.

[842] *Id*.

[843] *Id*. § 196.378(2).

[844] Wis. Energy Task Force, Public Benefits Program Funding Level, *at* http://energytaskforce.wi.gov/docview.asp?docid=38 (last visited Apr. 2, 2004).

[845] *Id*.

[846] 2003 Conn. Acts 135, § 7 (Reg. Sess.) (amending CONN. GEN. STAT. § 16-245a (2003)).

[847] *Id*. § 8 (amending CONN. GEN. STAT. § 16-245l (2003)).

five megawatts, does not cause an appreciable change in the river flow, and began operation [after July 1, 2003], or a biomass facility, . . . provided such facility began operating on or after July 1, 1998, and such biomass is cultivated and harvested in a sustainable manner . . . ."[848]

A Class II renewable energy source is a "trash-to-energy facility, a biomass facility that began operation before July 1, 1998, . . . or a run-of-the river hydropower facility provided such facility has a generating capacity of not more than five megawatts, does not cause an appreciable change in the river flow, and began operation [before July 1, 2003]."[849]

Connecticut, like most of its New England counterparts, runs the gamut of what have been traditionally known as renewable resources. Connecticut, though, does have the distinction of counting methane landfills as a renewable resource (unlike Maine, which does not recognize it).[850] However, Connecticut does not grant renewable status to geothermal power.

Under Connecticut's retail deregulation legislation, the state created an emissions portfolio standard applicable to all electric power suppliers requiring that at least one percent of the supplier's total electricity output and services to be generated from Class I renewable energy sources and an additional three percent of the total output to be from Class I or Class II renewable energy sources.[851]

The portfolio standard contains no limiting language as to where the renewable resources must come from, nor does it hint that it would be more beneficial if the renewables were harvested in the state of Connecticut. The renewable resource trust fund is financed by a "systems benefits charge."[852] The systems benefits charge is imposed "against all end use customers of each electric distribution company . . . ."[853] The charge is also levied on all customers receiving services under a special contract, but only if such contract is entered into or renewed after July 1, 1998.[854] The

---

[848] *Id.* § 1 (amending CONN. GEN. STAT. § 16-1 (2003)).

[849] *Id.*

[850] *See supra* App.C.

[851] These requirements gradually increase to seven and three percent, respectively, by Jan. 1, 2010. 2003 Conn. Acts 135, § 7 (Reg. Sess.).

[852] *Id.* § 8.

[853] *Id.*

[854] CONN. GEN. STAT. § 16-245l(b) (2003).

charge, like the portfolio standard, has no limiting language, and does not differentiate or otherwise make deference to renewables located within or without of the state.

G. *Nevada*

Nevada encourages development of new renewable resources by a portfolio standard that requires the use of new renewable resources, set at five percent of the total amount of electricity annually consumed by customers in Nevada in 2003 and 2004.[855] The amount is increased biannually by two percent until the standard reaches fifteen percent of the total amount of electricity consumed in 2015.[856]

Nevada defines a renewable energy resource as wind, water (under 30 MW), solar, geothermal and biomass.[857] It defines a renewable energy system as an energy system that utilizes renewable energy resources to produce electricity, or "a solar energy system that reduces the consumption of electricity, natural gas or propane."[858]

Nevada's definition is limited, especially when compared with the New England states. Nevada does not recognize methane, energy from trash or waste products, nor does it include a staple of many states, the fuel cell.[859]

Nevada places no geographic limit on renewable resources in its portfolio standard legislation.[860]

H. *New Jersey*

New Jersey encourages renewable resource deployment by creating a portfolio standard as well as a renewables trust fund.[861] New Jersey's portfolio standard applies to all electric power suppliers and basic generation service providers.

Like Connecticut, New Jersey separates its renewables into two categories. "'Class I renewable energy' means electric energy produced from solar technologies, photovoltaic technologies, wind

---

[855] NEV. REV. STAT. § 704.7821 (2004).
[856] *Id.*
[857] *Id.* § 704.7811.
[858] *Id.* § 704.7815.
[859] *Id.* § 704.7811.
[860] *Id.* §§ 704.7801-.7828.
[861] N.J. STAT. ANN. §§ 48:3-87, -60 (2004)

energy, fuel cells, geothermal technologies, wave or tidal action, and methane gas from landfills or a biomass facility, provided that the biomass is cultivated and harvested in a sustainable manner."[862] The statute defines Class II renewable energy as "electric energy produced at a resource recovery facility or hydropower facility, provided that such facility is located where retail competition is permitted and provided further that the Commissioner of Environmental Protection has determined that such facility meets the highest environmental standards and minimizes any impacts to the environment and local communities."[863] New Jersey follows the New England model; most forms of renewables are accepted, and there are no noteworthy exclusions. New Jersey also includes photovoltaic technologies as renewables, one of the few states that does so.[864]

New Jersey does not employ limiting language in its statutory scheme with regard to its portfolio standard.[865] However, there does appear to be significant geographic in-state limits in its trust fund.[866] Essentially, the portfolio of resources utilized by retail market participants can come from out-of-state, but the trust fund subsidy stays in state, although it is raised on interstate electricity transactions.

I. *New Mexico*

New Mexico has recently enacted a renewable portfolio standard.[867] New Mexico defines renewable energy as electrical energy "generated by means of a low- or zero-emissions generation technology that has substantial long-term production potential" and may include, without limitation, "solar, wind, hydropower," geothermal, landfill gas, "anaerobically digested waste biomass," biomass derived from vegetation or agricultural and animal waste, and "fuel cells that are not fossil-fueled.[868] Like Illinois, New Mexico spells out what is not a renewable energy

---

[862] *Id*. § 48:3-51.

[863] *Id*.

[864] *Id*.

[865] *Id*. § 48:3-87.

[866] The pertinent statutory language states that "[s]uch programs shall include a program to provide financial incentives for the installation of Class I renewable energy projects in the State." *Id*. § 48:3-60(a)(3).

[867] 2004 N.M. Laws 65, § 4.

[868] *Id*. § 3.

resource, including fossil fuel or nuclear energy.[869] New Mexico includes nearly every renewable resource available, including other "landfill" gases. It also includes hydro with no limit (as Maine has imposed).[870] There is no geographically limiting language for resources satisfying the portfolio standard.[871]

J. *New York*

New York has a $234 million systems benefit charge for energy efficiency, research and development, and low-income assistance programs.[872] There appears to be no geographic limitation on the use of proceeds from this fund.[873]

New York provides that a "renewable energy resource" includes "sources which are capable of being continuously restored by natural or other means or are so large as to be useable for centuries, without significant depletion . . . ."[874] The definition goes on to include "solar, wind, plant and forest products, wastes, tidal, hydro, geothermal, deuterium, and hydrogen."[875] The express list of renewables is more inclusive than that of Nevada but not as inclusive as any of the New England states. New York uniquely includes deuterium and hydrogen, while methane and fuel cells are not included. New York places no limits to the eligibility of hydro-power.[876]

K. *Oregon*

Oregon supports the development of renewables through a state trust fund.[877] Oregon defines renewable energy resources as an

> electricity generation facilit[y] fueled by wind, waste, solar, or geothermal power, or by low-emission nontoxic biomass based on solid organic fuels from wood, forest, and field residues, . . . [d]edicated energy crops available on a renewable basis, . . .

---

869 *Id*.
870 *Id*.
871 *Id*. § 4.
872 *Re* Competitive Opportunities Regarding Electric Service, 187 Pub. Util. Rep. 4th (PUR) 233 (N.Y. Pub. Serv. Comm'n 1998).
873 *Id*.
874 N.Y. ENERGY LAW § 1-103(12) (McKinney 2004).
875 *Id*.
876 *Id*.
877 OR. REV. STAT. § 757.687 (2001).

> [l]andfill gas and digester gas, [and] [h]ydroelectric facilities located outside protected areas as defined by federal law in effect on July 23, 1999.[878]

This standard omits fuel cells and some types of trash-to-energy facilities. The hydro-power "limit" is unlike Pennsylvania and Maine in that it does not limit it to "low head" hydro or new hydro, but simply limits hydro-power to locations outside certain federally protected lands.[879]

Oregon's trust fund has virtually no geographically limiting language on the use of the trust's proceeds.[880] The only section that comes close is ORS section 757.687 (4), which provides that "[a] consumer-owned utility may comply with the public purpose requirements of [section 757.687] by participating in collaborative efforts with other consumer-owned utilities located in [the] state."[881] If an out-of-state supplier wants to comply with this section, it must combine efforts with an in-state consumer-owned utility. Thus, this provision does not limit the location of the renewable resources, but only the participating utility.

L. *Pennsylvania*

Pennsylvania encourages renewable energy resources by utilizing a trust fund.[882] Pennsylvania defines renewable resources as "solar photovoltaic energy, solar thermal energy, wind power, low-head hydropower, geothermal energy, landfill and mine-based methane gas, energy from waste, and sustainable biomass energy."[883] Pennsylvania includes hydro, but only in very low head applications.[884]

M. *Rhode Island*

Rhode Island promotes renewable resources via a trust fund.[885] There is no geographically limiting language in Rhode Island's legislation as to the use of the trust's proceeds.[886]

---

878 OR. REV. STAT. § 757.600 (2001) (*as amended by* 2003 OR. LAWS 186, § 75).
879 *Id.*
880 *Id.* § 757.687(5).
881 *Id.* § 757.687(4).
882 66 PA. CONS. STAT. ANN. § 2804 (2000).
883 *Id.* § 2803.
884 *Id.*
885 R.I. GEN. LAWS § 39-2-1.2 (2003).

Rhode Island defines renewable energy resources as "generation technologies that produce electricity from wind energy, small scale (less than 100 megawatts) hydropower plants that do not require the construction of new dams, solar energy, and sustainably managed biomass. Fuel cells may be considered an energy efficiency technology to be included in demand sided management programs."[887]

This is a relatively incomplete list. It includes no methane, no trash to energy, and no geothermal technologies. It puts two limits on hydropower (like Maine). The state includes no new dams and only those existing dam projects that generate less than 100 MW. Finally, the fuel cell is considered only in DSM programs, not as a renewable resource.

N. *Texas*

Texas, the largest state undertaking deregulation now that California has faltered and reversed course,[888] supports renewable energy resources by deploying a portfolio standard.[889] Texas defines a renewable energy technology as

> any technology that exclusively relies on an energy source that is naturally regenerated over a short time and derived directly from the sun, indirectly from the sun, or from moving water or other natural movements and mechanisms of the environment. Renewable energy technologies include those that rely on energy derived directly from the sun, on wind, geothermal, hydroelectric, wave, or tidal energy, or on biomass or biomass-based waste products, including landfill gas. A renewable energy technology does not rely on energy resources derived from fossil fuels, waste products from fossil fuels, or waste products from inorganic sources.[890]

Notably, Texas includes landfill gas (methane) and hydro.[891] Unlike other states, such as New Jersey and Pennsylvania, Texas

---

[886] *Id*.
[887] *Id*.
[888] *See supra* note 740 and accompanying text.
[889] TEX. UTIL. CODE ANN. § 39.904(c) (Vernon 2004).
[890] *Id*. § 39.904(d).
[891] *Id*.

does not put a size limit on its eligible hydro power plants.[892] Texas does not recognize the fuel cell as an eligible technology.[893]

The Texas statute embodies extensive geographically limiting language, and along with the possible exception of Illinois, may be the most exclusionary. Texas sets a megawatt capacity goal from renewable energy technologies that will have been installed in Texas.[894] Furthermore, the legislation establishing the commission that will oversee this fund is oriented to a "Texas-only" concept.[895]

---

[892] *Id*.

[893] *Id*.

[894] *Id*. § 39.904(c).

It is the intent of the legislature that by January 1, 2009, an additional 2,000 megawatts of generating capacity from renewable energy technologies *will have been installed in this state*. The *cumulative installed renewable capacity in this state* shall total 1,280 megawatts by January 1, 2003, 1,730 megawatts by January 1, 2005, 2,280 megawatts by January 1, 2007, and 2,880 megawatts by January 1, 2009.

Id. (emphasis added).

[895] *Id*. § 309.904(c)(2)(B) (stating the goal of "encourag[ing] the development, construction, and operation of new renewable energy *projects at those sites in this state* that have the greatest economic potential for capture and development of this state's environmentally beneficial renewable resources") (emphasis added).