

Qualifying Facilities Under PURPA: What Qualifies?

by Beth Dunlop

INTRODUCTION

Congress enacted the Public Utilities Regulatory Policies Act (PURPA), 16 U.S.C. §824a-3(a), in 1978 as part of the National Energy Plan. PURPA's intent was to address the energy crisis of that time by encouraging the more efficient generation of electricity through "a better integration of QF [qualifying facility] supplies with traditional utility supplies" (Levy and Keegan at 22). Qualifying facilities, or QFs, are small power producers and cogenerators as defined in 16 U.S.C. §796(18)(A) and 18 CFR 292.203. Congress expected PURPA to stimulate markets for the products of these alternative sources of energy, which would reduce U.S. dependence on foreign oil, a major foreign policy goal in 1978.

PROVISIONS OF PURPA

The first main provision of PURPA forces electric utilities to buy electricity generated by small power producers at "avoided cost" rates, that is, the rate that approximates what it would cost the utility to generate the same amount of electricity. 16 U.S.C. §824a-3a. This reverses the historical situation, in which utilities bought nonutility power at rates far lower than their own generation costs. These rates were too low to keep small power producers in business, since by definition they do not enjoy the economies of scale in electricity generation that utilities enjoy. In addition, many small producers were pioneering renewable-energy technologies; these pioneer technologies have not been able to produce electricity at the (relatively) low cost that utilities can achieve until recently.

A second major provision of PURPA forces utilities to also supply backup power to small power producers. Utilities have been reluctant to supply small power producers partly because they perceive them as competitors. Although it seems counterintuitive, small power producers may indeed need to buy electricity at various times. For example, wind turbine projects require a small amount of electricity to start the turbines. PURPA ensures that wind producers can buy electricity from utilities when they need it and also that they can sell the electricity they generate back to utilities at a fair price. Cogenerators also want to be able to buy electricity from the utility for backup power, which would be extremely expensive for them to generate themselves.

PURPA forces electric utilities to buy electricity generated by small power producers at "avoided cost" rates. . . .

... Congress looked to cogeneration as part of its attempt to foster energy efficiency.

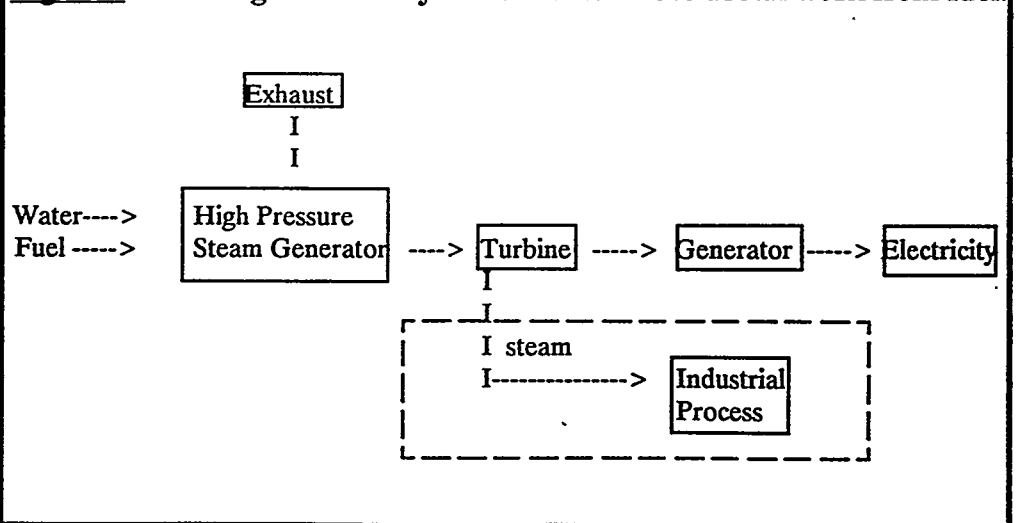
Although Congress passed PURPA in response to its concern about U.S. over-reliance on Middle Eastern oil, the environmental movement welcomed it as a step toward the use of environmentally benign electricity generating technologies. The technologies that PURPA benefits, with some exceptions, are vastly more friendly to the environment than current fossil-fueled technologies or nuclear power. One of the exceptions is cogeneration.

Cogeneration is the simultaneous production of electricity and either "process heat" or steam. Typically, an industrial plant that is cogenerating generates electricity for its production process in any of a variety of ways and uses the "waste" heat or steam in another part of the production process. (See Figure 1.) Common applications are in refineries, paper manufacturing, chemical plants, and milk processing, which require both steam and electricity. The typical efficiency of burning a fossil fuel is on the order of 30 percent; with cogeneration, 55-80 percent of the fuel input is converted to useful work (Kleinbach and Salvagin at 346). Thus Congress looked to cogeneration as part of its attempt to foster energy efficiency.

COGENERATION'S ENVIRONMENTAL TRADEOFFS

In environmental terms, cogeneration is preferable to large utility-owned generating plants because it produces less thermal pollution and because it is more efficient and therefore emits fewer air pollutants per unit of fuel converted into electricity. However, environmentalists maintain that the fuel efficiency standards in PURPA are too weak (Kahn, 1991). Weak efficiency standards mean more fuel must be burned to get the same amount of electricity. Burning more fuel requires extracting more fuel and emitting more pollutants, two activities environmentalists object to. Weak efficiency standards also allow a proliferation of "PURPA machines," or cogenerators who devised a trivial use for process heat, such as a greenhouse, in order to

Figure 1: How cogeneration systems extract more useful work from fuel.



meet QF criteria. FERC itself acknowledged the existence of PURPA machines in a 1988 Notice of Proposed Rulemaking (Federal Register at 31034).

One of the environmental tradeoffs cogeneration offers concerns fuel choice. Given a choice between large utility power plants and cogeneration, environmentalists prefer cogeneration because its usual fuel is natural gas, which burns cleaner than coal and oil. Nonetheless, natural gas is a fossil fuel, so its combustion results in the emission of carbon dioxide, a greenhouse gas. In addition, methane, which is the major constituent of natural gas, is about 20 times more potent as a greenhouse gas than carbon dioxide. Possibly significant amounts of methane escape to the atmosphere during various phases of the handling of natural gas, from extraction through burning. These disadvantages must be weighed against the total environmental costs associated with large utility power plants.

A second environmental tradeoff involves the question of scale. Like cogeneration plants, most early renewable plants were small, reflecting the relatively immature state of the technologies and markets. PURPA originally included a size limit of 30 megawatts (MW) in its definition of QFs specifically to encourage these small producers. The scale of electricity generation involves various environmental tradeoffs. On the one hand, large-scale generation, such as utility plants, has substantial local effects on the local environment. The process of generating electricity from coal produces local effects from mining, local emissions from the trucks or trains that transport the coal, and local emissions from the power plant itself. Similarly, drilling for oil, especially offshore, significantly damages the local environment. And as natural gas is brought to the surface, some of it escapes to the atmosphere. At some point these local pollutants aggregate into regional and global problems. On the other hand, these points of pollution -- resource extraction, transportation, and generation -- are easily identified and more easily regulated than numerous small, decentralized plants.

One benefit of numerous small, decentralized plants such as cogeneration, wind turbines, dams, and solar panel fields, is that they often use renewable, on-site fuels, thus eliminating the extraction and transportation hazards of fossil fuels, as well as emitting far fewer pollutants. However, like large, centralized plants, small, decentralized, renewable-fueled plants may also have severe local effects, including flooding and habitat destruction from small hydropower projects on virgin rivers, acres of photovoltaic panels shading delicate desert ecosystems, and large pieces of processing equipment aboveground at geothermal sites. In addition, wind turbines are problematic in many communities for aesthetic, noise, and safety (of humans and wildlife) reasons, and exploiting ocean-thermal currents radically alters the surrounding ecosystems. Friends of the River, for example, lobbies heavily against hydropower QF applications unless the project is a retrofit of an existing dam (Stork, 1991).

The environmental movement in general supports cogeneration only in those instances in which it is truly efficient and is truly a transition to renewable fuels. In spite of its potentially severe local effects, deep

Given a choice between large utility power plants and cogeneration, environmentalists prefer cogeneration . . .

ecologists, bioregionalists, and other radical environmentalists support small-scale, decentralized electricity generation because it forces local communities and individuals to become more involved in decisions about what resources to exploit and how much waste to produce. These "ecophilosophers" believe that this will promote greater individual responsibility for a public good such as clean air, and an eventual reduction in air pollution. Environmentalists with equity in mind point out that making and using electricity locally also prevents one region from exporting its pollution to neighboring regions.

QFs UNDER PURPA

PURPA has generated quite a bit of furor. Some of the main issues surround how to price electricity, that is, how to determine "avoided cost." Another issue is states' rights, since the statute gives state regulatory agencies a great deal of discretion in implementing PURPA. The result has been a very wide variety of interpretations of the statute and challenges of the constitutionality of the law. Federal Energy Regulatory Commission v. Mississippi. 456 U.S. 742, 1982. Another interesting problem is what it takes to qualify as a QF. Congress seems to have intended QFs to be small, independent power producers who use renewable fuels or cogeneration technology. In practice, many large companies and various industrial concerns have recognized the advantages of QF status and have attempted to stretch the definition in every direction (Kahn, 1991). In response, the Federal Energy Regulatory Commission (FERC), the agency that implements PURPA, and the courts have generally interpreted PURPA to reflect Congress's desire to encourage small power producers.

Gulf States v. Federal Energy Regulatory Commission, WL 1399 (D.C. Cir.) 1991 ("Gulf States I"), deals with this issue of defining QFs. In Gulf States I, Gulf States, the local utility company, tried to evade the PURPA requirement to supply backup power to a plant that used electricity supplied by cogeneration. Gulf States argued that FERC could not consider this plant part of a QF, since, among other reasons, the plant was 1.7 miles from the electricity- and steam-generating part of the cogeneration operation. The court's final decision in the appealed case upheld separation of powers, supporting FERC's authority to devise criteria for defining QFs. The effect of this decision was to maintain the status quo; that is, FERC could continue to certify QFs using case-by-case criteria. Historically, FERC has certified facilities that it thought fitted Congress's intent in passing PURPA, which was to encourage cogeneration, among other things.

NATURE OF THE DISAGREEMENT: Gulf States I and II

The cogeneration plant at issue in Gulf States I was physically located at Fina Oil and Chemical Company, Port Arthur, Texas. The plant generated

Historically, FERC has certified facilities that it thought fitted Congress's intent in passing PURPA
...

electricity and steam. Union Carbide, located 1.7 miles away, used some of the electricity but none of the steam. The central issue in Gulf States I was FERC's decision to award QF status to Fin-Lin, a partnership between Union Carbide Corporation and Fina Oil and Chemical Company.

The chronology of the case is as follows: Fin-Lin applied for QF status, which FERC granted. Gulf States requested a rehearing, which FERC denied. Gulf States sued in the District of Columbia Circuit Court. The circuit judge remanded the case to FERC, ordering the Commission to identify its criteria for awarding QF status to Fin-Lin. On remand, the Commission cited four reasons for awarding QF status to Fin-Lin, whereupon Gulf States sued a second time (Gulf States II), challenging each of FERC's reasons. The D.C. Circuit denied Gulf States' petition.

The Gulf States Parties and Their Interests

As the local utility company, plaintiff Gulf States had two primary interests: (1) Gulf States did not want to supply backup power to the Union Carbide plant, and (2) it did not want the Union Carbide plant to go off the grid, thereby decreasing Gulf State's customer franchise.

Union Carbide, an intervenor, had substantial material interest: it preferred (1) to stop buying electricity from Gulf States, thereby saving money, and (2) to receive power from Fin-Lin, in which it held financial interest. Neither Fina nor Fin-Lin was an intervenor in the case, suggesting perhaps that Union Carbide had the greatest material interest in being part of this QF, or suggesting that Union Carbide was the more financially strong player. The case does not provide details on Fina's position. Presumably, however, the partnership would not have been formed unless it benefitted both partners. Fina's and Fin-Lin's interests probably coincided with Union Carbide's interests.

For utilities, it is expensive and operationally complicated to provide backup power to large industrial plants. Utilities also argue that it is detrimental to the rest of their customer base to be required to do so. The argument is valid in this case as well: if Union Carbide were to go off the grid, Gulf States' revenue would drop, assuming that the Union Carbide plant consumed a substantial amount of electricity. However, PURPA requires utilities to supply that energy, whether or not the customer uses it on a regular basis. In order to supply backup power, utilities make capital investments in electricity-generating plants, transmission lines, and distribution equipment to meet that planned demand. These investments represent fixed costs. If Union Carbide were to go off the grid, the remaining customers' rates might rise because Gulf States would still have these fixed costs. Union Carbide would have won, but both the utility and the public would have suffered. This

For utilities, it is expensive . . . to provide backup power to large industrial plants. .

result would have been detrimental to Gulf States both financially and politically; in addition, the public would have seen only a rate increase, but not the efficiency benefit to society from Union Carbide cogenerating.

The worst-case scenario for Gulf States is exactly what they faced in this case: Union Carbide was not part of the rate base and so was not helping defray the cost of capacity, yet PURPA required the utility to keep that capacity available in order to provide backup power. Adding insult to injury, from Gulf States' point of view, the utility was also required to purchase any excess electricity from the cogenerator. Gulf States sued because it didn't want to acknowledge Union Carbide's status as part of a QF, which would have made it necessary to supply backup power.

The Controversy over Key Statutes, Regulations, and Case Law

Gulf States sued FERC alleging damage to itself for having to provide backup power and damage to its customers from a diminished rate base. However, the court decided the case based on whether Union Carbide could be considered part of a QF.

QFs are defined in 16 U.S.C. §796 (17) and (18). 16 U.S.C. §796(18)(B) states that a "qualifying cogeneration facility" means a cogeneration facility which (i) the Commission [FERC] determines, by rule, meets such requirements (including requirements respecting minimum size, fuel use, and fuel efficiency) as the Commission may, by rule, prescribe." 16 U.S.C. §796(18)(A) defines a cogeneration facility as "a facility which produces (i) electric energy, and (ii) steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating, or cooling purposes."

FERC's regulations implementing PURPA also include relevant definitions. 18 CFR §292.203(b) states, "A cogeneration facility . . . is a qualifying facility if it: (1) Meets any applicable operating and efficiency standards specified in §292.205(a) and (b); and (2) Meets the ownership criteria specified in §292.206." Section 206(a) deals with ownership, which is at issue; however, this section of the regulations addresses only the extent to which a utility can be an owner of a QF, which did not help in deciding whether Union Carbide can be part of the Fin-Lin QF.

Neither the applicable statutes nor the regulations above appeared to assist FERC in deciding whether to award QF status to Fin-Lin. FERC may have considered precedent in its decision, but the decision does not cite any case law. However, after FERC's decision and before Gulf States I was tried, the court did address relevant questions about QF status in Puerto Rico Elec. Power Auth. v. FERC ("PREPA"), 848 F.2d. 243 (D.C. Cir.1988).

In PREPA, the court decided that FERC could grant QF status to a cogeneration project whose generation and consumption components were separately owned for tax purposes and other reasons. PURPA then required the local utility company to provide backup power to both components, contrary to the utility's contention that it should only provide backup power to the producing component.

Gulf States I: Controversy over Statutes, Regulations, and Precedent

In Gulf States I, Gulf States argued that Union Carbide could not be part of the Fin-Lin QF because its plant was 1.7 miles away from the producing component of the cogeneration plant, and because it used only electricity, and not steam, from the cogeneration plant. None of the statutes and regulations exactly addressed these questions. FERC requested summary judgement on the basis of the court's decision in PREPA. The court denied summary judgement and identified two differences between PREPA and Gulf States I. Gulf States contended that the two differences were deciding, whereas FERC contended that they were irrelevant.

The first difference the court found between PREPA and Gulf States I is that in PREPA, the producing and consuming components of the cogeneration facility, although under different ownership, were adjacent to one another. In Gulf States I, by comparison, the QF had two consuming components, one adjacent to the producing component and one 1.7 miles away. The court dismissed both sides of the distance argument because, although the court used this argument in PREPA, FERC had not established distance as a criterion in its regulations.

The second difference regarded ownership. In PREPA, the power producing component of the QF was owned by a different company than owned the adjacent consuming component, and the local utility argued that it only had to supply backup power to the producing component. The court held that FERC was justified in calling the plant a QF, implying that the utility did have to supply backup power, because the plant was clearly configured as a cogeneration plant and the form of ownership was merely a convenience for tax purposes. In Gulf States I, Gulf States argued that Fin-Lin's situation was quite different: the cogeneration plant was wholly owned by one entity, Fin-Lin, but one of the consuming components consumed only one of the cogeneration products. Thus Gulf States should not have to supply backup power to a remote plant that did not use both cogeneration products. FERC argued that the details of PREPA were similar enough to apply to Gulf States I, and that PREPA supported FERC's original licensing of Fin-Lin (which had occurred before PREPA). FERC asserted that it would have been "artificial to distinguish [the Union Carbide] plant from that of its partner which was adjacent to and a prospective consumer of steam and electricity produced by cogeneration facility." Gulf States I, 872 F.2d. 487. (D.C. Cir.) 1989. FERC also argued that "transfers of power among the owners of a facility did not disqualify it from receiving QF status." Id. The court found FERC's explanation unclear and remanded the case.

In Gulf States I, the court dismissed arguments regarding the 1.7 miles between Fin-Lin and Union Carbide because the "close nexus" aspect of PREPA was a court opinion rather than a FERC regulation. The court refused to consider the question of whether the distance was relevant because it said it is an agency's duty to decide such issues. However, on the

[T]he court . . . ask[ed] the Commission to clarify its criteria for granting QF status.

second issue regarding the nature of a QF, the court remanded the case to FERC, asking the Commission to clarify its criteria for granting QF status. The court acknowledged that FERC's Certification Order had addressed the question of multiple ownership, and the Order Denying Rehearing had in some way addressed whether Union Carbide needed to accept steam as well as electricity. The remand occurred because FERC "fail[ed] to indicate . . . why it would have been artificial to distinguish the Union Carbide plant from that of its Fina partner." *Id.*

Gulf States II: Controversy over Statutes, Regulations, and Precedents

The court's order to FERC to clarify its criteria for Fin-Lin QF status resulted in the following four factors.

1. Union Carbide was a part owner of the power producing component as well as a consumer.
2. Union Carbide's plant 1.7 miles away is in "close proximity".
3. The power line used to transmit electrical power to Union Carbide is a private line, indicating that the Union Carbide plant is "part of an integrated industrial operation".
4. There was a longstanding supplier-customer relationship between Union Carbide and Fina before they entered into this joint venture. The former sold the latter nitrogen.

Gulf States v. Federal Energy Regulatory Commission, WL 1399 (D.C. Cir.) 1991.

In Gulf States II, Gulf States challenged the validity of these factors. First it took issue with FERC's usage of the word "facility". This word is part of the statutory definition of cogeneration facility; however, the definition addresses the "cogeneration" part but not the "facility" part. 18 CFR §292.203(b). Gulf States argued that "the Commission [] ignor[ed] the plain meaning of the word 'facility,'" which the utility stated would not normally stretch to encompass two sites 1.7 miles apart. *Id.* FERC's four-part test asserted that Union Carbide was part of the facility because (1) it was a part owner of the producing component as well as a consumer, and (2) 1.7 miles was "close proximity". Next, Gulf States said that "the third factor -- the private line carrying electricity to Union Carbide -- [was] merely a necessary incident of a QF, not a relevant criterion in determining whether the operation is sufficiently integrated to be regarded as a 'facility'." *Id.* Finally, FERC

[T]he definition [of "facility"] addresses the "cogeneration" part but not the "facility" part.

considered Fina and Union Carbide's nitrogen business to support the claim that Union Carbide was an integral component of the cogeneration plant, while Gulf States considered that point irrelevant.

The Holding and Rationale of the Court

In Gulf States II, the court denied the plaintiff's petition challenging FERC's granting of QF status to Fin-Lin. The rationale follows the steps of FERC's criteria.

1. The meaning of the word "facility".

The court held that FERC used the word "facility" adequately. First, the court rejected Gulf States' contention that "facility" cannot apply to components separated by 1.7 miles; the court stated, "we would not have remanded . . . if we had thought the word 'facility' could not bear the meaning which the Commission gives it in this case." *Id.* The court also pointed out that the word is not defined in the statute and appealed to separation of powers, reiterating, "it is an imprecise term that an administrative agency is given implicit authority to construe . . . and we must therefore defer to a reasonable interpretation . . ." *Id.* The court noted that in other circumstances FERC has addressed the definition of a facility, and has noted that, for example, different elements of an industrial park would not constitute a facility for the purposes of a cogeneration joint venture. The court supported FERC's preference to address the question of defining a facility on a case by case basis, and reiterated FERC's authority to make those decisions.

2. Private transmission line.

Gulf States and Union Carbide disagreed on whether the existence of a private transmission line between the producing and consuming components links the components sufficiently to call them a QF. The court relied on the separation of powers argument, holding that this issue was FERC's to decide.

3. Linkage Due to the Nitrogen Business.

The court's third point revolved around whether the nitrogen business between Fina and Union Carbide made a difference in how tightly these plants are linked for determining QF status. The court held that this relationship might not "have any direct bearing on the operation of the cogeneration power unit; nevertheless it also serves as a factor which marks off the economic relationship between Union Carbide and Fina as something more than a joint venture for the sole purpose of gaining QF status." *Id.* In the past, the court has addressed what a facility is, and upheld FERC's decision that the owner of the producing component need not be the consuming component. *Id.*

Gulf States reinforced the status quo . . .

The court's overarching rationale for upholding FERC's decision was that "the Commission's present decision [does not] exceed[] the limits of its discretionary authority." *Id.* In other words, the court upheld separation of powers and the agency's duty and authority to make decisions.

The Significance of the Case

Gulf States reinforced the status quo, both legally and in terms of policy implications. For environmentalists, maintenance of the status quo is bad news, because FERC "has hardly ever denied a [hydro] power license application on environmental grounds (the last time appears to have been in 1954) It has overridden state wild and scenic river codes [and] fish and game codes . . . in granting licenses to power developers" (Reisner at 50).

In deciding PURPA cases, courts have supported FERC in its interpretation of the statute, i.e., to reflect Congress's encouragement of cogeneration businesses. Significantly, the cogeneration aspect is secondary to the business aspect, as shown by Gulf States, PREPA, and the long list of cogenerators to whom FERC has granted QF status. In PREPA, the court supported QF status for a plant whose production and consumption components were owned by separate companies. The court found that the arrangement "represented the kind of integrated operation that Congress intended to encourage." Gulf States v. Federal Energy Regulatory Commission, 872 F.2d. 490. In Gulf States I, the court supported FERC's contention that excessive concern over distance between components of a cogeneration facility "would undermine the Act's objective of encouraging cogeneration." *Id.* Perhaps this emphasis on the business aspects of cogeneration results from the realities of third-party financing. Many cogeneration ventures require substantial amounts of capital for construction and start-up costs. This capital comes from traditional sources, banks and other third-party financiers, who invested \$7.8 billion in PURPA-related facilities in 1990 (Marier and Burr at 17). Zimmer and Feldman (at 29) believe that several FERC decisions on financing have favored small power producers over new utility-built generation, and count this trend as a major determinant in the future of electricity generation.

In 1990, consistent with FERC's agenda and lobbying by solar and geothermal QF developers, Congress amended PURPA to eliminate size restrictions on certain QFs. P.L. 101-575, 104 STAT. 2834. Congress amended size restrictions for cogeneration facilities much earlier. The hearings on Public Law 101-575 (House Committee on Energy and Commerce, 1990; Senate Committee on Energy and Natural Resources, 1990) illustrate the dominant interests in the QF area today. Those testifying included the solar lobby, the wind lobby, and the U.S. Department of Energy (which requested that the bill apply to all renewable energy sources, not just solar, wind, and geothermal). No environmental groups testified, and none of those who did testify raised environmental issues.

Consumers are largely unaware of the PURPA [qualifying facility] issue.

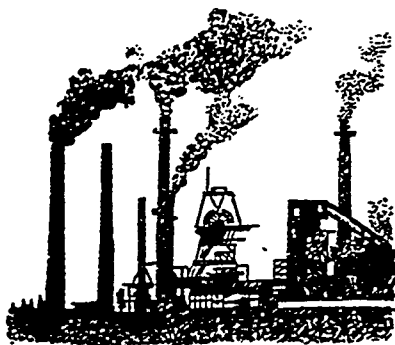
At this point, developers of small power projects, FERC, and the courts are heading in one direction with respect to PURPA's intention and results, whereas utility companies, environmentalists, and consumers are heading in other directions. Of the latter group, only utility companies are participating to any large extent, and their efforts seem to be confined to legal battles solely within their individual service territories. Consumers are largely unaware of the issue, probably because electricity supply is invisible until it reaches the light switch. Consumers are also hindered from careful analysis by the highly technical nature of PURPA issues and the difficulty of obtaining information on what are often very complex regulatory and judicial proceedings. And environmental groups are devoting their efforts to the cause of energy efficiency.

In conclusion, Gulf States clarified a relatively small and very case-specific point in the definition of QFs, namely, that "cogeneration facility," as used in PURPA, can mean a multiplant operation whose components are separated by 1.7 miles and are not required to both use both cogeneration products, that is, electricity and steam. Gulf States built on the court's decision in PREPA, which clarified that the form of QF ownership is flexible so as to accommodate business concerns about taxes and other financial matters. That Gulf States did not delve into the technical issues that it might have, given the distance between production facilities at Fin-Lin and the Union Carbide plant, implies that the court was sympathetic to Congress's perceived intent in passing PURPA and to FERC's history of business-oriented decisions (Zimmer and Feldman at 29).

In Gulf States, as in many cases, the court deferred to agency decisions to uphold a separation of powers. Although the court remanded the first case to FERC, ordering the agency to clarify its criteria for awarding QF status, it subsequently supported the agency's relatively weak decision factors. The criteria relied on largely irrelevant facts, such as the existence of a longstanding supplier-customer relationship between Fina and Union Carbide for a product, nitrogen, completely unrelated to energy. FERC's four factors were distinctly case-specific and were not very useful as a guideline for future decisions. In fact, in a recent Notice of Proposed Rulemaking (FERC at 31023), FERC acknowledged various problems in defining QFs, but suggested no clearly effective way to solve these problems. The questions surrounding how to define QFs continue.

In Gulf States... the court deferred to agency decisions to uphold a separation of powers.

Beth Dunlop is a graduate student in environmental studies at UC Davis.



© Pete McDonnell From "RESOURCES"