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Lead Center

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Robert N. Danziger
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Prepared for
U.S. Department of Energy
Through an agreement with
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ABSTRACT

An analysis is made of the rules implementing sections 201 and 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA). The act provides that utilities must purchase power from qualifying producers of electricity at nondiscriminatory rates, and it exempts private generators from virtually all state and federal utility regulations. Pertinent reference material is provided in the Appendices.

CONTENTS

EXECUTIVE SUMMARY

The Public Utility Regulatory Policies Act of 1978 (PURPA) is one of the most significant legislative actions in the history of electric power in the United States. It provides guidelines, some voluntary, some mandatory, that redefine the nature and scope of the electric utility industry. Furthermore, the relationship between a utility's customers and the utility has been changed by this Act.

The principal medium for this change arises through Sections 201 and 210 of PURPA. Section 210 provides that the utilities must purchase power from, and sell power to, producers of electricity who qualify under Section 201. These rates are to be just and reasonable to the other customers of the utility and in the public interest, without being discriminatory to the qualifying producer. In addition, such power producers are exempt from virtually all state and federal utility regulations when operating under PURPA.

The qualifying electric producers are either cogenerators or small power producers that meet standards promulgated by the Federal Energy Regulatory Commission (FERC). Cogeneration occurs at "a facility which produces (1) electric energy, and (2) steam or other forms of useful energy (such as heat) which are used for industrial, commercial, heating, or cooling purposes." A small power producer is a facility which produces less than 80 megawatts of electric power by the use "of biomass, waste, renewable resources, or any combination thereof." Renewable electric resources include solar photovoltaics, solar thermal electric, windmills, and small hydroelectric facilities. It should be noted that there is no size limit for cogenerators, and that geothermal energy is not necessarily included within the definition of small power producers.

In passing Sections 201 and 210 of PURPA, Congress felt that it did not have the time or expertise to set out all the rules, regulations, and guidelines necessary to implement this program. Therefore, Congress delegated to the FERC the responsibility for implementation of these sections. The regulations reviewed in this report were promulgated pursuant to this mandate.

The dictate of the rules may be summarized as follows:

(1) A qualifying small power production (QSPP) facility is smaller than 80 megawatts when electrical generating equipment within one mile and owned by the same person does not exceed, in the aggregate, 80 megawatts.

(2) The primary energy source of the QSPP facility must be biomass, waste, and/or renewable resources; however, up to 25 percent of the total annual energy input may be oil, natural gas, and/or coal.

(3) Qualifying cogeneration (QC) facilities must meet operating and efficiency standards set forth in Section 292.205 of the rule.

(4) Not more than 50 percent of the equity interest in a QSPP or QC facility may be held by an electric utility or public utility holding company.

(5) A QSPP or QC facility need only to furnish notice to FERC about its existence, and is not subject to FERC approval or review unless requested.

(6) QSPP and QC facilities of greater than 500 kilowatts must notify the affected utility of its intent to operate 90 days before interconnection is required.

(7) Utilities must provide data sufficient to allow a QSPP or QC facility to determine the appropriate price to be paid by the utility for purchased electricity.

(8) Utilities must purchase the power at the incremental costs to an electric utility of electric energy or capacity which, but for the purchase from the QSPP or QC facility the utility would generate itself or purchase from another source.

(9) Utilities must promulgate standard rates for purchases from QSPP or QC facilities with a design capacity of 100 kilowatts or less. This standard rate (tariff) may differentiate among technologies.

(10) Several factors affecting rates for purchases are set out in Section 292.304 (e) and (f).

(11) Rates for sales by a utility to a qualifying facility (QF) are to be based on rates charged to their other customers with similar load characteristics.

(12) At the request of a QF, utilities must provide supplementary power, back-up power, maintenance power, and interruptible power.

(13) QFs must pay inter-connection costs.

(14) Standards for operating reliability will be established by state regulatory authorities and may be suggested by any person, QF, or utility.

(15) Implementation is the responsibility of state regulatory agencies and non-regulated utilities and, generally, must be done within one year.

(16) QFs are exempt, with some exceptions, from the Federal Power Act, the Public Utility Holding Company Act, and state utility law and regulation.

This document is designed to serve three functions: first, to provide an explanation of the spirit and letter of the rules under Sections 201 and 210 of PURPA; second, to document the rule-making so as to assist the lawyer or legal researcher confronted with issues arising under the rules; and third, to trace the regulatory process for the political scientist wishing to understand the implementation of policies initiated by PURPA.

The first four chapters analyze the proposed rules, the comments made on them, and the effect the comments had. The fifth chapter summarizes the environmental assessment of the rules. The appendices contain statutes, summaries of testimony, conference reports, preambles, and an avoided cost rate schedule put out by Southern California Edison.

CHAPTER I

INTRODUCTION

The California Institute of Technology, through the Jet Propulsion Laboratory (JPL), is deeply involved in the technology development and eventual commercialization of solar electric technologies, functioning as the Photovoltaics Program Technology Development and Applications Lead Center for the U.S. Department of Energy. The Lead Center responsibility is assigned to JPL pursuant to the Solar Photovoltaics Energy Research, Development, and Demonstration Act of 1978. This act created a 10 year, $1.5 billion program. JPL also has responsibility for the Low Cost Solar Array Project, the technology development program for all flat plate array technologies, as well as the Federal Photovoltaic Utilization Program (FPUP), a three year, $98 million program to promote installation of photovoltaics on federal facilities.

In the solar thermal area, JPL is responsible for the Thermal Power Systems Point-Focusing Distributed Receiver Technology Project within DOE's Solar Thermal Power Systems Program. Other programs include the Distribution Automation and Control on the Electric Power System Project, as well as various projects in cogeneration, industrial conservation, solar thermal industrial process heat, and coal technology, in addition to space work. It is anticipated that some of the technologies JPL is working with will be covered by these rules under the Public Utilities Regulatory Policies Act of 1978 (PURPA) as they can be used by qualifying facilities.

The implementation of Sections 201 and 210 of the Public Utility Regulatory Policies Act (PURPA) will govern the vast majority of all installations of distributed solar electric technologies. Current analysis shows such solar electric technologies are optimally grid-connected if only because of the high cost of on-site storage. As a result, if procedural difficulties and administrative obstacles result from rule implementation, anywhere from fewer installations to virtually no grid-interactive installations will take place regardless of technical capability.

Most of the analysis presented is taken from the perspective of photovoltaics (PV) and solar thermal electric point-focusing distributed receivers (pfdr). It is felt, however, that the analysis is applicable both to cogeneration and other emerging technologies.

The rules under PURPA are final, but their effect is somewhat uncertain. The utilities' response, FERC enforcement, customers' activities and public utility commission behavior are largely unknown. Their actions will shape the real meaning of the herein-described legislative and regulatory actions.

CHAPTER II

THE FERC RESPONSE TO ORAL COMMENTS ON THE PROPOSED RULES IMPLEMENTING SECTIONS 201 AND 210 OF PURPA

Subsequent to the promulgation of the proposed rules to implement section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA), the Federal Energy Regulatory Commission (Commission) held a series of public hearings to receive testimony from interested parties both on the impact of the rules and to propose changes. The following discussion is based on the oral testimony received at the hearings held at: Seattle, Washington, November 19, 1979; New York, New York, November 28, 1979; Lakewood, Colorado, November 30, 1979; and, Washington, D.C., December 4-5, 1979.

The discussion herein will be structured in the following manner: first, the proposed rule will be summarized; second, responses to the proposed rule will be detailed; third, the response, as evidenced by changes in the final rule, will be given; and fourth, reasons given by the Commission for the changes will be summarized.

Definitions

In 292.102(b) of the proposed rules (292.101(b)(4) of the final rule) a definition of "system emergency" is given which refers to "disruption of service to a significant number of customers." The Central Power and Light Company, a South Texas utility, suggested that this language be eliminated, as it was ambiguous and would lend itself to disputes and might be contrary to established procedures.

This recommendation was followed in the final rule which places the emphasis on the significance of the disruption, rather than the number of customers affected. The reasons advanced by the Commission for the change are basically the same as those of the Central Power and Light Company.

Utility System Cost Data

A great many commenters, either implicitly or explicitly, voiced concern over the definition of "avoided costs" as either being too strict or too ambiguous.

The Commission has attempted to provide some clarification in the final rule, by inserting the term "incremental" in the definition to explain the types of costs meant to be included. This was done to incorporate the principals of economic dispatch under which generating utilities operate.

Section 292.103 of the proposed rule dealt with the availability of utility system cost data (292.302 of the final rule). This section generated many comments. In general, the utility companies and their trade organizations wanted a looser provision, while alternative energy proponents wanted it strengthened. Some specific points were:

(1) Pacific Gas and Electric Company wanted greater clarity of just what had to be reported, and they wanted it left up to state authorities to approve the utility provisions.

(2) The Hawaii Electric Company wanted the information to be kept secret in order to have arms length negotiation.

(3) The Edison Electric Institute contended that avoided costs should not be the basis for a rate as it is not supported by the legislative history. Thus, they wanted the requirement to be loosened, and they wanted the basis for it to be the entire power pool, rather than the individual utility.

(4) The American Public Power Association was unsure that it could even be applied to systems of less than eighty kilowatts.

(5) Granite State Electric Company wanted the rule to allow a subsidiary utility purchasing all of its requirements from an affiliated wholesaler to be able to use the affiliated companies costs.

(6) The Southern Services Company wanted the Commission to stress that the data required are only estimates and might prove to be inaccurate.

On the proponent side: the American Wind Energy Association requested that a third party determine the issue of future capacity as it relates to the required data. Kaman Science Corporation, Harry Smuckler (a private citizen), and the Energy Law Institute wanted the Commission to provide a methodology to be used in determination of avoided costs in order to keep the utilities from abusing methodological discretion. The Oregon Department of Energy wanted additional data, in the form of the statistics and methodology used, to be included in the required data. The American Paper Institute requested that the data be reported annually rather than biannually.

The Commission responded favorably to some of these suggestions. An attempt has been made to add clarity, yet to retain a flexible structure. To ensure recognition of the fact that a rate for purchases cannot be directly taken from these data, the Commission eliminated some prefatory language in paragraph (b) which gave the opposite impression. The energy costs associated with planned capacity are now required in order to make it easier to calculate the avoided costs from these data.

Two new paragraphs have been added that increase the role of the states. Paragraph (d) allows use of alternative methods, authorized by the state, provided avoided costs can be determined from the data. However, this can be done only after notice in the area served by the utility and opportunity for public comment, a condition that should have a substantial limiting effect on any abuse of discretion. Also, the Commission must be notified within thirty days that any such determination has been made. Paragraph (e) provides that any data submitted are subject to state review. This, in effect, makes the state the authorizing agency. However, the burden is on the utility to justify its data. This also will effectively provide for third party determination of the accuracy of future capacity data, as well as a validation mechanism for all data provided.

The Commission has declined to provide a specific methodology. The desire for flexibility at the state level apparently outweighed any benefit to be derived from providing a specific methodology. Also, the validation mechanism that is provided seems sufficient to assure that the utilities will not manipulate the flexibility to hide data.

The final rule permits an electric utility which is legally obligated to purchase all of its energy and capacity from another utility to use that supplying utility's cost data, including the rate paid.

Under the alternate method paragraph the state may provide for more frequent updating of material than the two years provided for in the rules.

Utility Obligations/Section 292.303

Section 292.104 of the proposed rule dealt with utility obligations (292.303 of the final rule). Southern Services Company expressed the opinion that there was no legislative requirement that a utility purchase power from a qualifying facility outside its service area, that is, purchase power wheeled to it by another utility. This position has been rejected by the Commission.

It was noted in the section-by-section analysis of the final rule that the obligation to purchase in PURPA is not limited to any particular utility, but rather is a general obligation. In addition, no utility is required to wheel power, but, rather, is allowed to do so with the consent of the qualifying facility in lieu of purchasing the power itself.

Where a qualifying facility is outside a utility's service area the utility can still be required to purchase the power. If transmission lines have to be built, the obligation is controlled by state law and a qualifying facility may be required to build its own distribution network.

Purchase Rates (Section 292.304)

Rates for purchase from qualifying facilities were dealt with in section 292.105 of the proposed rule (section 292.304 of the final rule). The proposed rule contained a rebuttable presumption that a rate for purchase was sufficient to satisfy the rule if it reflected the avoided costs. This provision was attacked by a great many of the non-utility speakers. Basically the comments suggested the paragraph should require rates to be equal to, but not less than, avoided costs. The following groups and individuals addressed this point:

(1) Pan Aero Corp.
(2) The American Wind Energy Association.
(3) The Institute for Local Self Reliance.
(4) Harry Smuckler.
(5) The National Center for Appropriate Technology.
(6) The Oregon Department of Energy.
(7) The Western Washington Solar Energy Association.
(8) Energy Unlimited, Inc.
(9) Consumer Action Now of New York.

In general, the comments stressed that the paragraph was ambiguous and would be unfair to qualifying facilities.

The Commission responded to these suggestions by removing the presumption and providing that a rate satisfies the rule if it "equals" avoided costs. However, this absolute rule has been softened by the inclusion of a recommendation, made by the Central Power and Light Company, that avoided cost projections are only estimates and that there is no liability if those estimates prove inaccurate for an individual application. The final rule

provides that rates do not violate the rule with respect to contracts or other legally enforceable obligations if they differ from avoided costs at the time of delivery. Thus, the utility will be constrained by high estimates while the qualifying facility will be constrained by low ones. This has been done to preserve the integrity of contracts and the benefits bargained for, in the belief that the two will balance out. Qualifying facilities do have the option of being paid avoided cost at the time of delivery. Southern California Edison has adopted this approach and recalculates avoided energy costs quarterly to keep pace with changes in the price of oil.

Section 292.105(b) of the proposed rule dealt with standard rates for purchases (tariffs) (section 292.304(c) of the final rule). The proposed rule required that tariffs be established for systems of under ten kilowatts, upon the request of a qualifying facility. In response to this paragraph: the American Public Power Association recommended that the limit be moved to 100 kilowatts; the Natural Resources Defense Council recommended that it be raised, but did not provide a recommended figure; and Pentti Aalto, an energy consultant from Connecticut, recommended that tariffs be established for "all but the largest" facilities.

The Commission has responded to these recommendations by requiring that tariffs be established for all facilities with a design capacity of less than 100 kilowatts. Also, tariffs may be established for larger facilities.

Two commenters, Clean Energy Products and the National Center for Appropriate Technology (NCAT), made additional requests related to tariff. Clean Energy Products wanted a definition of tariffs and NCAT wanted a methodology for providing tariffs to be provided. The Commission has provided a further definition of standard rates for purchases in that they have set out, in the final rule, that such rates must be based on the same criteria as other rates. However, they have not established a methodology. This seems consistent with the policy in the rules of leaving as much flexibility, as possible to the states.

Another issue related to the tariff issue in the proposed rule is the minimum size limit of ten kilowatts in the proposed section 201 rules. The proposed rules for implementation of section 210 effectively eliminated the minimum size limit of the proposed rules implementing section 201. However,

this apparent modification was not sufficient to keep numerous proponents from attacking it. The following groups and individuals requested that the provision be dropped:

(1) Clean Energy Products.
(2) Citizens for Solar Washington.
(3) Energy Communications Organization.
(4) The National Center for Appropriate Technology.
(5) The Oregon Department of Energy.
(6) Western Washington Solar Energy Association.
(7) The Bronx Frontier Development Corporation.
(8) Comsumer Action Now of New York.
(9) The Polytechnic Institute of New York.
(10) Jim Welsh, a solar consultant.

The basic thrust of these comments was that such a limit would severely constrain commercialization of small dispersed systems (e.g., wind systems, and residential photovoltaic systems). The National Center for Appropriate Technology had the most interesting reason for allowing small systems - it would permit the poor to buy them as a source of neighborhood pride. The apparent effect of the proposed 210 rules was realized in the subsequently issued final 201 rules which do not include the ten kilowatt limitation.

A subissue to the tariff question is net energy billing, or reversible meters. Numerous commenters supported the use of net energy billing, in general, or as part of a tariff system.

Basic support of its use was given by:

(1) The American Public Power Association.
(2) The Insitute for Local Self Reliance.
(3) Clean Energy Products.
(4) Citizens for Solar Washington.
(5) The Oregon Department of Energy.
(6) The Bronx Frontier Development Corporation.

The National Center for Appropriate Technology explicitly recognized, and the others implicitly recognized, the value of net energy billing to small qualifying facilities. That is, it lessens the administrative burden on small systems and creates a simpler process, even though it may not give the full avoided costs to the qualifying facility. The American Wind Energy

Association supported net energy billing to the point where the utility and the qualifying facility break even, after that they proposed the price for any excess power produced to be fixed under the rules.

The Commission has declined to mandate net energy billing and instead has left it as an option to be considered by the states. The Commission does not see net energy billing as the only practical or appropriate method of rate determination.

The proposed and final rules provide that the capacity value of qualifying facilities be accounted for in the rates. Several commenters gave testimony regarding capacity value of qualifying facilities and credit given for it. The rules provide for a capacity credit to be given where there is a contract or legally enforceable obligation to provide power. Further provision is made that the aggregate capacity value of qualifying facilities must be accounted for even where no contract exists for firm capacity. Numerous comments were made on the various aspects of capacity credit. The American Electric Power Service Corporation wanted any deferred payment for capacity value to be at average cost, not the future incremental cost, and they wanted those payments to be deferred until future capacity was actually needed. Such a provision could possibly be used to eliminate capacity credits for future capacity by saying that it is never needed by one qualifying facility when the aggregate value of all qualifying facilities has eliminated any need for it. The Oregon Department of Energy stressed a point made by others that the aggregate value of capacity be considered, even when there is no contract or when legally enforceable obligation exists. The most reasonable interpretation of the two capacity provisions is that capacity credits for a qualifying facility operating under a contract or legally enforceable obligation is entitled to a capacity credit for itself alone, and therefore of its entire capacity, and is limited only by its own reliability and other operating characteristics. On the other hand, where capacity credits are derived from the aggregate value of qualifying facilities not operating under a legally enforceable obligation, then they must be considered together for all factors that affect capacity (e.g., reliability, the extent of each facilities peak matching characteristics, etc.).

Some commenters, such as Pentti Aalto, an energy consultant, stressed that everything should have some capacity value. The extent of the capacity value would vary with other factors, but the fact that it is on line would give it some credit.

The Commission has included the use of aggregate value of capacity in the final rule. However, the other suggestions have been rejected. To some extent this reflects the Commission's desire to leave as much flexibility as possible to the states.

Conditions Under Which Utility Purchases Are Not Required

Section 292.105(e) of the proposed rule (292.304(f) of the final rule) described the conditions under which utilities need not purchase power from qualifying facilities. The Kaman Sciences Corporation requested more specificity as to when purchases were not required, in order to prevent utility manipulation of the provision. Pacific Gas and Electric Company wanted additional factors added to those that determine when power need not be purchased, such as when they were light loading where a utility could not back off any further. The Institute for Local Self Reliance, and Larry Smuckler of the Energy Law Institute, requested that the provision be eliminated entirely. Pentti Aalto, an energy consultant, also wanted the provision eliminated and a requirement that the utility wheel power they did not need. The Oregon Department of Energy wanted the utility to be required to try to sell power before they could refuse to accept it. The Edison Electric Institute had a most interesting proposal. They wanted to be able to charge the qualifying facility for disposing of excess power, rather than being allowed to decline to purchase it.

The Commission has retained the provision and provided some clarification. The increase in cost on which the paragraph is based has been modified by the inclusion of the phrase "due to operational circumstances." The determination of when purchases are not required has been shifted from the subjective "might" to the objective "will" result in greater costs. This includes situations such as light loading, because even though the power itself might be cheaper from the qualifying facility, the associated costs of backing off too far would add to that cost. In addition, a verification procedure has been established to control any utility abuse of the provision, and notice must be given to the qualifying facility in time to stop delivery of power.

A number of utilities and utility groups attacked the rate policy because the entire benefit accrues to the qualifying facilities. The Hawaii Electric Company, the American Public Power Association, Southern Company services, Inc., the Central Power and Light Company, and the Granite State Electric Company, each recommended that benefits be shared between the utility and the qualifying facility, so that the other customers would obtain some of the benefits. The Hawaii Electric Company and Southern Company Services, Inc., expressed the view that the rules would give a windfall to qualifying facilities, especially those with whom they have dealt prior to PURPA and whose contracts will come up for renegotiation. They also felt that the manner in which they had dealt before negotiating purchases had been based on a sharing of the benefits approach, and it is still sufficient to encourage cogeneration. The American Public Power Association felt that benefits should be shared where it was appropriate to do so. That is, where both could reasonably be accommodated, such as where the utility purchased power for less than they sold it. The Central Power and Light Company wanted to share the benefits, at least to the extent that it would ensure that the utility broke even. The Hawaii Electric Company also wanted the rate to rise to the point of a reasonable return on the qualifying facilities investment, and then split the rest.

The benefit-sharing suggestion has been rejected by the Commission because the amount of benefit to the individual customer would be negligible, while the benefit to the small number of qualifying facilities could prove to be substantial. An added reason for the rejection is that it would require a determination of the qualifying facility's financial status. An intense investigation of the qualifying facility's financial situation is necessary to determine its true costs, which would go against the legislative intent that they be kept free from regulation.

Rates For Sales

Rates for sales to qualifying facilities were dealt with in section 292.106 of the proposed rule (292.305 of the final rule). The proposed rule provided that the rate for sales should be at least as favorable as those for a customer without his own generation. This could be interpreted to mean any customer even if outside the class that the qualifying facility would otherwise have been in. The Central Power and Light Company commented that the language

should be less favorable to qualifying facilities. This position was adopted by the Commission, and the final rule now refers to rates for customers of the same class to which the qualifying facility would belong if it did not have its own generation.

Both the proposed and the final rules provide that the electric utility must provide supplementary, back-up, maintenance, and interruptible power to qualifying facilities, regardless of whether or not such power is offered to its other customers. The Consolidated Edison Company objected to having to provide interruptible power where the utility has sufficient capacity that there is no benefit to the utility in providing it. The Commission has recognized this fact in the final rule. The rule itself now provides for exemption from these requirements where it will impair the ability to render adequate service or place an undue burden on the utility. Also, the section-by-section analysis of the final rule recognizes the possibility that the rate for interruptible power might be the same as the regular rate where there is sufficient capacity in the system.

Interconnection Costs

Section 292.108 of the proposed rule (292.306 of the final rule) discusses interconnection costs and their payment. Both the proposed and final rules require the qualifying facility to pay the costs of interconnection. There has been no serious objection to this requirement. However, the Colorado Coalition for Full Employment, the Kaman Sciences Corporation, the Institute for Local Self Reliance, Citizens for Solar Washington, the National Center for Appropriate Technology, and the Western Washington Solar Energy Association have requested that the Commission provide some form of extended payback, amortization, or financing of these costs.

The Commission has rejected this position as a subject of the rules, although they do leave it up to the states to determine the manner of repayment, which may include payment over time.

The utility representatives have supported a broader range of costs to be included. The American Electric Power Service Corporation and the Natural Resources Defense Council want administrative costs to be included, while the Central Power and Light Company has gone even further and wants to add the costs of rate negotiation, litigation, and any studies they feel are necessary to be included in interconnection costs.

The Commission has decided to include administrative costs in the definition of "interconnection costs," but has declined to include such things as the cost of rate negotiation and litigation. These would, in effect, make a qualifying facility pay for a utility's attempts to delay interconnection, and would foster litigation.

The Edison Electric Institute requested that interconnection be required only by individual orders under Section 202 of PURPA. This recommendation has not been adopted by the Commission.

Safety and Reliability

Section 292.110 of the proposed rule (292.308 of the final rule) discusses reliability standards. The Natural Resources Defense Council expressed the concern that qualifying facilities might be subjected to greater reliability standards than the utility maintains on its own system. This fear has not been addressed by the Commission.

Waivers from application of the rule are provided for in section 292.303 of the proposed rule (292.403 of the final rule). The American Paper Institute requested that qualifying facilities be given formal participation in any waiver proceeding. This has been rejected by the Commission, although the section-by-section analysis of the final rule does note that any interested party will be given an opportunity to be heard in any such proceeding. Also, the final rule provides that applications for waivers may only be made after public notice is given in the area affected.

CHAPTER III

ADDITIONAL CHANGES MADE OR NOT MADE THAT WERE ADDRESSED IN OTHER THAN ORAL TESTIMONY

Transmission to Supplying Utilities

Some concern was expressed to the Commission as to the effect of the rules on contracts whereby a utility is obligated to purchase power from another utility. It was feared that there could be some legal problem for the purchasing utility.

The Commission rejected the suggestion that such contracts be exempted from the rules. Rather, the requirements of the rule override such contracts. To prevent the use of such contracts to hinder development the purchasing utility can, with the consent of the qualifying facility, transmit the energy to the supplying utility. The obligation can be circumvented another way by deeming the supplying utility to be the recipient and displacing what would have been sold. A waiver is also available if special hardship is shown. This situation also presents a special case of avoided cost determination, in that demand charges between the two utilities must be considered.

Utilities Not Otherwise Subject to FERC Jurisdiction

Subparagraph (c)(2) was added to section 292.303 of the final rule in order to allay fears expressed by some commenters that interconnection would make some utilities subject to FERC jurisdiction under the Federal Power Act, where they would not be subject to such jurisdiction in the absence of interconnection. This subparagraph provides that no interconnection will be required where that would be the result.

Interaction with State Laws and Regulations

The section-by-section analysis accompanying the final rules points out that where state law provides for a higher price to be paid to a qualifying facility than that under the rule, a qualifying facility may elect to sell its power under the state law. This rule does not prevent a state from requiring a higher price, but it does supersede any state law providing for a lower price. The qualifying facility may obtain an exemption from state and federal utility laws and regulations as provided for in the rule, even if they avail themselves of the rate mandated by a state that exceeds the FERC standard.

Simultaneous Purchase and Sale

Section 292.107 of the proposed rule, "Simultaneous purchase and sale," has been deleted as a separate section and incorporated into section 292.304(b) of the final rule. The proposed rule did not include "old capacity," that is, it applied only to "capacity the construction of which was commenced on or after the date of issuance of this part." On the other hand, the final rule includes old capacity, although the state regulatory authority, or non-regulated utility, may give it less than full avoided costs in a simultaneous buy/sell arrangement if such a reduced rate is found to be a sufficient encouragement to cogeneration and small power production. This is not an entirely permissive area. The section-by-section analysis states that if a qualifying facility shows that it requires rates based on full avoided costs to remain viable, or to increase its output, then the state regulatory authority or nonregulated utility is required to establish a full avoided costs rate.

Amount of Payments Overtime

The section-by-section analysis of the final rules explains that under section 292.304(d)(2) a utility and a qualifying facility may agree, subject to state regulatory authority approval, to pay a qualifying facility over the term of a contract or legally enforceable obligation more than full avoided costs at the start of the term and less later in the term.

This could prove to be very beneficial to qualifying facilities, where there is a need for a greater initial return to offset the high initial expenditure and a lower rate later could still provide a sufficient return on investment.

Interconnection Costs Incorporated in Tariffs

Considering the allocation of interconnection costs, the section-by-section analysis states that such costs may be included in the determination of a tariff on a class basis. In addition, state regulatory authorities and non-regulated utilities may determine interconnection costs on a class or individual basis for facilities of over 100 kilowatts. Such an action could have important consequences. In addition to problems related to inter-technology subsidization where there is no technology-specific tariff, a class determination of interconnection costs could also cause such subsidization

where different technologies have different interconnection costs. This is because a class determination would average all the costs among the qualifying facilities, thus causing those with higher interconnection costs to bear less than their total costs at the expense of those with lower interconnection costs who would have to pay more.

System Emergencies

The Commission has rejected the suggestion that utilities may require a qualifying facility to provide power during system emergencies. This is because it would penalize qualifying facilities by jeopardizing their power supply because they produce their own power. Rather, the rule only requires a qualifying facility to provide power during system emergencies when the obligation is pursuant to a contract or other legally enforceable obligation.

Applications

The Commission no longer requires that an applicant for qualifying status initiate discussions with the utility with whom it intends to interconnect. This is because it is recognized that the only time such negotiations are necessary is when the qualifying facility wishes to enter a long-term contract, and then it will be done as a matter of course. Whereas, when a facility merely wishes to operate under an established rate there is no need for such negotiations, and they would merely be a waste of time and money.

Cogeneration Efficiency Standards

The efficiency standards for both topping and bottoming-cycle cogeneration facilities have been significantly simplified. These standards now require only that cogenerators meet fossil fuel use efficiency requirements. The previously proposed standards had fuel use limitations unrelated to overall system efficiency.

CHAPTER IV

VIEW ON THE PROPOSED RULES IMPLEMENTING SECTIONS 201 AND 210 OF PURPA

The view of JPL on the proposed rules implementing Sections 201 and 210 of PURPA is expressed in the following paragraphs.

Contract Alternatives to Operation Under PURPA

The development of new energy technologies such as photovoltaics (PV) and solar thermal point focusing distributed receivers (PFDR) will require field experiments to be conducted under a variety of circumstances and conditions. Such experiments will yield useful information on the technical, economic and institutional aspects of PV and PFDR in grid-connected environments. From these experiments it will be possible to more accurately determine the economic value of PV and PFDR to the utilities.

In particular, the experiments will yield information on the following factors, set forth in the rules, that affect rates for purchase: (1) The length, frequency, and scheduling flexibility of maintenance by the qualifying facility; (2) the expected or demonstrated reliability of the qualifying facility; (3) the relationship of energy or capacity and energy needs, including the ability of the electric utility to reduce or avoid cost, including the deferral of capacity additions, as a result of the availability, individually, or in the aggregate from qualifying facilities;* and (4) the cost or savings resulting from variations in line losses from those that would have existed in the absence of purchases from a qualifying facility, if the purchasing electric utility generated or purchased an equivalent amount of electric energy.

In addition, the experiments are expected to yield information relevant to utility costs of supplying supplemental, interruptible, back-up, and maintenance power. In particular, factual data should be generated by these programs illustrating the extent to which it is possible that forced outages or other reductions in electric output by all qualifying facilities on an electric utility's system will occur simultaneously, and that forced outages

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* 44 Fed. Reg. 61203 (1979).

or other reductions in electric output by all qualifying facilities will occur during the system peak.* These data represent factors necessary to determine an economically neutral price to be paid by or to utilities for energy exchanged with qualifying facilities.

To maximize the amount of useful information obtainable from the solar research, development, and demonstration programs (RD&D) requires that flexibility to waive these rules be reserved to participants in the experiments. The ability to negotiate outside the requirements of the rule allows the real value of solar technologies to the utilities to be determined. It does so by encouraging utility participation in solar RD&D experiments where avoided costs cannot yet be determined. In fact, in large part these experiments will be for the purpose of acquiring data on which to base avoided cost estimates. Therefore, the flexibility to either operate under the rules or negotiate alternatives is important to the success of these and other technology development programs.

Although the ability to elect to negotiate alternative agreements in lieu of the provisions of the rules is important, it needs to be done with the knowledge of the rules by both the system owner and the utility as a significant factor in negotiations. Typically, because a utility is both a monopoly and monopsony, it is in a substantially better bargaining position than a qualifying facility. It possesses an expertise in public utility law and negotiation that few qualifying facilities, especially small ones, are likely to have. In addition, for the most part, the qualifying facility will be approaching the utility to obtain an agreement, rather than the utility seeking power from the facility. Some small power facilities and cogenerators have already negotiated such agreements with utilities, and some were negotiated without notice or knowledge of the rules. Therefore, the Federal Energy Regulatory Commission was asked to consider allowing state regulatory agencies to order renegotiation of those agreements where the qualifying facility can show that an agreement was executed without notice of the impending rules, so long as it was equitable to do so. The FERC decided this issue should be determined by state law governing inequitably negotiated, "unconscionable" contracts.

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* See Sec 292.305 (c)(1).

Avoided Costs

Under the rules, the "avoided costs" of the electric utilities resulting from the qualifying facility are the basis of the payments a utility must make for power provided by a qualifying facility. As defined, "avoided costs" appears to encompass all those costs which can be displaced by PV and PFDR, both energy and capacity. Such payments are economically efficient. Payments which do not adequately reflect such costs would, in fact, result in qualifying facilities cross-subsidizing (or being subsidized by) other utility customers.

Two problems arise under the rules. First is the interpretation of the definition of avoided costs by the utilities. Second is the reporting requirement of the avoided costs information required of the utilities.*

The definition of "avoided costs" is essential to the proper implementation of PURPA and the rules. The principle is sound but the details are lacking. An interpretation biased against the utilities provides them an economic incentive to "foot-drag," and when biased against qualifying facilities there is less economic incentive to them, although the utilities contend that it would encourage them to seek out qualifying facilities. It is possible that further guidelines and clarification by the Commission will be necessary to ensure that a neutral climate is maintained. The interpretation of "avoided costs" is not intended to become a basis of subsidizing either qualifying facilities or the utilities' other customers. Therefore, the Commission was urged by several commenters to meticulously monitor the utilities' definition and interpretation of the term to ensure a neutral climate for operation of qualifying facilities.

It is important that a qualifying facility have some certainty as to the price it will be paid for power purchased from it. The price a utility will pay is a major factor in determining a qualifying facilities economic viability. The rule requires that avoided cost data be maintained and open to public inspection. The difficulty arises in how it will be reported. As the Commission notes, the estimated avoided costs are dependent on a large number of factors. The avoided costs not only depend on the specific utility, but also on the technology used by the qualifying facility. Systems that produce electricity only when the sun shines result in different avoided costs than a

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* Sec. 292.302.

continuously operating diesel generator. Diesel generators and hybrid PFDRs can result in similar avoided costs. Thus, the avoided costs reporting requirement as proposed* would not be useful to those unsophisticated in utility pricing unless broken down by technology, or otherwise simplified. Utility cost and rate structures are very complicated and can be quite confusing to all but the experts.

When avoided costs are defined from a technology-specific viewpoint, the determination of avoided costs becomes simpler. A photovoltaic qualifying facility uses documented PV avoided costs; a diesel cogenerator uses their avoided costs. It should be noted that, in a given utility district, all tracking PV and PFDR systems will have similar characteristics. The same will probably be true of dispatch characteristics as well. In other utility districts, even PV and PFDR will have different energy generation characteristics requiring different avoided costs determinations.

Therefore, on a technology-specific, utility district basis, those factors which must be considered in setting avoided costs are relatively constant within a given technology, but vary among different technologies. The effect is that it is economically neutral for the utility to determine avoided costs on a technology-specific basis, and not neutral to make a single determination including all technologies which may be used by a qualifying facility. The only remaining variables set forth in the rules are not capable of either a technology-specific or a general evaluation. These are the willingness and ability of the qualifying facility to provide power during system emergencies, and the length of any legally enforceable obligation by the qualifying facility to provide energy and/or capacity. These factors are individual to each qualifying facility, and not dependent on the type of technology used by that facility.

The rule, as proposed, was conducive to an interpretation requiring only a single determination for all types of facilities. This is the interpretation which a utility was likely to give the proposed rule. Therefore, certain changes were suggested for the rule that would specifically require that avoided cost information be reported on a technology-specific basis. The

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* Sec. 292.302.

result could be that small qualifying facilities would not face the difficulty of negotiating extensively on a case-by-case basis in order to truly obtain the economically proper price for the power they sell. Also, utilities will not have to devote money, manpower, and time to redetermine net avoided cost every time a qualifying facility commenced operation within their district, as required by the proposed rule.

An additional problem of not determining avoided costs on a technology-specific basis is that failure to do so would result in some technologies subsidizing others. For example, those technologies which have a high peak matching ratio and good reliability characteristics would be subsidizing others with less desirable traits. This result would occur because the utility, in determining its avoided costs, would take into account all technologies, thus the price paid for less reliable technologies would be raised by the inclusion of other, more reliable technologies, and vice versa. Therefore, the price paid to those technologies which deserve the highest rate would be lowered in order to pay more to the less reliable technologies, in the form of a subsidy of one technology by another.

Tariffs

Closely related to the reporting of "avoided costs" data is the topic of standard rates for purchases, often referred to as tariff schedules. Pricing certainty and procedural simplicity will result from the promulgation of tariff schedules for qualifying facilities. Tariffs will also provide certainty of prices to be paid to qualifying facilities. This may act as an incentive to negotiation of separate agreements, because, as penetration increases, the price for purchased power will be adjusted every year or so. One utility, Southern California Edison, adjusts quarterly.

The proposed rule required the establishment of tariff schedules for qualifying facilities of ten kilowatts or less. There were several points to be made with respect to the proposed rule. Perhaps the most important point is that technologies to be used by qualifying facilities under such a tariff are likely to have a range of energy generation characteristics, as recognized in avoided costs. As a result, in a given utility, economic inefficiency would result if tariffs derived for PV or PFDR were to be applied to wind systems, and vice versa. This is true for the avoidance of energy costs, as well as capacity. Time of day metering, if available, would eliminate some of these discrepancies, at least as applied to avoided energy costs.

The price paid by a utility to a qualifying facility for purchased power under a tariff should equal the avoided costs of the utility arising from the purchase for the transaction to be economically neutral. The energy and capacity costs avoided, however, varies with the degree to which the production time of a qualifying facility predictably coincide with utility peaks.

In a given utility, some qualifying facilities, such as those producing energy from biomass, cogenerators, or hybrid solar thermal point-focusing distributed receivers, can produce and sell energy to the utility continuously. Such qualifying facilities are not weather-dependent, and so can produce energy for utility use except during scheduled outages or mechanical failures. The energy and capacity value of a continuous producing qualifying facility is averageable, and thus the avoided costs attributable to the qualifying facility are readily definable in the same way utilities have traditionally valued their own energy facilities.

Stochastic (variable) producers on the other hand will vary their output with time. Non-hybrid windmills, photovoltaic and point-focusing distributed receivers only generate energy when the wind is blowing or the sun is shining. The extent to which a stochastic producer will allow a utility to defer or avoid capacity or energy costs is less certain from a utility perspective.

Even variable producers, however, such as solar, reliably produce energy in peak periods, particularly for summer peaking utilities with a heavy air conditioning cost. For utilities in the northern or eastern parts of the country, solar incidence and utility peaks may not match quite so well. Windmills and solar incidence technologies must be distinguished. In summer peaking utilities, wind provides cooling and lowers peaks in utilities with large air conditioning loads. Sun increases cooling needs and therefore increases peaks. In a winter peaking, night peaking utility based on heating the opposite tends to be true, especially in light of wind chill factors. Capacity values of qualifying facilities will, therefore, largely be determined by the coincidental peak matching characteristics of a technology.

If it can be shown empirically that production times of a particular technology such as PV or PFDR coincide with system peaks, a utility may defer or avoid capacity based on the presence of those qualifying facilities in the system. If it can also be stated that qualifying facilities production using wind will, in that utility system, never coincide with system peak loads, the

utility may defer or avoid only a very small amount of capacity based solely on the added overall reliability of the utility system. A full energy credit, however, is probably still appropriate.

If both wind and PV qualifying facilities are conventionally metered and both receive the same price for energy sold to the utility, the PV facility would be subsidizing the wind facility, or vice-versa depending on the particular situation. Net Energy Billing, where the meter runs "backward," would result in the same type of subsidy. Conventional kilowatt-hours metering will only be economically technology-neutral if a separate tariff is promulgated for each technology that exhibits stochastic peak matching characteristics.

Time-of day pricing for power purchased from qualifying facilities employing different technologies has been advocated to acco nt for these differences, dependent on how such rates are computed. Typical time-of-day pricing schedules provide a fixed price for energy at a given time of day. The prices tend to have seasonal adjustments, and include both an energy and capacity component.

For example, if PV were to always coincide with peak, and if wind were never to coincide with peak, economically sound time-of-day pricing would accurately reflect the energy and capacity value of the different systems. In other words, it would be inter-technology neutral.

The problem is that such a perfect weather pattern does not happen. What if the wind blows at summer peak? Time-of-day rates tend to fluctuate by season, not by day. Time-of-day rates as we know them today are, thus, proxies for the actual energy and capacity costs of a given utility.

To defer or avoid capacity a utility must be able to predict the coincidence of a stochastic qualifying facility's production with peak requirements. In regard to this situation the stochastic qualifying facility's capacity contribution is not necessarily predictable or reliable. The utility cannot defer or avoid capacity. Even so, under a technology-undifferentiated tariff mandating time-of-day pricing, the stochastic qualifying facility would be paid the capacity component of the time-of-day rate. Other customers of the utility could be subsidizing this qualifying facility.

It is not necessary to have time-of-day pricing, however. The value of energy to the utility is time dependent, so ideally one would like to have time-of-day metering to measure the value of the energy being sold by the

qualifying facility. But, it is possible, instead, to use historical data, and knowledge of the characteristics of a system to infer the energy output profile of a system. For example, knowledge of the insolation within a region and detailed characteristics about a given photovoltaic system allows one to infer the quantity and time dimension of energy produced by that system. Random time-of-day metering and conventional metering of total output can be used to verify the modify the inferences. It is, therefore, imperative that tariffs be promulgated for each available technology in order to appropriately account for the capacity values of different technologies. Failure to do so is likely to result in discrimination against either the qualifying facility or the other customers of the utility.

Generic Capacity Credits

Another consideration is the inclusion of the existence of a legal obligation to provide firm power as a factor to be considered in setting rates. Utility peak-matching characteristics of various technologies used by qualifying facilities can, in the aggregate, provide firm capacity to a utility even where none of the qualifying facilities is operating under a legally enforceable obligation to provide energy to the utility. For example, if there are a thousand photovoltaic qualifying facilities in a southwestern utility, it is technically incorrect to assume all will cease operation, that is permanently cease interconnection, at the same time. Even if a few do discontinue service there is a substantial likelihood that an equal or greater number will interconnect into the system for the first time. After all, the use of cogeneration and small power production will be increasing well into the future. This is conceptually the same as the proposed rule under Rates for Sales which prohibits the assumption that all qualifying facilities will curtail operation simultaneously or at utility system peak.

This reliable capacity generic to a specific technology can be and is appropriately accounted for in a technology specific tariff.

Such capacity credits should also be available to qualifying facilities not operating under a tariff pursuant to this same theory. Determination of the extent of the capacity credit is, however, dependent on the characteristics of the individual utilities and the technology used by the qualifying facility.

Ten Kilowatt Limitation

A second major point revolves around the ten kilowatt limitation of the proposed rule. In the proposed rules implementing section 201 of the Public Utilities Regulatory Policies Act, it was proposed that systems under ten kilowatts not qualify for the benefit of section 210. That proposal has not been accepted, as facilities under ten kilowatts are being included. This is encouraging in light of the development of photovoltaics. Such a proposal would have severely limited the residential market for photovoltaics, a market which may be the largest near-term private use of photovoltaics. Residential photovoltaic systems will, most likely, be between one and ten kilowatts in size.

The majority of utilities in this country can absorb thousands of ten kilowatt qualifying facilities without serious disruption to their systems. Some utilities, however, are very small and may not easily absorb the relatively large numbers of ten kilowatt qualifying facilities that may seek interconnection under a tariff. Such small utilities may appropriately seek waiver from these rules. Other, larger, utilities could easily absorb larger numbers of qualifying facilities of much greater design capacity than ten kilowatts. Simplicity results if utilities are required to promulgate tariffs for qualifying facilities with design capacities of 20, 30, to 100 kilowatts or more--the particular design capacity tailored to the particular utility.

Technology-Specific Tariff Schedules

Promulgation of tariff schedules by technology has advantages both to qualifying facilities and utilities. The advantages arise from the fact that purchase price determinations can be made as a class. This means that utilities do not have to commit the manpower to negotiate new agreements everytime a qualifying facility seeks interconnection in purchase and sale. The issue is litigated before the PUC and resolved. For qualifying facilities, the tariff determinations by technology allow them to litigate as a definable class with substantially similar motivations and circumstances. Also, manufacturers and other interested parties could participate. Small qualifying facilities are in an equitable negotating climate they would not be in if negotiating individually.

There are, also, administrative costs in multiple tariffs. Some of these costs will be fixed. If the penetration of wind is small, in a utility where a single non-technology specific tariff would result in subsidizing wind qualifying facilities, the subsidy would be small. It is conceivable that the cost of administering multiple tariffs could be greater than the subsidy. If such a case can be proven, a technology-specific or time-of-day tariff should not be necessary.

Interconnection

Encouragement of cogeneration and small power production requires that interconnection be as procedurally simple as possible. The proposed and final rules mandate interconnection on demand.

Under any circumstances, cogeneration and small power production will not be encouraged by requiring potential qualifying facilities to go through expensive and time-consuming procedures to gain interconnection. Use of cogeneration and small power production was facilitated with adoption of the proposed rule.

The rule governing the allocation of interconnection costs, however, is potentially biased against cogeneration and small power production. The rule calls for the costs of interconnection to be borne by the qualifying facility. A great potential for abuse is presented here.

Interconnection costs can be separated into two areas: (1) connection of the qualifying facility to the grid; and, (2) changes made to the utility system as a whole to accommodate one or more qualifying facilities coming into the system.

In the interest of economic efficiency it is equitable to charge a qualifying facility for connection to the grid. Effectively, this means the cost of the hardware and installation labor occur between the qualifying facilities and the first utility pole. Metering, disconnect and reconnect equipment, drop lines and other equipment not normally installed for backup purposes are legitimate costs of interconnection that arguably should not be shared by all customers of a utility.

System-wide changes are another matter. If a utility installs safety, dispatch or other equipment on its system, there is an incentive for the utility to try to recover the cost as fast as possible. That is, the utility will have an interest in, and the proposed rule could be read to permit, high

allocation of such costs to early qualifying facility interconnection applications, or even the changing of all such costs to the first qualifying facility to request interconnection. Such an interpretation of the section would discourage small power production and cogeneration. The wording of the final rule does not specify, however, that a utility may charge to a particular qualifying facility only those costs reasonably allocable to a given interconnection.

The apportionment could conceivably be done in a manner analogous to the extension of sewer facilities to new developments. Even rewording will not eliminate the potential for abuse in implementation by utilities, however. If the utility does not recover its costs from the first customers, it will be sitting there with equipment not being fully used and having already been paid for by the utility. There is inevitably some uncertainty of cost recovery. For these reasons aggressive Commission monitoring of this area is probably necessary to limit the possibility of inappropriate actions by utilities.

Safety Standards

A major barrier to solar commercialization is its current cost. Of almost equal importance is the potential institutional barrier of utility resistance to dispersed photovoltaic system interconnection.

The rules, as a whole, are relatively unbiased between photovoltaics and the utilities. Economic bias in favor of photovoltaics at the expense of the utilities would likely increase utility resistance. Similarly, a technical bias in favor of photovoltaics that endangers lines, personnel, or the utility system as a whole is likely to be untenable to utilities.

Utilities must, by law and custom, protect their employees and their system. A rule mandating anything other than personnel and system safety will likely be met by persistent resistance. The enormous power of utilities to impede, through the regulatory process, would seriously slow the market penetration of grid-connected photovoltaic systems.

Utilities may justifiably demand a disconnect/reconnect capability. The capability may be automatic, and/or remote, and/or a positive means of assuring disconnection, such as an air mass separation circuit breaker. The remote disconnect/reconnect gives the utility dispatch capability. Thus, it may be a positive factor affecting rates for purchases.

Protection, however, must go in both directions. The photovoltaic system requires protection in the same sense the utility system does. This protection must be both technical and institutional. Utilities could abuse their assurance of safety to slow the penetration of photovoltaics. Therefore, the Commission was asked to monitor the safety standards imposed pursuant to these rules, as a part of its continued oversight of the implementation of sections 201 and 210 of PURPA.*

Exemption From Regulation

The rules exempt qualifying facilities from virtually all state and federal utility regulation. It can be anticipated that many thousands of qualifying facilities using photovoltaics and solar thermal point-focusing distributed receivers will become active in the next 10 to 15 years. Regulation of these qualifying facilities would place a significant burden on both the qualifying facilities and the regulators.

Under the vast majority of state laws, an entity producing power solely for its own use is not a public utility subject to the jurisdiction of the state public utilities commission. Some states, however, have asserted jurisdiction even where the only users of the power are the producer and the purchasing utility. As a result there is conceptual uncertainty, apart from these rules, as to the extent of permissible regulation of cogenerators and small power producers.**

Unfortunately, this conceptual difficulty is not limited to those states where regulatory agency jurisdiction is a possibility. Even in states where the law is settled, some potential qualifying facilities have expressed fears of public utility style regulation. These rules clarify for all their utility status, thus removing the burden and fear of regulation.

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* See Bahram and Calwell, Electric Utility Systems Application Storage and Generator, (presented at the 1979 P.E.S. Summer Conference, Vancouver, British Columbia); and Proceedings of the Distribution, Automation and Control Working Group, prepared for the US. Department of Energy by the Jet Propulsion Laboratory (JPL Pub. 79-35) (1978).

** See Danziger, Renewable Resources and Cogeneration: Community Systems and Grid Integration and Public Utility Enterprise, 2 Whittier L. Rev. 81 (1979).

Waivers

Application of the rules to a particular situation may be waived. However, no procedure was established in the proposed rule for the consideration of such applications. Parties that will be affected will be located in the district of the utilities or state regulatory authorities. The Commission will more accurately determine the desirability of waiver by hearing persons affected. Therefore, the proposed rule should have been amended to allow for granting of a waiver only after notice and public hearing in the utility districts affected by the waiver. There is some ambiguity, in the final rule, as to whether a public hearing is required, but notice is required in the utility district affected by the waiver.

The critical nature of these rules cannot be overstated. We are entering a new era of power production. Distributed photovoltaics and solar-thermal point focusing distributed receivers will be significant parts of our energy future. PURPA is a major regulatory component of this new era.

The rules proposed to implement Section 201 of PURPA, proposing procedures for certification as a qualifying facility, were time-consuming and expensive. This required every qualifying facility to file with the Federal Energy Regulatory Commission (FERC) a detailed form before it could be granted qualifying facility status. In addition, the qualifying facility would have had to serve a formal notice in a specified form on the interested utility and state regulatory agency. It is quite probable that full compliance would have involved substantial amounts of time and money. As proposed, the certification process would effectively be a cost of interconnection. These costs must be borne no matter how small the qualifying facility is, even when the interested utility does not object to interconnection. The total cost of interconnection for small facilities could thus have been prohibitive and discouraging to the development of the residential photovoltaic market.

Therefore, it was suggested that qualifying facilities that utilize unlimited access (i.e., solar, wind) renewable energy resources as a primary energy source be exempted from the certification requirement. If the interested utility had then objected to interconnection with the qualifying facility, the burden would be on the utility to file with FERC its reasons for such objection. A copy of the filing would be provided to the qualifying facility and any state regulatory authority with jurisdiction over the small power producer.

This is consistent with the suggestion that utility cost data and tariffs be provided on a technology-specific basis. Therefore, a technology for which a tariff has been promulgated should also be considered a qualifying facility without being required to apply for that status.

Qualifying facilities that are accepted by the utility for interconnection, or obtain an order requiring interconnection, would then be subject to the guidelines on back-up and buy-back rates promulgated under Section 210(b) and (c) of PURPA. For qualifying facilities whose status has not been determined by FERC, proof that the facility in question qualifies under these rules would operate as a defense to assertion of jurisdiction by state or federal agencies from whose jurisdiction qualifying facilities have been exempted under Section 210(e) of PURPA. The net effect of these changes would have been to sufficiently lessen the burden on smaller systems thereby allowing the residential market to be successfully exploited. At the very least, potential barriers would have been removed.

The proposed rule implementing Section 201 of PURPA allowed a maximum of 110 barrels of oil (or the Btu equivalent in gas) per year per megawatt of rated capacity, to be used by a qualifying facility during outages of the normal fuel supply system, and still maintain that status. Solar thermal electric systems are a promising opportunity for the use of the sun to produce electricity. One form these systems take is hybrid systems, that is, systems that utilize combustion fuels to compensate for the hourly and seasonal variations in available insolation to ensure the power generating capacity of the plant.

The daytime intermediate and peaking requirements of most utilities is approximately 9.1 hours per day. This appears to be a reasonable load to be supplied by solar thermal hybrid electric facilities. Therefore, such a system must reliably generate for 3,504 hours per year for it to displace generating capacity from other sources. Solar thermal plants have 2800 hours per year of effective generation at rated capacity in the southwest. This leaves a gap of 704 hours of operation per year to be supplied by combustion fuels. One hundred and ten barrels of oil per year would, therefore, be insufficient backup capability offered solar thermal electric hybrid plants by the proposed rule. The proposed rule would have had the effect of discouraging the use of solar thermal electric hybrid systems by non-utility interests. The final rule has done away with this requirement. The alternative to the

proposed rule suggested by JPL is no longer relevant as the FERC has gone beyond the proposals by finally promulgating efficiency standards as opposed to fuel use limitations. In general, they would merely have increased the amount of oil that would be allowed.

The proposed rule implementing Section 201 of PURPA did state that ten kilowatts would be the minimum size a facility would be in order to obtain qualifying status. If it had been adopted a substantial future market for photovoltaics would be precluded.

The markets for renewable energy resources may be divided into four sectors: (1) remote; (2) residential; (3) intermediate load center (commercial/industrial applications); and (4) central station. Remote systems are not interconnected with a utility grid and are currently the most cost-effective. The buy-back and back-up provisions of PURPA are irrelevant to remote systems. On the other hand, the exemptions from regulation as a public utility provided by PURPA may be important to developers of remote systems that are interactive within a remote community.

The initial commercialization efforts of the U.S. Department of Energy and the photovoltaics industry are now targeted at the residential market. Much of this effort is being stimulated by the Solar Photovoltaic Energy Research, Development and Demonstration Act of 1978. The typical residential system will be in the three to ten kilowatt range, although some will be as small as one kilowatt. The Act is intended to stimulate the introduction of many thousands of such systems. In the next several years these systems will be only marginally economically competitive. The result of the proposed rule would have been to dictate that residential photovoltaic systems be sized to maximum, regardless of optimum size in order to obtain the benefits of being a qualifying facility. The economics of residential systems thus become less favorable unless the price paid by the utilities for surplus power is sufficient to make up the difference. Therefore, it was suggested that a one-kilowatt minimum size limitation would be more conducive to the purposes of PURPA, and should have been adopted. This lower limit should allow the residential photovoltaics market to develop without the need to hurdle the institutional barriers already surmounted by PURPA. FERC went even further and eliminated the minimum size limit all together. The kilowatt limitation would not have inhibited development of the remote market since virtually no

producers of one kilowatt face regulation as a public utility. Further, as previously stated, remote systems do not concern themselves with buy-back and back-up by utilities.

It should be noted that the proposed rules for implementing Section 210 of PURPA, which were issued several months after the Section 201 proposed rules, require that utilities establish tariffs for systems of under ten kilowatts. This inconsistency would appear to, and did, mean that the ten kilowatt minimum size limitation had been abandoned.

The proposed rules did not distinguish between cogeneration facilities utilizing fossil fuels and those utilizing solar electric facilities as supplemental systems. Since the intent of the Section is to conserve the use of fossil fuel, it must distinguish between the use of renewable and fossil fuel inputs to the cogeneration plant. The solar and renewable component of the plant should be dealt with differently than restrictions placed on fossil fuel consumption or efficiency. This was done in the final rule by measuring total output against fossil fuel input only for purposes of qualifying facility determination.

In some cases the proposed efficiency standards represented technological goals, and not technical reality as it relates to hybrid solar electric facilities. This is particularly true in regard to solar processes which are relatively less efficient at today's state-of-the-art but which utilize inexhaustible energy sources. Therefore, the section was amended as it applies to cogeneration plants that utilize solar or other renewable resources as the primary fuel source to allow the introduction of solar electric technology without depending upon technical, economic, or social changes in non-solar areas.

Conclusion

Consumers are just beginning to understand that they can be energy producers. PURPA gives power to state utility commissions in areas where they have either refused, or never had, jurisdiction. Some utilities that now perceive their primary mission as one of generating energy, may one day realize that they could become primarily a transmission and distribution network, and transmission and distribution utilities could find themselves with significant generation capacity in their service areas.

In this transitional climate many questions occur to us that we can not answer. A great deal of information has yet to be generated that will answer those questions and confirm or invalidate the logic behind the changes. Furthermore, we do not think it is possible to foresee all of the issues that will arise in the implementation of PURPA and the rules. Therefore, it is important that the implementation of PURPA and the rules promulgated pursuant thereto must be monitored to optimize the benefit to our nation.

One thing is clear, PURPA provides a guaranteed market for private producers of electricity. Entities wishing to engage in cogeneration and small power production need concern themselves only with the efficient generation of electricity to increase profit.

Furthermore, PURPA in some utilities is a hedge against increases in the price of oil. Most utilities burn oil, and that oil is likely to be the "incremental cost to an electric utility of electric energy." As the price of oil goes up a utility's avoided cost goes up if it burns oil. Assuming a qualifying facility opts to receive in payment the avoided costs at time of delivery, the utility will be obligated to account for oil price increases in the rate paid.

Perhaps most important is the startling reality that utilities no longer have a monopoly on the generation of electricity. The monopoly on transmission and distribution is retained, but for utilities to economically expand electrical generating capacity their marginal cost of producing electricity will have to be lower than qualifying facilities are willing to sell their power for. Cogeneratable waste Btu's may be the goldmines and oil wells of the 1980s.

CHAPTER V

RESPONSE TO COMMENTS ON THE PROPOSED 201 AND 210 RULES

In its comments on the proposed rules to implement section 210 of the Public Utility Regulatory Policies Act of 1978, 44 Fed. Reg. 61190 (October 24, 1979), the Jet Propulsion Laboratory (JPL) made a number of suggestions for modification that are summarized in the previous chapter. This chapter traces the effects of those suggestions: what was accepted by the Commission and what was rejected, and the reasons for it. Also, the relative importance and impact of each change will be analyzed.

Contract Flexibility

Both the proposed rule and the final rule, 45 Fed. Reg. 12215 (February 25, 1980) sections 292.101 and 292.301, respectively, provide that the rule does not affect existing contacts. JPL supported that part of the section authorizing further contracts which do not conform to the rules. This was based on the need to give flexibility to what is still, in large part, an experimental phase of solar electric production.

It was suggested by JPL that state regulatory authorities be given the power to order renegotiation of existing contracts where the qualifying facility can show that the agreement was executed without notice of the impending rules. This suggestion was rejected by the Commission on the grounds that "it is likely that sufficient incentive existed, and that the further encouragement provided by these rules was not necessary."* Although there is some validity to this argument, it does not take into account the basic reason behind the JPL position, that is, the great disparity in bargaining position which exists between a utility and a qualifying facility. Many qualifying facilities can be expected to have entered into contracts, when not protected by the rules, and without notice of their probable content, which were not equitable, but rather, were entered into in order to receive some sort of return (some of these potentially qualifying facilities claim to have built not for monetary returns, but rather for some social reason, which they feel should not be held against them now).

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* 45 Fed. Reg. 12281 (1980)

Reporting of Avoided Cost Data by the Utilities

JPL noted two problems concerning section 292.103 of the proposed rule. The section sets out what types of cost data the utilities must make available to the public and file with the state regulatory authorities in order to allow qualifying facilities to determine "avoided cost," the price a utility must pay for the electricity. It also provides, to some extent, for the manner in which data are reported and it provides for the dates by which this must be done.

The first problem is the utility interpretation of avoided costs, where JPL recommended that the Commission meticulously monitor the area, to ensure an equitable climate, and prevent utility manipulation. This recommendation, of course, is not truly capable of being responded to in the rules themselves. However, the clarifications made in the final rule, section 292.302, indicate a great concern on the part of the Commission, which will probably ensure that such a course is followed.

The second problem, is the reporting requirement. JPL recommended that the final rule require that the data be reported on a technology-specific basis in order to give the data some meaning to the individual qualifying facility. This is especially important in light of the variation among technologies in certain factors affecting avoided costs, i.e., peak matching characteristics. In fact, JPL feels that it is potentially simpler for the utility to report the data on a technology-specific basis than it is to make a single avoided cost determination. The rule was capable of such a construction, but it was considered unlikely that the utilities would so construe it. An additional basis for this suggestion was that a single determination of avoided costs could result in inter-technology subsidization by averaging the higher avoided costs for some technologies with the lower ones of others.

The corresponding section in the final rule, 292.302, and the relevant portions of the section-by-section analysis do not deal with the issue of technology-specific reporting of avoided costs data. However, clarifications in this section and in section 292.304, Rates for Purchases, seem to obviate much of the need for it (discussed infra). Now, the data provided pursuant to section 292.302 are no longer the basis for rates for purchases, as was proposed, but is, rather, only one factor to be considered. Many of the factors which are to be used to establish the actual avoided costs of a particular qualifying facility are considered as part of section 292.304 also.

No other commenters dealt with this particular point. However, most of them did have comments concerning the reporting of avoided costs data. In general, the proponents were concerned about the absence of a methodology, while the utility representatives wanted the section to be looser if it were used at all. Southern Services Company wanted the Commission to stress that the data are only an estimate. This was adopted by the Commission in section 292.304(b)(5) which assures that data provided do not violate the rule if it turns out to be inaccurate in the future in relation to the price paid to qualifying facilities with long term contracts.

Standard Rates for Purchases from Residential and Other Small Systems

Tariffs or standard rates for purchases in the proposed rule, section 292.105(b), were to be set, upon request, for qualifying facilities of under 10 kilowatts. JPL made several suggestions for modification of this section. The most important suggestion was to require that tariffs be made technology-specific in order to prevent economic inefficiency and inter-technology subsidization by the inevitable averaging process of avoided costs of technologies with different characteristics. As a basis for this, avoided costs should be the foundation of any tariff. In response to a query by the Commission, JPL pointed out that net energy billing would result in the same subsidization as a conventionally metered tariff. In addition, time-of-day metering, although capable of accounting for some of the varying generation characteristics, still does not effectively differentiate the capacity values of different technologies. Therefore, JPL felt that the only economically neutral method of establishing a tariff is to make them technology-specific. Also, it was suggested that the aggregate capacity value of qualifying facilities, even without a legally enforceable obligation, should be accounted for in any tariff, as well as where a tariff is not in force.

Many commenters, as well as JPL, recommended that the upper size limit on tariffs be raised on a case by case basis where the affected utility could easily accommodate such systems. Of course, this would be closely tied to the waiver process for utilities whose systems could not accommodate even small qualifying facilities.

There has been a substantial change made in the final rule as it relates to tariffs or standard rates for purchases. The Commission has gone beyond the JPL proposal as to size and has adopted the proposal of the American

Public Power Association that the upper limit be set at 100 kilowatts with a provision, in line with the JPL proposal, allowing tariffs for larger facilities. The principle of enlarging the scope of the tariff requirement was also endorsed by Alan S. Miller of the Natural Resources Defense Council. The reasons for expanding the size limits for tariffs were much the same as those put forth by JPL: the reduction of the high cost of individualized rate making for small facilities.

Expanding the coverage of tariffs has a double effect: it gives more qualifying facilities protection and lowers the individual cost of rate-setting to the facility, as well as the utility. By mandating standard rates for purchases, the Commission has brought manufacturers, qualifying facilities, and all others into regular rate-setting proceedings. The issue is decided centrally, and the negotiating positions of the utility and others with an interest in a technology or energy source are more nearly equal. The same reasoning applies to the provision that permits but does not require tariffs for larger systems.

It is a reasonable assumption to make that there will be enough small systems around to make it economical for a tariff to operate. It is also a reasonable extension of that principle to make it permissive as to larger systems that will probably be better able to handle the economic burden, so that the rate setting authority can wait to see if tariffs are a proper way to handle larger facilities. This permissive approach raises a problem as to when, if ever, a tariff of over 100 kilowatts will be required to be established. If a qualifying facility or group of facilities over 100 kilowatts were to request the promulgation of a tariff and the utility refused, backed by the state regulatory authority, if it is regulated, even though the proponents could show that it would be cheaper for them and for the utility to do so, would there be any recourse? A strong argument could be made that any extra cost, for such things as administration, over what the cost would be for a tariff, should not be included in the avoided costs determination, the setting of individual rates, or the costs of interconnection, on the grounds that including them is unreasonable and discriminatory because the utility could have avoided them by using a tariff. In effect it is a cost that the utility has chosen to bear, not one imposed by the qualifying facility.

The Commission has also adopted the suggestion that tariffs be expressly stated to be dependent on the same factors as other rates for purchases, including the avoided costs data. One of the factors is the aggregate value of capacity and energy provided by all qualifying facilities on a system. This position was also urged, by inference if not explicitly, by numerous commenters who objected to any position which allowed the payment of anything less than full avoided costs. This was made explicit in the final rule to prevent a utility basing such tariffs on something less than full avoided costs.

There has also been a qualified response to the suggestion that tariffs be technology-specific. The Commission has included a section which permits the use of technology-specific tariffs, but has not made them mandatory. The rules and their accompanying analyses recognize the reason advanced by JPL in support of the proposed change: the different peak matching capabilities of various technologies on a utility's system.

Making the use of technology-specific tariffs permissive is likely to have a beneficial effect on the promulgation of tariffs. As JPL pointed out, the administrative cost of multiple tariffs may outweigh the benefit in some cases, for example where the extent of cross-subsidization would be less than the cost of the tariff system. On the other hand, there is a negative effect, in that a utility need not institute a technology-specific tariff even where it would encourage cogeneration and small power production. This creates a potential for abuse. This places the burden on the supply industry and user to make the case for its technology before the state regulatory authorities and the utilities.

One point that has relevance here, even though it is really a subject for consideration under the section 201 rules, is the minimum qualifying size limitation of ten kilowatts. This provision drew a great deal of criticism from most of the non-utility commenters, including JPL. It was fairly obvious, after the publication of the section 210 rules which provided for tariffs for systems of under 10 kW_p, that this provision was dead. However, it continued to receive a great deal of comment, primarily on the ground that it would all but eliminate residential systems from the protection of the rules. It is no longer a concern since it is not a part of the final section 201 rules.

Interconnection Costs

The question of the allocation of interconnection costs raises issues of possible abuse by utilities. Some costs need to be incurred for every interconnection. Some changes to the entire utility system are attributable to the presence of several qualifying facilities on the system. JPL expressed the concern that there might be attempts to charge the total cost of system wide changes to a single or small number of qualifying facilities that hook up to the system. JPL proposed that the rule be rewritten to allow a utility to charge to a particular qualifying facility only those costs reasonably allocable to that facility's interconnection. Both the proposed and the final rule required that interconnection be assessed on a nondiscriminatory basis. However, the original rule provided that this standard be measured against costs for "any of the customers" of the utility. This drew a number of unfavorable comments from utility representatives stressing that it could mean that a qualifying facility would have to get a better rate than it would if it were just another customer, i.e., an industrial cogenerator with rates based on those of a residential customer. However, the potential problem of overloading on interconnection costs has not been directly addressed in the final rule. The Commission instead relies on the general reasonableness requirement to remedy that problem. One change was made that may alleviate the potential problem somewhat. The proposed rule required that the qualifying facility reimburse the utility without any provision for approval of the costs. The final rule provides that the state regulatory authority or nonregulated utility must assess the charges, thus limiting the unbridled discretion of the utility.

A major area of comment was the manner of payment of interconnection costs. The proposed rule did not address this issue at all. However, the likelihood that these costs would be quite high caused a number of commenters, including JPL, to suggest that the Commission provide for it in the rules. JPL suggested, as one alternative, that such costs could be apportioned in a manner analogous to the extention of sewer facilities. Other commenters, including the Kaman Science Corp. and the Institute for Local Self Reliance, suggested that the costs be amortized in order to prevent a high initial expenditure.

The Commission has declined to provide a single method of payment of these expenses, but rather, has expressly left it up to the state regulatory authority or nonregulated utility to determine the manner of payment.

Safety and Reliability Considerations

JPL supported the requirement in the proposed rule that qualifying facilities be subject to reasonable standards for system and line safety. However, JPL noted that this provision is subject to potential abuse by utilities overloading the qualifying facilities with expensive and unnecessary safety equipment. However, this is unlikely to happen where the state regulatory authority is not dominated by the utilities. Under both the proposed and final rule, only the state regulatory authority and nonregulated utilities would be allowed to establish such standards, and the reasons for this must be specified on the basis of safety and reliability. Anyone, including the utilities and the qualifying facilities, may suggest such standards.

The Natural Resources Defense Council made a similar comment in that they wanted the Commission to ensure that qualifying facilities would not be held to a higher standard of safety then a utility maintains on its own system.

Waivers

Finally, the proposed rule provided for waivers for state regulatory authorities, nonregulated utilities, and electric utilities. JPL proposed that these waivers be granted only after notice and public hearing in the utility districts to be affected by the waiver. This would allow the Commission to more accurately determine the desirability of granting a waiver by hearing those persons to be affected by it. This position has been adopted by the Commission in its final rule, at least as to notice, although there is no requirement of a public hearing. Also, the Commission has eliminated the provision which would have allowed individual waivers for electric utilities.

Qualification

The proposed rule implementing Section 201 of PURPA required that a detailed application be filed with the Commission in order to obtain qualifying status for a facility. In addition, the time periods involved, 90 days for uncontested applications and 120 days for contested applications, were substantial. JPL suggested that renewable resource-based facilities be

provided a self certification process, and that the burden be placed on the utility, if it objects, to prove that the facility is not a qualifying one. The Commission has gone beyond this. All facilities which meet the applicable requirements are qualifying facilities. A facility may, if it wishes, also file an application, there is no provision in the final fule for utility objections to qualifying status. They must file a regular notice for intervention. Related to this is the elimination of the requirement in the proposed rule that the applicant serve notice on the utility concerned and the requirement that the applicant initiate discussions with the utility.

Fuel Use and Efficiency Requirements

The proposed rule implementing Section 201 contained detailed requirements concerning the amount of fossil fuels which a facility could use, as well as the efficiency with which they would have to be used. JPL suggested that the amount of oil which could be used be increased for small power producers. The Commission has gone even further: The primary energy source must be (and more than 75 percent of the total energy input must be) from biomass, waste, renewable resources or any combination thereof. At the same time, the aggregate use of oil, natural gas, or coal may not exceed 25 percent of the total Btu input for any calendar year.

Solar Thermal Cogeneration Facilities

The proposed rule did not distinguish between cogeneration facilities utilizing fossil fuels and those using solar thermal electric facilities as supplemental systems. JPL suggested that the two types of facilities be handled differently since the latter type will conserve more fuel, the aim of the Act. This suggestion has not been adopted. The only difference drawn between types of cogeneration systems is between topping and bottoming cycle facilities.

CHAPTER VI

SUMMARY ANALYSIS OF THE ENVIRONMENTAL ASSESSMENT TO THE RULES

Of particular interest in the process of rule-making for implementing sections 201 and 210 of the Public Utility Regulatory Policies Act of 1978 is the consideration of the potential environmental effects of the Act. As noted in the Preface to the Environmental Findings document,* "a qualifying facility may not be built or operated unless it complies with all applicable local, state, and Federal zoning, air, water, and other environmental quality laws, and unless it obtains all required permits." The FERC was required to provide an Environmental Assessment (EA) of the proposed rules and publish its findings. The following paragraphs summarize the findings and evaluate the adequacy of the assessment.

At the outset it should be noted that to complete the Environmental Assessment of the proposed rules, a number of assumptions about the long-term effects of the rules needed to be made. The problem is one that is confronted regularly in the EA and Environmental Impact Statement (EIS) process. In this case, the FERC was required to assess the possible effects of alternative rule variations at a time when the technical viability of the alternate energy options remains unclear. To reduce the uncertainties about the viability of the technologies, the FERC stated that the environmental effects of the rules would be limited to the "effects resulting from the construction and/or operation of facilities which occur as a result of the granting of these benefits, or from changes in the operating characteristics of existing facilities which results from the granting of these benefits," and that for the purposes of the National Environmental Policy Act (NEPA) evaluation, only the incremental effects of the proposed rule changes were to be evaluated. Because of these two conditions, the scope of the environmental assessment process was significantly reduced, yet the process apparently provides sufficient environmental analysis for compliance.

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*United States of American Federal Energy Regulatory Commission 18 C.F.R. Part 292.
Small Power Production and Cogeneration Facilities - Environmental Findings Docket Nos. RM79-54 and RM79-55.

Another assumption that had a significant effect on the environmental assessment of the proposed changes is that according to the market projections of the various alternate technologies, only a few technologies would be in significant use by 1995. Specifically, the document states that the rules are not expected to encourage significant amounts of electrical generation using biomass, geothermal, or solar thermal and photovoltaic energy. One obvious question is whether that assumption was reasonable, and if not what environmental litigation may result because of it. The market analysis of the various technologies used by FERC address this issue and is briefly touched upon later.

The key environmental issues associated with those technologies that the PURPA was expected to impact are listed in Table 5-1, and these are followed by an assessment of their significance.

According to the literature, and current environmental analyses, the above issues are real, but their significance in terms of the PURPA activities should be marginal (i.e., only the incremental increase in the implementation of the technologies brought about because of these rules changes is to be evaluated). The high degree of uncertainty that surrounds greater use of diesel and dual-fuel engines, especially in terms of potential air quality impacts, is reflected in the recommendation that an EIS for this option be prepared.

Table 5-1. Key Enivronmental Issues

Technology	Key Impacts
Industrial and Commercial Cogeneration - Diesel and Dual-Fuel Engines	Impacts are large enough to warrant recommendation that an Environmental Impact Statement (EIS) be prepared.
Wind Energy Systems	Noise Aesthetic Value Electromagnetic Interference Land Use conflicts
Municipal Solid Waste	Air Quality Water Quality Consumptive Water Use
Small Scale Hydroelectric	Recreation Land Use Conflicts Local Water Quality and Related Ecological Impacts

Inherent in the discussion of the four technologies that are not expected to see widespread deployment as a result of these rules is that the technologies will develop with or without the rule changes, and that the incremental increases will be negligible. Whether or not this turns out to be the case, especially with respect to the residential sector, the environmental assessment should suffice because the magnitude of the baseline program in these technologies requires that an environmental assessment be completed for them by other federal departments. For example, in photovoltaics the PURPA rule changes may result in a substantial growth in the use of the technology, but even with that possible scenario the U.S. Department of Energy has already had a major Programmatic Environmental Assessment completed on the photovoltaics option, and the document is currently working its way through the compliance cycle. That document assesses the significance of the photovoltaics option sufficiently well that any increases in the use of photovoltaics that may result because of the rule changes should be covered by it.

If there is an area of possible significant concern with the FERC Environmental Assessment it lies with the discussion of the biomass option. Programmatically, the document does not consider biomass an option that will be significantly impacted by the rule changes. Yet, it is not at all clear what impact the regulations will have on the future use of biomass. The document contends that the rule changes will have little or no effect on the penetration of biomass through 1995. The PURPA changes may, in fact, result in a much greater use of wood and wood wastes than currently exists. (It is interesting that this possibility is noted in the document as an informational footnote.) At present, it is the regulatory climate that hinders the growth of biomass, and since the great majority of wood holdings are in the private sector, a change in the rules may have a very significant effect on the near-term use of biomass technologies. Should that scenario be realized it must be noted that biomass has a suite of potentially adverse environmental issues associated with it, especially in terms of land use compatibility and competition for land and water resources, areas that historically have seen tomes of litigation.

Another weakness of the document is that the EA contends that only the installation/operational phases of the life cycle are to be considered. For some of the technologies under consideration, those phases of the life cycle may not necessarily be the area of greatest concern. For example, the

manufacturing phase is not included. The statement that the "environmental effects of these rules are limited to the effects resulting from the construction and/or operation of facilities which occur as a result of the granting of these benefits" is misleading and could result in open criticism by some individuals or groups. Photovoltaics, for example, even though it is listed as a technological option that is not considered to be affected by the proposed rule changes, has significant environmental issues in the resource acquisition-manufacturing phases, not just in the installation/operational phases. In all likelihood the operational phase will be benign (with the possible exception of a central station systems). A preferred assessment would have been to address potential impacts in each of the life cycle phases for each technological option expected to be affected by the rule changes.

As a final weakness, the document relies on the existing and often dated Environmental Development Plans (EDPs) and Environmental Readiness Documents (ERDs). These documents, while useful in terms of scoping potential problems associated with new and developing technologies, identify issues that may have little bearing on outstanding issues or give equal weight to both minor and major issues. Thus, problems of issue prioritization are difficult to resolve. The issues that are identified do encompass the host of potential issues, but there is a weakness in focusing on the major issues. Finally, even though the issues are identified, the assessment of their significance lacks depth.

Summary

Basically the EA identifies and attempts to assess environmental issues associated with technologies expected to be affected by the proposed rule changes, and it does so sufficiently well that little or no additional work should be recommended. Primary concerns are in biomass and that entire life cycles are not evaluated. However, the incremental increases that the rule changes can be expected to cause are sufficiently small that the EA should suffice.

APPENDIX A
THE LAW

The following pages reflect the subject law as delineated under the Public Utility Regulatory Policies Act of 1978; section 201 (16 USC 796m 92 Stat. 3134) and section 210 (16 USC 824 a-3, 92 Stat. 3144).

TITLE II—CERTAIN FEDERAL ENERGY REGULATORY COMMISSION AND DEPARTMENT OF ENERGY AUTHORITIES

SEC. 201. DEFINITIONS.

16 USC 796.

Section 3 of the Federal Power Act is amended by inserting the following before the period at the end thereof:

"(17)(A) 'small power production facility' means a facility which—

"(i) produces electric energy solely by the use, as a primary energy source, of biomass, waste, renewable resources, or any combination thereof; and

"(ii) has a power production capacity which, together with any other facilities located at the same site (as determined by the Commission), is not greater than 80 megawatts;

"(B) 'primary energy source' means the fuel or fuels used for the generation of electric energy, except that such term does not include, as determined under rules prescribed by the Commission, in consultation with the Secretary of Energy—

"(i) the minimum amounts of fuel required for ignition, startup, testing, flame stabilization, and control uses, and

"(ii) the minimum amounts of fuel required to alleviate or prevent—

"(I) unanticipated equipment outages, and

"(II) emergencies, directly affecting the public health, safety, or welfare, which would result from electric power outages;

"(C) 'qualifying small power production facility' means a small power production facility—

"(i) which the Commission determines, by rule, meets such requirements (including requirements respecting fuel use, fuel efficiency, and reliability) as the Commission may, by rule, prescribe; and

"(ii) which is owned by a person not primarily engaged in the generation or sale of electric power (other than electric power solely from cogeneration facilities or small power production facilities);

"(D) 'qualifying small power producer' means the owner or operator of a qualifying small power production facility;

"(18)(A) 'cogeneration facility' means 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;

"(B) 'qualifying cogeneration facility' means a cogeneration facility which—

"(i) the Commission determines, by rule, meets such requirements (including requirements respecting minimum size, fuel use, and fuel efficiency) as the Commission may, by rule, prescribe; and

"(ii) is owned by a person not primarily engaged in the generation or sale of electric power (other than electric power solely from cogeneration facilities or small power production facilities);

"(C) 'qualifying cogenerator' means the owner or operator of a qualifying cogeneration facility;

"(19) 'Federal power marketing agency' means any agency or instrumentality of the United States (other than the Tennessee Valley Authority) which sells electric energy;

"(20) 'evidentiary hearings' and 'evidentiary proceeding' mean a proceeding conducted as provided in sections 554, 556, and 557 of title 5, United States Code;

"(21) 'State regulatory authority' has the same meaning as the term 'State commission', except that in the case of an electric utility with respect to which the Tennessee Valley Authority has ratemaking authority (as defined in section 3 of the Public Utility Regulatory Policies Act of 1978), such term means the Tennessee Valley Authority;

"(22) 'electric utility' means any person or State agency which sells electric energy; such term includes the Tennessee Valley Authority, but does not include any Federal power marketing agency".

16 USC 824a-3.

SEC. 210. COGENERATION AND SMALL POWER PRODUCTION.

(a) COGENERATION AND SMALL POWER PRODUCTION RULES.—Not later than 1 year after the date of enactment of this Act, the Commission shall prescribe, and from time to time thereafter revise, such rules as it determines necessary to encourage cogeneration and small power production which rules require electric utilities to offer to—

(1) sell electric energy to qualifying cogeneration facilities and qualifying small power production facilities and

(2) purchase electric energy from such facilities.

Such rules shall be prescribed, after consultation with representatives of Federal and State regulatory agencies having ratemaking authority for electric utilities, and after public notice and a reasonable opportunity for interested persons (including State and Federal agencies) to submit oral as well as written data, views, and arguments. Such rules shall include provisions respecting minimum reliability of qualifying cogeneration facilities and qualifying small power production facilities (including reliability of such facilities during emergencies) and rules respecting reliability of electric energy service to be available to such facilities from electric utilities during emergencies. Such rules may not authorize a qualifying cogeneration facility or qualifying small power production facility to make any sale for purposes other than resale.

(b) RATES FOR PURCHASES BY ELECTRIC UTILITIES.—The rules prescribed under subsection (a) shall insure that, in requiring any electric utility to offer to purchase electric energy from any qualifying cogeneration facility or qualifying small power production facility, the rates for such purchase—

(1) shall be just and reasonable to the electric consumers of the electric utility and in the public interest, and

(2) shall not discriminate against qualifying cogenerators or qualifying small power producers.

No such rule prescribed under subsection (a) shall provide for a rate which exceeds the incremental cost to the electric utility of alternative electric energy.

(c) RATES FOR SALES BY UTILITIES.—The rules prescribed under subsection (a) shall insure that, in requiring any electric utility to offer to sell electric energy to any qualifying cogeneration facility or qualifying small power production facility, the rates for such sale—

(1) shall be just and reasonable and in the public interest, and

(2) shall not discriminate against the qualifying cogenerators or qualifying small power producers.

(d) DEFINITION.—For purposes of this section, the term "incremental cost of alternative electric energy" means, with respect to electric energy purchased from a qualifying cogenerator or qualifying small power producer, the cost to the electric utility of the electric energy which, but for the purchase from such cogenerator or small power producer, such utility would generate or purchase from another source.

(e) EXEMPTIONS.—(1) Not later than 1 year after the date of enactment of this Act and from time to time thereafter, the Commission shall, after consultation with representatives of State regulatory authorities, electric utilities, owners of cogeneration facilities and owners of small power production facilities, and after public notice and a reasonable opportunity for interested persons (including State and Federal agencies) to submit oral as well as written data, views, and arguments, prescribe rules under which qualifying cogeneration facilities and qualifying small power production facilities are exempted in whole or part from the Federal Power Act, from the Public Utility Holding Company Act, from State laws and regulations respecting the rates, or respecting the financial or organizational regulation, of electric utilities, or from any combination of the foregoing, if the Commission determines such exemption is necessary to encourage cogeneration and small power production. Rules. 16 USC 791a. 15 USC 79.

(2) No qualifying small power production facility which has a power production capacity which, together with any other facilities located at the same site (as determined by the Commission), exceeds 30 megawatts may be exempted under rules under paragraph (1) from any provision of law or regulation referred to in paragraph (1), except

that any qualifying small power production facility which produces electric energy solely by the use of biomass as a primary energy source, may be exempted by the Commission under such rules from the Public Utility Holding Company Act and from State laws and regulations referred to in such paragraph (1).

(3) No qualifying small power production facility or qualifying cogeneration facility may be exempted under this subsection from—

(A) any State law or regulation in effect in a State pursuant to subsection (f),

(B) the provisions of section 210, 211, or 212 of the Federal Power Act or the necessary authorities for enforcement of any such provision under the Federal Power Act, or

Ante, pp. 3135, 3137, 3138.

(C) any license or permit requirement under part I of the Federal Power Act, any provision under such Act related to such a license or permit requirement, or the necessary authorities for enforcement of any such requirement.

(f) IMPLEMENTATION OF RULES FOR QUALIFYING COGENERATION AND QUALIFYING SMALL POWER PRODUCTION FACILITIES.—(1) Beginning on or before the date one year after any rule is prescribed by the Commission under subsection (a) or revised under such subsection, each State regulatory authority shall, after notice and opportunity for public hearing, implement such rule (or revised rule) for each electric utility for which it has ratemaking authority.

Notice and hearing.

(2) Beginning on or before the date one year after any rule is prescribed by the Commission under subsection (a) or revised under such subsection, each nonregulated electric utility shall, after notice and opportunity for public hearing, implement such rule (or revised rule).

Notice and hearing.

(g) JUDICIAL REVIEW AND ENFORCEMENT.—(1) Judicial review may be obtained respecting any proceeding conducted by a State regulatory authority or nonregulated electric utility for purposes of implementing any requirement of a rule under subsection (a) in the same manner, and under the same requirements, as judicial review may be obtained under section 123 in the case of a proceeding to which section 123 applies.

(2) Any person (including the Secretary) may bring an action against any electric utility, qualifying small power producer, or qualifying cogenerator to enforce any requirement established by a State regulatory authority or nonregulated electric utility pursuant to subsection (f). Any such action shall be brought only in the manner, and under the requirements, as provided under section 123 with respect to an action to which section 123 applies.

(h) COMMISSION ENFORCEMENT.—(1) For purposes of enforcement of any rule prescribed by the Commission under subsection (a) with respect to any operations of an electric utility, a qualifying cogeneration facility or a qualifying small power production facility which are subject to the jurisdiction of the Commission under part II of the Federal Power Act, such rule shall be treated as a rule under the Federal Power Act. Nothing in subsection (g) shall apply to so much of the operations of an electric utility, a qualifying cogeneration facility or a qualifying small power production facility as are subject to the jurisdiction of the Commission under part II of the Federal Power Act.

16 USC 824.

(2)(A) The Commission may enforce the requirements of subsection (f) against any State regulatory authority or nonregulated electric utility. For purposes of any such enforcement, the requirements of subsection (f)(1) shall be treated as a rule enforceable under the Federal Power Act. For purposes of any such action, a State regulatory authority or nonregulated electric utility shall be treated as a person within the meaning of the Federal Power Act. No enforcement action may be brought by the Commission under this section other than—

16 USC 791a.

(i) an action against the State regulatory authority or nonregulated electric utility for failure to comply with the requirements of subsection (f) or

(ii) an action under paragraph (1).

(B) Any electric utility, qualifying cogenerator, or qualifying small power producer may petition the Commission to enforce the requirements of subsection (f) as provided in subparagraph (A) of this

paragraph. If the Commission does not initiate an enforcement action under subparagraph (A) against a State regulatory authority or nonregulated electric utility within 60 days following the date on which a petition is filed under this subparagraph with respect to such authority, the petitioner may bring an action in the appropriate United States district court to require such State regulatory authority or nonregulated electric utility to comply with such requirements, and such court may issue such injunctive or other relief as may be appropriate. The Commission may intervene as a matter of right in any such action.

(i) FEDERAL CONTRACTS.—No contract between a Federal agency and any electric utility for the sale of electric energy by such Federal agency for resale which is entered into after the date of the enactment of this Act may contain any provision which will have the effect of preventing the implementation of any rule under this section with respect to such utility. Any provision in any such contract which has such effect shall be null and void.

(j) DEFINITIONS.—For purposes of this section, the terms "small power production facility", "qualifying small power production facility", "qualifying small power producer", "primary energy source", "cogeneration facility", "qualifying cogeneration facility", and "qualifying cogenerator" have the respective meanings provided for such terms under section 3 (17) and (18) of the Federal Power Act.

APPENDIX B

JOINT EXPLANATORY STATEMENT

The joint explanatory statement of the Committee of Conference (House Conference Report No. 95-1750, pages 88 and 97, 6 U.S. Code, Congressional and Administrative News, pages 7822 and 7831 (1978)) appears on the following pages.

TITLE II—CERTAIN FEDERAL ENERGY REGULATORY COMMISSION AND DEPARTMENT OF ENERGY AUTHORITIES

Section 201. Definitions

Section 201 amends the Federal Power Act to insert a number of new definitions in that Act. These definitions are taken from the House bill and Senate amendment with technical and conforming changes. They supersede the definitions contained in section 3 with respect to the Federal Power Act amendments. The section 3 definitions do not apply for purposes of such amendments.

With regard to the definition of "small power production facility", the conferees intend, for purposes of maintaining status as a small power production facility, that the phrase "primary energy source" does not preclude the use of gas or oil in a facility for the generation of electricity during scheduled outages.

It is the intention of the conferees that the term "waste" as used in the definition of "small power production facility" includes wood and liquid or solid waste. The power production capacity of the facility means the rated capacity of the facility. The conferees added the term "primary energy source" to this definition in recognition of the fact that a facility using waste, biomass, or renewable resources, or any combination thereof as the primary fuel might nevertheless require the use of oil or natural gas or other nonrenewable fuels in emergencies or in outages or to start the unit, test it, stabilize the flame or control the operation of the unit or for other minor uses.

The definition of small power production facility includes solar electric systems, wind electric systems, systems which produce electric energy from waste or biomass, and electric energy storage facilities. The conferees intend that water be included within the meaning of the term renewable resources with respect to hydroelectric facilities at existing dams.

The terms "qualifying small power production facility" and "qualifying cogeneration facility" exclude facilities which are owned by a person who is primarily engaged in the generation or sale of electric power. Electric utilities may participate in an entity which owns such facilities with other persons and such entity could qualify under these definitions. The test of this case is whether the entity which owns the facility is primarily engaged in the generation or sale of electric power other than in connection with its ownership of the cogeneration facilities or small power production facilities.

The new paragraphs 17(C) and 18(B) of the definitions provide that the Commission shall determine, by rule, on a case-by-case basis, or otherwise, that a small power production facility or cogeneration facility is a qualifying small power production facility or a qualifying cogeneration facility, as the case may be. The purpose of this determination is to provide a means to insure that such a facility is identified through Commission action for purposes of showing that it is in fact included in any exemption under section 210(e) of the Federal Power Act. Such determination would also prevent such facility from being challenged concerning the application of such exemption to it.

The conferees intend, in providing for requirements respecting qualifying facilities to be established by the Commission by rule, that the Commission provide requirements under which a person may ascertain in advance of construction or operation of any facility whether or not such facility will meet the criteria contained in these definitions.

The Commission should prescribe these rules as soon as practicable after enactment.

The language in these definitions relating to fuel use and fuel efficiency may not always be applicable as some power production facilities (such as hydroelectric facilities) may not use fuel.

It is also the intention of the conferees that the definitions of

"qualifying cogeneration facility" and "qualifying small power production facility" will not be construed as prohibiting or discouraging electric utilities from cogenerating.

Section 210. Cogeneration and small power production

Section 210, as agreed to by the conferees, is a compromise of the House and Senate positions on cogeneration and small power production. In lieu of the Senate guideline approach, this section requires that States and utilities follow rules which the Federal Energy Regulatory Commission is to prescribe within one year after the date of enactment of this legislation.

Subsection (a) of this section states that the rules the Commission is required to prescribe under this section require electric utilities to offer to sell electric energy to qualifying cogeneration facilities and qualifying small power production facilities and require electric utilities to offer to purchase electric energy from these facilities.

Subsection (a) also contains procedural requirements with respect to the hearings to be conducted prior to final promulgation of the rules and limits the authority of the Commission to authorize in these rules cogeneration facilities or small power production facilities to make any sale for purposes other than resale. The conferees do not intend that this limitation on the Commission's authority will limit the States from allowing such sales to take place. The cogenerator or small power producer may be permitted to make retail sales pursuant to State law.

Subsection (b) of this section deals with the requirements that the Congress places on the Federal Energy Regulatory Commission in prescribing the rules under subsection (a). These rules shall insure that, in requiring any electric utility to offer to purchase electric energy from any qualified cogenerator or qualified small power producer, the rates for this type of purchase are to be just and reasonable to the electric consumers of the utility, in the public interest, and are not to discriminate against cogenerators or small power producers. The conferees intend that the phrase "just and reasonable to the electric consumers of the utility" be interpreted in a manner which looks to protecting the interests of the electric consumer in receiving electric energy at equitable rates. It is not the intention of the conferees that cogenerators and small power producers become subject, by virtue of this language, and the rules promulgated under this section, to the type of examination that is traditionally given to electric utility rate applications to determine what is the just and reasonable rate that they should receive for their electric power. The conferees recognize that cogenerators and small power producers are different from electric utilities, not being guaranteed a rate of return on their activities generally or on the activities vis a vis the sale of power to the utility and whose risk in proceeding forward in the cogeneration or small power production enterprise is not guaranteed to be recoverable.

The conferees wish to make clear that cogeneration is to be encouraged under this section and therefore the examination of the level of rates which should apply to the purchase by the utility of the cogenerator's or small power producer's power should not be burdened by the same examination as are utility rate applications, but rather in a less burdensome manner. The establishment of utility type regulation over them would act as a significant disincentive to firms interested in cogeneration and small power production.

This subsection further states that the utility would not be required to purchase electric energy from a qualifying cogeneration or small power production facility at a rate which exceeds the lower of the rate described above, namely a rate which is just and reasonable to consumers of the utility, in the public interest, and nondiscriminatory, or the incremental cost of alternate electric energy. This limitation on the rates which may be required in purchasing from a cogenerator or small power producer is meant to act as an upper limit on the price at which utilities can be required under this section to purchase electric energy. The conferees do not intend

cogenerators or small power producers to be subject, under the commission's rules, to utility-type regulation.

Subsection (c) deals with the requirements with respect to sales by utilities to cogenerators and small power producers and requires that these rates be just and reasonable and in the public interest and do not discriminate against cogenerators or small power producers. Here the phrase "just and reasonable" is intended to refer to traditional utility ratemaking concepts. The conferees do not intend that the cogenerator or small power producer pay any more or any less than is otherwise just and reasonable in terms of the utility receiving the reasonable rate of return for providing service to those kinds of users. However, unreasonable rate structure impediments, such as unreasonable hook up charges or other discriminatory practices, would not be allowed.

The conferees use the phrase "not discriminate against cogenerators or small power producers" because they were concerned that the electric utility's obligations to purchase and sell under this provision might be circumvented by the charging of unjust and non-cost based rates for power solely to discourage cogeneration or small power production. This phrase should not be construed to permit discrimination against the electric consumers of an electric utility in formulating rates under this provision. The provisions of this section are not intended to require the rate payers of a utility to subsidize cogenerators or small power producers.

Subsection (d) deals with the definition of the term "incremental cost of alternative electric energy" as used in the last sentence of subsection (b). This term is defined as the cost to the electric utility of the electric energy which, but for the purchase from such cogenerator or small power producer, such utility would generate or purchase from another source. In interpreting the term "incremental cost of alternative energy", the conferees expect that the Commission and the States may look beyond the cost of alternative sources which are instantaneously available to the utility. Rather, the Commission and States should look to the reliability of that power to the utility and the cost savings to the utility which may result at some later date by reason of supply to the utility at that time of power from the cogenerator or small power producer; for example, an electric utility which owns a source of hydroelectric power and which is offered the sale of electric energy from a cogenerator or small power producer might, if measured over the short term, have a low incremental cost of alternative power because of its access to hydropower; however, it may be the case that by purchasing from the cogenerator or small power producer and saving hydropower for later use, the utility can avoid the use of expensive electric energy generated by fossil fired units during later months of its seasonal generation cycle. Thus, viewed over the longer period of time, the incremental cost of alternative electric energy might be substantially higher than that measured by the instantaneously available hydropower.

In providing that the 30–80 megawatt class of small power production facilities may not be exempt from the Federal Power Act under subsection (e), the conferees intended that where such facilities are subject to Federal Power Act jurisdiction, the Commission must set the rates for the sale of power by such facilities in accordance with the requirements of this section.

The conferees expect that the Commission, in judging whether the electric power supplied by the cogenerator or small power producer will replace future power which the utility would otherwise have to generate itself either through existing capacity or additions to capacity or purchase from other sources, will take into account the reliability of the power supplied by the cogenerator or small power producer by reason of any legally enforcible obligation of such cogenerator or small power producer to supply firm power to the utility.

APPENDIX C

A COLLATION OF BOTH THE PROPOSED AND FINAL RULES IMPLEMENTING SECTION 210 OF PURPA

APPENDIX C

A COLLATION OF BOTH THE PROPOSED AND FINAL RULES IMPLEMENTING SECTION 210 OF PURPA

The following is a collation of the proposed and final rules for both Sections 201 and 210 of PURPA. The rule is presented in this form to make it easier for the reader to see the changes that were made. The material in regular type has remained the same in both rules. Material in CAPITALS is from the proposed rule and has been deleted from the final rule. Underlined material has been added in the final rule. Numbers in brackets are from the proposed rule. Where two section numbers appear and the second is in brackets they are corresponding section numbers from the proposed and final rule. Finally, the collation is presented in the order of the final rule. This is especially important to keep in mind in connection with Subpart B where the changes made were so great that there is very little continuity between the proposed and final rules.

SUBPART A - General Provisions

§292.101 [§292.102] Definitions.

(a) General rule. Terms defined in the Public Utility Regulatory Policies Act of 1978 (PURPA) shall have the same meaning for purposes of this part as they have under PURPA, unless further defined in this part.

(b) Definitions. The following definitions apply for purposes of this part.

(1) "Qualifying facility" means a cogeneration facility or a small power production facility which is a qualifying facility under Subpart B of this part [§292.208] of the Commission's regulations.

(2) "Purchase" means the purchase of electric energy or capacity ~~OR BOTH~~ from a qualifying facility by an electric utility.

(3) "Sale" means the sale of electric energy or capacity ~~OR BOTH~~ by an electric utility to a qualifying facility.

(4) "System emergency" means a condition on a utility's system which is likely to result in imminent significant disruption of service to ~~A SIGNIFICANT NUMBER OF~~ customers or is imminently likely to endanger life or property.

(5) "Rate" means any price, rate, charge, or classification made, demanded, observed or received with respect to the sale or purchase of electric energy or capacity, or any rule, regulation, or practice respecting any such rate, charge, or classification, and any contract pertaining to the sale or purchase of electric energy or capacity.

(6) "Avoided costs" means the incremental costs to an electric utility of electric energy or capacity or both which, but for the purchase from the qualifying facility or qualifying facilities, such utility would generate itself or purchase from another source.

[Moved From Section §292.306 [§292.108]]

(7) "Interconnection costs" means the reasonable costs of connection, switching, metering, transmission, distribution, safety provisions and ~~OTHER COSTS~~ administrative costs incurred by the electric utility ~~REASONABLY RESULTING FROM INTERCONNECTED OPERATION BETWEEN AN ELECTRIC UTILITY AND A QUALIFYING FACILITY~~ directly related to the installation and maintenance of the physical facilities necessary to permit interconnected operations with a qualifying facility, to the extent such costs are in excess of the corresponding costs which the electric utility would have incurred if it had not engaged in interconnected operations, but instead generated an equivalent amount of electric energy itself or purchased an equivalent amount of electric energy or capacity from other sources. Interconnection costs do not include any costs included in the calculation of avoided costs.

(8) "Supplementary power" means electric energy or capacity supplied by an electric utility, regularly used by a qualifying facility in addition to that which the facility generates itself.

(9) "Back-up power" means electric energy or capacity supplied by an electric utility to replace energy ordinarily generated by a facility's own generation equipment during an unscheduled outage of the facility.

(10) "Interruptible power" means electric energy or capacity supplied by an electric utility subject to interruption by the electric utility under specified conditions.

(11) "Maintenance power" means electric energy or capacity supplied by an electric utility during scheduled outages of the qualifying facility

Small Power Production Facilities

~~CERTIFICATION OF QUALIFYING STATUS~~

§292.201 Scope

This subpart applies to the ~~CERTIFICATION OF SMALL POWER PRODUCTION AND COGENERATION FACILITIES AS~~ criteria for and manner of becoming a qualifying small power production and a qualifying cogeneration facilities under sections 3(17)(C) and 3(18)(B), respectively, of the Federal Power Act, as amended by section 201 of the Public Utility Regulatory Policies Act of 1978 (PURPA).

§292.202 Definitions.

For purposes of this subpart:

(a) "biomass" means any organic material not derived from fossil fuels:

(b) "waste" means by-product materials other than biomass;

(c) "cogeneration facility" means 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;

(d) "topping-cycle cogeneration facility" means a cogeneration facility in which the energy input to the facility is first used to produce useful power output, and the reject heat from power production is then used to provide useful thermal energy;

(e) "bottoming-cycle cogeneration facility" means a cogeneration facility in which the energy input to the system is first applied to a useful thermal energy process, and the reject heat emerging from the process is then used for power production;

(f) "supplementary firing" means an energy input to the cogeneration facility used only in the thermal process of a topping-cycle cogeneration facility, or only in the electric generating process of a bottoming-cycle cogeneration facility;

(g) "useful power output" of a cogeneration facility means the electric or mechanical energy made available for use, exclusive of any such energy used in the power production process;

(h) "useful thermal energy output" of a topping-cycle cogeneration facility means the thermal energy made available for use in any industrial or commercial process, or used in any heating or cooling application;

(i) "total energy output" of a topping-cycle cogeneration facility is the sum of the useful power output and useful thermal energy output;

(j) "total energy input" means the total energy of all forms supplied from external sources;

(k) "natural gas" means either natural gas unmixed, or any mixture of natural gas and artificial gas;

(l) "oil" means crude oil, residual fuel oil, natural gas liquids, or any refined petroleum products; and

(m) energy input in the case of energy in the form of natural gas or oil is to be measured by the lower heating value of the natural gas or oil.

(n) "Electric utility holding company" means a holding company as defined in section 2(a)(7) of the Public Utility Holding Company Act of 1935, 15 U.S.C. 79b(a)(7) which owns one or more electric utilities as defined in section 2(a)(3) of that Act, 15 U.S.C. 79b(a)(3).

§292.203 General requirements for qualification.

(a) Small power production facilities. A small power production facility is a qualifying facility if it:

(1) meets the maximum size criteria specified in §292.204(a);

(2) meets the fuel use criteria specified in §292.204(b); and

(3) meets the ownership criteria specified in §292.206.

(b) Cogeneration facilities. (1) Unless excluded under paragraph (c), a cogeneration facility is a qualifying facility if it:

(i) meets any applicable operating and efficiency standards specified in §292.205(a) and (b); and

(ii) meets the ownership criteria specified in §292.206.

(2) For purposes of qualification of a cogeneration facility for exemption from incremental pricing, a cogeneration facility must qualify under §292.205(c).

(c) Interim exclusion. (1) pending further Commission action, any cogeneration facility which is a new diesel cogeneration facility may not be a qualifying facility.

(2) A new diesel cogeneration facility is a cogeneration facility:

(i) which derives its useful power output from a diesel engine, and

(ii) the installation of which began on or after March 13, 1980.

(3) Pending further Commission action, any cogeneration facility which is a new dual-fuel cogeneration facility which seeks to obtain qualifying status must follow the procedures set forth in §292.207 (b) of this section.

(4) A new dual-fuel cogeneration facility is a cogeneration facility:

(i) which derives its useful power output from an internal combustion piston engine capable of changing automatically between gas and oil operation, and

(ii) the installation of which began on or after May 15, 1980.

§292.204 [§292.205] Criteria for Qualifying ~~REQUIREMENTS FOR~~ small power production facilities. ~~TO BE CERTIFIED AS A QUALIFYING SMALL POWER PRODUCTION FACILITY, A FACILITY FOR WHICH AN APPLICATION IS FILED MUST MEET THE FOLLOWING REQUIREMENTS:~~

(a) [(b)] Size of the facility. (1) Maximum size. [(i)] The ~~RATED~~ power production capacity of the facility for which ~~CERTIFICATION~~ qualification is sought, together with the capacity of any other facilities ~~THAT~~ which use the same energy resource, ~~AND~~ are owned by the same person, and are located at the same site, ~~MUST BE NO GREATER THAN~~ may not exceed 80 megawatts.

(2) [(ii)] Method of calculation. (i) For purposes of this paragraph, facilities are ~~PRESUMED~~ considered to be located at the same site as the facility for which ~~CERTIFICATION~~ qualification is sought if they are located within one mile of the facility for which ~~CERTIFICATION~~ qualification is sought and, for hydro electric facilities, if they use water from the same impoundment for power generation.

(ii) For purposes of making the determination in clause (i) the distance between facilities shall be measured from the electrical generating equipment of a facility.

(3) Waiver. The Commission may modify the application of subparagraph(2) for good cause.

~~(iii) AN APPLICANT MAY SEEK TO REBUT THE PRESUMPTION IN SUBPARAGRAPH (ii) FOR ANY FACILITY LOCATED WITHIN ONE MILE OF THE FACILITY FOR WHICH CERTIFICATION IS SOUGHT. IN DETERMINING WHETHER THE PRESUMPTION HAS BEEN REBUTTED, THE COMMISSION WILL CONSIDER:~~

~~(A) THE EXTENT TO WHICH FACTORS OTHER THAN THE 80 MEGAWATT CAPACITY LIMITATION DICTATE SMALLER, PHYSICALLY SEPARATED FACILITIES RATHER THAN LARGER, INTEGRATED OR PHYSICALLY CONTIGUOUS FACILITIES; AND~~

~~(B) THE EXTENT TO WHICH CONSIDERATION OF THE FACILITY AS BEING AT A DIFFERENT SITE FROM OTHER FACILITIES IS CONSISTENT WITH CONSERVATION OF ENERGY AND OPTIMALLY EFFICIENT USE OF RESOURCES.~~

~~(2) MINIMUM SIZE. A FACILITY MUST HAVE A DESIGN CAPACITY OF AT LEAST 10 KILOWATTS. THIS PROVISION MAY BE WAIVED IF THE COMMISSION FINDS THAT GRANTING QUALIFYING STATUS TO THE FACILITY IS NECESSARY TO ENCOURAGE CONSERVATION OF ENERGY OR THE OPTIMIZATION OF THE EFFICIENCY OF USE OF RESOURCES.~~

(b) ~~[(a)]~~ Fuel Use. (1) (i) The primary energy source of the facility must be biomass, waste, renewable resources, or any combination thereof, and more than 75 percent of the total energy input must be from these sources. ~~FOR PURPOSES OF THIS SECTION, WATER IS A RENEWABLE RESOURCE WITH RESPECT TO HYDROELECTRIC FACILITIES EXCEPT TO THE EXTENT THAT SUCH FACILITIES:~~

~~(i) INCLUDE DAMS OR OTHER STRUCTURES FOR IMPOUNDING WATER, THE CONSTRUCTION OF WHICH WAS NOT COMPLETED ON OR BEFORE THE DATE OF THE FILING OF THE APPLICATION FOR QUALIFICATION UNDER §292.202(a), OR~~

~~(ii) REQUIRE ANY CONSTRUCTION OR ENLARGEMENT OF IMPOUNDMENT STRUCTURES (OTHER THAN REPAIR OR RECONSTRUCTION) IN CONNECTION WITH THEIR INSTALLATION.~~

(ii) Any primary energy source which, on the basis of its energy content, is 50 percent or more biomass shall be considered biomass.

(2) Use of oil, natural gas, and coal by a facility may not, in the aggregate, exceed 25 percent of the total energy input of the facility during any calendar year period. ~~PLANNED USE OF FOSSIL FUEL FOR START-UP, TESTING, FLAME STABILIZATION AND CONTROL PURPOSES AND DURING OUTAGES OF THE FUEL SUPPLY SYSTEM MAY NOT EXCEED THE FOLLOWING LIMITS:~~

~~(i) FOR IGNITION START-UP AND TESTING, NOT MORE THAN 500 BARRELS (BBL) OF OIL PER YEAR (OR ITS BTU EQUIVALENT IN GAS) PER MEGAWATT OF RATED CAPACITY;~~

~~(ii) FOR FLAME STABILIZATION AND CONTROL, NOT MORE THAN 0.2 BBL OF OIL PER HOUR (OR ITS BTU EQUIVALENT IN GAS) PER MEGAWATT OF RATED CAPACITY DURING OPERATION OF THE FACILITY; EXCEPT FOR FACILITIES BURNING SOLID MUNICIPAL WASTE, IN WHICH CASE THE LIMIT IS THE EQUIVALENT OF 0.5 BBL OF OIL PER MEGAWATT HOUR OF GENERATION; AND~~

~~(iii) DURING OUTAGES OF THE NORMAL FUEL SUPPLY SYSTEM, NOT MORE THAN~~

~~110 BBL OF OIL (OR ITS BTU EQUIVALENT IN GAS) PER YEAR PER MEGAWATT OF RATED CAPACITY.~~

~~(3) AN APPLICANT SHALL SUBMIT AN ESTIMATE OF THE PLANNED USE OF FOSSIL FUEL BY THE FACILITY AND THIS ESTIMATE SHALL BE SUPPORTED, WHERE AVAILABLE, BY DESIGN CHARACTERISTICS OR SPECIFICATIONS OF THE EQUIPMENT USED IN THE FACILITY.~~

~~(c) EFFICIENCY STANDARDS FOR FACILITIES USING LIMITED ACCESS RENEWABLE RESOURCES.~~

~~(1) A FACILITY USING GEOTHERMAL RESOURCES OR MUNICIPAL WASTE AS A PRIMARY ENERGY SOURCE MUST ACHIEVE A MINIMUM OF 40 PERCENT OF THE IDEAL CARNOT EFFICIENCY ACHIEVABLE WITH THE MAXIMUM AND MINIMUM TEMPERATURES EXPERIENCED BY THE WORKING FLUID.~~

~~(2) HYDROELECTRIC FACILITIES NOT REGULATED UNDER PART I OF THE FEDERAL POWER ACT MUST ACHIEVE HYDRAULIC EFFICIENCY OF AT LEAST 60 PERCENT.~~

§292.205 [§292.206] Criteria for qualifying REQUIREMENTS FOR cogeneration facilities.

~~(a) THE COGENERATION FACILITY MUST PRODUCE ELECTRIC ENERGY AND OTHER FORMS OF USEFUL ENERGY (SUCH AS HEAT OR STEAM) WHICH ARE USED FOR INDUSTRIAL, COMMERCIAL, HEATING OR COOLING PURPOSES.~~

~~(c) FOR PURPOSES OF THIS SUBSECTION;~~

~~(1) "HEAT ENGINE" MEANS A DEVICE WHICH OPERATES ON A THERMODYNAMIC CYCLE AND CONVERTS HEAT ENERGY TO MECHANICAL ENERGY;~~

~~(2) "EFFICIENCY OF A HEAT ENGINE" MEANS THE RATIO OF THE USEFUL OUTPUT OF A HEAT ENGINE AS MECHANICAL ENERGY TO THE ENERGY INPUTS TO THE HEAT ENGINE;~~

~~(3) "USEFUL ENERGY OUTPUT OF A THERMAL PROCESS" MEANS THE DIFFERENCE BETWEEN THE HEAT INPUT TO THE PROCESS AND THE HEAT CARRIED AWAY BY THE HEATING MEDIUM;~~

~~(4) "ENERGY INPUT," IN THE CASE OF ENERGY IN THE FORM OF FOSSIL FUEL, IS TO BE MEASURED BY THE LOWER HEATING VALUE OF SUCH FUEL;~~

~~(5) "OVERALL ENERGY EFFICIENCY" MEANS THE RATIO OF THE SUM OF ALL USEFUL ENERGY OUTPUTS INCLUDING THE USEFUL OUTPUT OF ANY THERMAL PROCESS TO THE ENERGY INPUT OF THE FACILITY. ANY ENERGY USED EXCLUSIVELY IN THE THERMAL PROCESS OF A TOPPING CYCLE, OR EXCLUSIVELY IN THE HEAT ENGINE OF A BOTTOMING CYCLE (SUPPLEMENTARY FIRING) SHALL NOT BE INCLUDED AS ENERGY OUTPUT OR ENERGY INPUT FOR THE PURPOSE OF DETERMINING THE OVERALL COGENERATION SYSTEM EFFICIENCY.~~

(a) Operating and efficiency standards for topping-cycle facilities.

(1) Operating standard. For any topping-cycle cogeneration facility, the useful thermal energy output of the facility must, during any calendar year period, be no less than 5 percent of the total energy output.

(2) Efficiency standard. (i) For any topping-cycle cogeneration facility for which any of the energy input is natural gas or oil, and the installation of which began on or after March 13, 1980, the useful power output of the facility plus one-half the useful thermal energy output, during any calendar year period, must:

(A) subject paragraph (a)(2)(i)(B) of this section, be no less than 42.5 percent of the total energy input of natural gas and oil to the facility; or

(B) if the useful thermal energy output is less than 15 percent of the total energy output of the facility, be no less than 45 percent of the total energy input of natural gas and oil to the facility.

(ii) For any topping-cycle cogeneration facility not subject to paragraph (a)(2)(i), there is no efficiency standard.

~~(e) FOR TOPPING-CYCLE COGENERATION FACILITIES USING NATURAL GAS, PETROLEUM, OR ANY DERIVATIVE THEREOF, AS A PRIMARY ENERGY SOURCE, THE FOLLOWING EFFICIENCY STANDARDS APPLY:~~

~~(1) THE EFFICIENCY OF THE HEAT ENGINE MUST BE NO LESS THAN 20 PER CENT WITH REGARD TO THE ENERGY INPUT TO THE FACILITY;~~

~~(2) THE ENERGY OUTPUT OF THE THERMAL PROCESS MUST BE NO LESS THAN 45 PER CENT OF THE DIFFERENCE BETWEEN THE ENERGY OUTPUT OF THE HEAT ENGINE AND THE USEFUL ENERGY OUTPUT OF THE HEAT ENGINE; AND~~

~~(3) THE OVERALL FACILITY ENERGY EFFICIENCY MUST BE NO LESS THAN 60 PER CENT.~~

~~(f) FOR TOPPING-CYCLE COGENERATION FACILITIES OVER 30 MEGAWATTS USING BIOMASS, RENEWABLE RESOURCES OTHER THAN MUNICIPAL WASTE, OR ANY COMBINATION THEROF, AND FOR ANY FACILITIES USING GEOTHERMAL ENERGY OR MUNICIPAL WASTE AS THEIR PRIMARY ENERGY SOURCE, THE FOLLOWING EFFICIENCY STANDARDS APPLY:~~

~~(1) THE USEFUL ENERGY OUTPUT OF THE HEAT ENGINE MUST BE NO LESS THAN 15 PERCENT OF THE ENERGY INPUT TO THE FACILITY;~~

~~(2) THE ENERGY OUTPUT OF THE THERMAL PROCESS MUST BE NO LESS THAN 40 PERCENT OF THE ENERGY OUTPUT OF THE HEAT ENGINE MINUS ALL USEFUL ENERGY OUTPUT OF THE HEAT ENGINE; AND~~

~~(3) THE OVERALL FACILITY ENERGY EFFICIENCY MUST BE NO LESS THAN 55 PERCENT.~~

(b) Efficiency standards for bottoming-cycle facilities.

(1) For any bottoming-cycle cogeneration facility for which any of the energy input as supplementary firing is natural gas or oil, and the installation of which began on or after March 13, 1980, the useful power output of the facility must, during any calendar year period, be no less than 45 percent of the energy input of natural gas and oil for supplementary firing.

(2) For any bottoming-cycle cogeneration facility not covered by subparagraph (1) of this paragraph, there is no efficiency standard.

~~(d) FOR BOTTOMING-CYCLE COGENERATION FACILITIES USING ANY PRIMARY ENERGY SOURCE, EXCEPT COAL OR COAL DERIVED FUELS, THE FOLLOWING EFFICIENCY STANDARDS APPLY:~~

~~(1) (i) THE EFFICIENCY OF THE HEAT ENGINE MUST BE NO LESS THAN 15 PER CENT WITH REGARD TO THE DIFFERENCE BETWEEN THE ENERGY INPUT TO THE FACILITY AND THE USEFUL ENERGY OUTPUT OF THE THERMAL PROCESS; OR~~

~~(ii) THE HEAT ENGINE MUST ATTAIN A MINIMUM OF 40 PERCENT OF THE IDEAL CARNOT EFFICIENCY ACHIEVABLE WITH THE MAXIMUM AND MINIMUM TEMPERATURES EXPERIENCED BY THE WORKING FLUID; AND~~

~~(2) THE OVERALL COGENERATION FACILITY ENERGY EFFICIENCY MUST BE NO LESS THAN 60 PERCENT.~~

~~(g) MINIMUM SIZE. THE COGENERATION FACILITY MUST HAVE A DESIGN CAPACITY OF AT LEAST 10 KILOWATTS (ELECTRIC).~~

(c) Exemption from incremental pricing. (1) Natural gas used in any topping-cycle cogeneration facility is eligible for an exemption from incremental pricing under Title II of the Natural Gas Policy Act of 1978 (NGPA) and Part 282 of the Commission's rules if:

(i) the facility meets the operating and efficiency standards under paragraphs (a) (1) and (2) (i) of this section and is a qualifying facility under §292.203(b)(1); or

(ii) the facility is a qualifying facility under Subpart E of this part.

(2) Natural gas used in any bottoming-cycle cogeneration facility, not subject to an exemption from incremental pricing under Subpart E of this part, is eligible for an exemption under Title II of the NGPA and Part 282 of the Commission's rules to the extent that reject heat emerging from the useful

thermal energy process is made available for use for power production.

(3) Nothing in this subpart affects any exemption provided under Subpart E of this part.

(4) Natural gas used for supplementary firing in any cogeneration facility is not eligible under this part for examption from incremental pricing.

(d) [§292.207] Waiver ~~EXEMPTIONS FROM QUALIFYING REQUIREMENTS.~~ The Commission may waive any of the requirements of paragraphs (a), (b) and (c) of this section upon a showing that the facility will produce significant energy savings. ~~THE COMMISSION MAY WAIVER ANY OF THE PROVISIONS OF §§292.205 AND 292.206 EXCEPT FOR §292.205(a)(1); §292.205(d); §292.206(a); and §292.206(b), IF IT DETERMINES THAT WAIVER IS NECESSARY TO ENCOURAGE CONSERVATION OF ENERGY AND OPTIMIZATION OF EFFICIENCY OF USE OF RESOURCES.~~

§292.206 [§292.205(d) and §292.206(b)] Ownership Criteria.

Note: For this section, new material is underlined; material omitted from both proposed sections is in struck out CAPITALS; material omitted from §292.205(d) is in CAPITALS; material in omitted from §292.206(b) is in brackets [ ]. Material taken from only one of the proposed sections is underlined in the type noted above.

(a) General rule. A cogeneration facility or SMALL POWER PRODUCTION FACILITY MUST may not by owned by a person NOT primarily engaged in the generation or sale of electric power (other than electric power solely from cogeneration facilities or small power production facilities).

(b) Ownership test. For purposes of this section PARAGRAPH, a cogeneration or SMALL POWER PRODUCTION facility SHALL BE CONSIDERED TO BE OWNED BY A PERSON PRIMARILY ENGAGED IN THE GENERATION OR SALE OF ELECTRIC POWER may not be certified as qualifying if more than 50 percent of the EQUITY INEREST IN THE facility is HELD owned by an electric utility or utilities, or BY a PUBLIC electric utility holding company, OR COMPANIES, or any combination thereof. If a wholly or partially owned subsidiary of an electric utility or PUBLIC electric utility holding company has an ownership interest in a facility, the subsidiary's ownership interest shall be CONSIDERED counted as ownership by an electric utility OR PUBLIC electric UTILITY HOLDING COMPANY.

§292.207 [§292.202 & §292.208] Procedures for obtaining ~~DETERMINATION OF~~ qualifying status. [§292.202 APPLICATIONS FOR CERTIFICATION OF QUALIFYING STATUS.]

(a) Qualification. (1) A small power production facility or cogeneration facility which meets the criteria for qualification set forth in 292.203 is a qualifying facility.

(2) The owner or operator of any facility qualifying under this paragraph shall furnish notice to the Commission providing the information set forth in paragraph (b)(2)(i) through (iv) of this section.

~~§292.202(a) FILING REQUIREMENTS. ANY PERSON SEEKING QUALIFYING STATUS FOR A SMALL POWER PRODUCTION FACILITY OR COGENERATION FACILITY MUST FILE AN APPLICATION PURSUANT TO THE PROVISIONS OF THIS SECTION.~~

~~(b) PRE-APPLICATION REQUIREMENTS. BEFORE FILING AN APPLICATION UNDER THIS SECTION, AN APPLICANT SHALL INITIATE OR SHALL ATTEMPT TO INITIATE DISCUSSIONS REGARDING THE FEASIBILITY OF INTERCONNECTED OPERATION WITH THE ENTITY WITH WHICH THE APPLICANT PROPOSES TO SO OPERATE.~~

(b) Optional procedure. (1) Application for Commission certification. Pursuant to the provisions of this paragraph, the owner or operator of the facility may file with this Commission an application for Commission certification that the facility is a qualifying facility.

(2) [(c)] General contents of application. ~~EACH~~ the application shall contain the following information:

(i) [§292.202(c)(1)] the name and address ~~AND BUSINESS~~ of the applicant ~~AND, IF THE OPERATOR OF THE FACILITY IS A PERSON OTHER THAN THE APPLICANT, THE NAME, ADDRESS, AND BUSINESS OF THE OPERATOR~~ and location of the facility;

(ii) a brief description of the facility, including a statement indicating whether such facility is a small power production facility or a cogeneration facility;

(iii) the primary energy source used or to be used by the facility;

(iv) [§292.202(c)(2)] the ~~ELECTRICAL~~ power production capacity of the facility; and

~~§292.202(c)(3) INFORMATION REGARDING THE EFFICIENCY OF ANY HEAT ENGINES, THERMAL PROCESS, OTHER ENERGY CONVERSION PROCESSES, AND THE FACILITY AS A WHOLE;~~

~~§292.202(c)(4) THE PROJECTED MODE OF OPERATION OF THE FACILITY, INCLUDING ANTICIPATED DAILY AND ANNUAL CAPACITY FACTORS OF ELECTRIC POWER GENERATION AND SALE, A PROPOSED PLAN FOR INTERCONNECTED OPERATION, AND THE PROPOSED INTERCONNECTION FACILITIES TO BE PROVIDED BY APPLICANT AND BY THE UTILITY;~~

~~§292.202(c)(5) A SUMMARY OF THE DISCUSSIONS BETWEEN THE APPLICANT AND THE AFFECTED ENTITY REGARDING THE FEASIBILITY OF INTERCONNECTED OPERATION BETWEEN THE APPLICANT AND AFFECTED ENTITY CONDUCTED PURSUANT TO §292.202(b);~~

(v) [292.202(c)(6)] ~~A DESCRIPTION OF THE EQUITY OWNERSHIP OF THE FACILITY. IF THE OWNER OF THE FACILITY, INCLUDING ANY PERSON WHICH HAS OWNERSHIP IN ANY OWNER OF THE FACILITY, IS ENGAGED IN THE GENERATION OR SALE OF ELECTRIC POWER (OTHER THAN ELECTRIC POWER SOLELY FROM COGENERATION FACILITIES, OR SMALL POWER FACILITIES) THE APPLICANT SHALL STATE:~~

[(i)] the percentage of ownership by any electric utilities, or by any ~~PUBLIC~~ electric utility holding company~~IES~~, or by any person owned by either; ~~AND~~

~~(ii) THE STATE AND FEDERAL BODIES WHICH EXERCISE RATEMAKING AUTHORITY WITH RESPECT TO THE APPLICANT;~~

~~§292.202(c)(7) A STATEMENT THAT THE COGENERATION OR SMALL POWER PRODUCTION FACILITY COMPLIES OR WILL COMPLY WITH ALL APPLICABLE FERC RULES AND REGULATIONS.~~

(3) [(d)] Additional application requirements for small power production facilities. ~~IN ADDITION TO THE INFORMATION REQUIRED UNDER §292.202(c)~~, an application by a small power producer for Commission certification ~~AS QUALIFYING SMALL POWER PRODUCTION FACILITIES MUST~~ shall contain the following additional information:

~~(1) A DESCRIPTION OF THE FACILITY;~~

(i) [(3)] the location of the facility in relation to any other ~~QUALIFYING~~ small power production facilities located within one mile of the facility, owned by the applicant which use ~~AND USING~~ the same energy resource; and

(ii) [(2)] information ~~SUFFICIENT TO IDENTIFY THE PRIMARY ENERGY SOURCE AS BIOMASS, WASTE OR RENEWABLE RESOURCES AND~~ identifying any planned usage of ~~FOSSIL FUEL~~ natural gas, oil or coal.

(4) [(e)] Additional application requirements for cogeneraton facilities. ~~IN ADDITION TO THE INFORMATION REQUIRED UNDER §292.202(c)~~ an application by a cogenerator for Commission certification ~~AS QUALIFYING COGENERATION FACILITIES MUST~~ shall contain the following additional information:

(i) [(1)] a ~~BASIC~~ description of the cogeneration system ~~FACILITY,~~ including whether the facility is ~~USES~~ a topping or bottoming cycle and sufficient information to determine that any applicable requirements under §292.205 will be met; and

(ii) the date installation of the facility began or will begin.

~~(2) A DESCRIPTION OF THE ENERGY INPUTS, INCLUDING THE PRIMARY ENERGY SOURCE, ANY ADDITIONAL ENERGY SOURCES, AND THE ENERGY CONTENT OF ANY FUELS USED AS ENERGY SOURCES; AND~~

~~(3) A DESCRIPTION OF THE ENERGY OUTPUTS, INDICATING THE TYPE AND SIZE OF HEAT ENGINES, THERMAL PROCESSES, AND OTHER ENERGY CONVERSION PROCESSES.~~

~~§292.203 NOTICE. (a) APPLICATIONS FILED UNDER THIS SECTION SHALL INCLUDE A COPY OF A NOTICE OF THE REQUEST FOR CERTIFICATION. THE NOTICE SHALL STATE THE APPLICANT'S NAME, THE DATE OF THE APPLICATION, AND A BRIEF DESCRIPTION OF THE FACILITY FOR WHICH QUALIFICATION IS SOUGHT AND OF THE PROPOSED INTERCONNECTION. THE NOTICE SHALL BE IN THE FOLLOWING FORM:~~

~~UNITED STATES OF AMERICA~~

~~FEDERAL ENERGY REGULATORY COMMISSION~~

~~(NAME OF APPLICANT)~~

~~NOTICE OF APPLICATION FOR CERTIFICATION OF A (SMALL POWER PRODUCTION) (COGENERATION) FACILITY PURSUANT TO SECTION 3(17)(c) OR 3(18)(B) OF THE FEDERAL POWER ACT~~

~~ON (DATE APPLICATION WAS FILED), (NAME AND ADDRESS OF APPLICANT) FILED WITH THE FEDERAL ENERGY REGULATORY COMMISSION AN APPLICATION TO BE CERTIFIED AS A QUALIFYING (SMALL POWER PRODUCTION FACILITY) (COGENERATION FACILITY) UNDER PARAGRAPH 3(17)(C) OR 3(18)(B) OF THE FEDERAL POWER ACT.~~

~~BRIEF DESCRIPTION OF THE FACILITY.~~

~~ANY PERSON OBJECTING TO THE GRANTING OF QUALIFYING STATUS MAY FILE A PROTEST IN ACCORDANCE WITH THE PROVISIONS OF §1.10 OF THE COMMISSION'S RULES AND REGULATIONS. ALL PROTESTS MUST BE FILED WITHIN 30 DAYS AFTER THE DATE OF ISSUANCE OF THIS NOTICE AND MUST BE SERVED ON THE APPLICANT.~~

~~(b) THE APPLICANT SHALL SERVE A COPY OF THE NOTICE ON ANY ENTITY WITH WHICH THE APPLICANT PROPOSES TO INTERCONNECT, AND A COPY ON ANY STATE REGULATORY AUTHORITY WITH JURISDICTION OVER THE ENTITY.~~

~~§292.204 PROTESTS. (a) ANY ENTITY SERVED UNDER §292.203, OR ANY OTHER INTERESTED PARTY, MAY FILE A PROTEST PURSUANT TO §1.10 OF THE COMMISSION'S REGULATIONS. PROTESTS MUST BE FILED WITHIN 30 DAYS OF THE ISSUANCE OF PUBLIC NOTICE OF THE APPLICATION. PROTESTS MUST SET FORTH SPECIFICALLY THE GROUNDS ON WHICH THE PROTESTANT BELIEVES THE FACILITY FOR WHICH THE APPLICATION IS MADE SHOULD BE DENIED CERTIFICATION OF QUALIFYING STATUS. ANY PERSON FILING SUCH A PROTEST SHALL SERVE A COPY OF THE PROTEST ON THE APPLICANT.~~
~~(b) THE APPLICANT MAY FILE AN ANSWER TO ANY PROTEST. SUCH ANSWER MUST BE FILED WITHIN 15 DAYS OF THE SERVICE DATE OF A PROTEST. THE APPLICANT SHALL SERVE A COPY OF THE ANSWER ON THE PARTY FILING THE PROTEST.~~

~~§292.208(a) UNCONTESTED APPLICATIONS EXCEPT AS SET FORTH IN SUBPARAGRAPH (2), THE FOLLOWING PROCEDURES APPLY TO UNCONTESTED APPLICATIONS FOR CERTIFICATION OF QUALIFYING STATUS:~~

(5) [(1)] Commission Action. ~~IF NO PROTEST IS RECEIVED DURING THE PERIOD ALLOWED~~, within 90 days of the filing of an application, the Commission shall issue an order ~~WITHIN 90 DAYS OF THE FILING OF A COMPLETE APPLICATION~~, granting or denying the application, tolling the time for issuance of an order, or setting the matter for hearing. Any order denying certification shall identify the specific requirements which were not met. If no order is issued within 90 days of the filing of the complete application, it shall be deemed to have been granted.

(2) ~~AN APPLICATION FOR CERTIFICATION AS A SMALL POWER PRODUCTION FACILITY SEEKING TO REBUT THE PRESUMPTION SET FORTH IN §292.205(b)(1)(ii) OF THIS SUBPART WILL BE CONSIDERED A CONTESTED APPLICATION UNDER PARAGRAPH (b) OF THIS SECTION.~~

(6) Notice. (i) Applications for certification filed under this paragraph shall include a copy of a notice of the request for certification for publication in the Federal Register. The notice shall state the applicant's name, the date of the application, and a brief description of the facility for which qualification is sought. This description shall include:

(A) A statement indicating whether such facility is a small power production facility or a cogeneration facility;

(B) The primary energy source used or to be used by the facility;

(C) The power production capacity of the facility; and

(D) The location of the facility.

(ii) The notice shall be in the following form:

(Name of Applicant)

Docket No. QF-

Notice of Application for Commission Certification of Qualifying Status of a (Small Power Production) (Cogeneration) Facility

On (date application was filed), (name and address of applicant) filed with the Federal Energy Regulatory Commission an application to be certified as a qualifying (small power production) (cogeneration) facility pursuant to §292.207 of the Commission's rules.

(Brief description of the facility).

Any person desiring to be heard or objecting to the granting of qualifying status should file a petition to intervene or protest with the Federal Energy Regulatory Commission, 825 North Capitol Street, N.E., Washington, DC, 20426, in accordance with §§1.8 and 1.10 of the Commission's

Rules of Practice and Procedure. All such petitions or protests must be filed within 30 days after the date of publication of this notice and must be served on the applicant. Protests will be considered by the Commission in determining the appropriate action to be taken but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a petition to intervene. Copies of this filing are on file with the Commission and are available for public inspection.

~~(b) CONTESTED APPLICATIONS. IF ANY PERSON FILES A PROTEST TO AN APPLICATION FOR CERTIFICATION, THE COMMISSION SHALL ISSUE AN ORDER WITHIN 120 DAYS OF THE FILING OF THE ORIGINAL APPLICATION.~~

(c) Notice Requirements for facilities of 500 kW or more. An electric utility is not required to purchase electric energy from a facility with a design capacity of 500 kW or more until 90 days after the facility notifies the utility that it is a qualifying facility, or 90 days after the facility has applied to the Commission under paragraph (b) of this section.

(d) [§292.209] Revocation of qualifying status. ~~MODIFICATION OF QUALIFYING FACILITIES.~~ (1) [(a)] The Commission may revoke the qualifying status of a qualifying ~~COGENERATION OR SMALL POWER PRODUCTION~~ facility which has been certified under this section if such facility ~~UNDERGOES CHANGES WHICH CAUSE THE FACILITY NOT TO BE IN COMPLIANCE WITH THE PROVISIONS OF §292.205 OR §292.206~~ fails to comply with any of the statements contained in its application for Commission certification.

(2) [(b)] Prior to undertaking any substantial alteration or modification of a qualifying facility~~IES~~ which has been certified under this section, a small power producer or cogenerator may apply to the Commission for a determination that the proposed alteration or modification will not result in a revocation of qualifying status.

~~(c) IF A SMALL POWER PRODUCER OR COGENERATOR UNDERTAKES ANY SUBSTANTIAL ALTERATION OR MODIFICATION OF QUALIFYING FACILITIES WITHOUT A DETERMINATION OF THE COMMISSION THAT SUCH ALTERATION OR MODIFICATION WILL NOT RESULT IN A REVOCATION OF QUALIFYING STATUS, THE SMALL POWER PRODUCER OR COGENERATOR SHALL APPLY FOR CERTIFICATION PURSUANT TO §292.202(a) OF THE FACILITIES AS ALTERED OR MODIFIED.~~

~~(d) FOR PURPOSES OF THIS SECTION, THE TERM "SUBSTANTIAL ALTERATION OR MODIFICATION OF QUALIFYING FACILITIES" MEANS SUCH ALTERATION, MODIFICATION OR OTHER CHANGES AS WOULD MATERIALLY AFFECT THE ACCURACY OF THE INFORMATION SUBMITTED PURSUANT TO §292.202 (a).~~

SUBPART C - Arrangements Between Electric Utilities and Qualifying Cogeneration and Small Power Production Facilities Under Section 210 of the Public Utilities Regulatory Policies Act of 1978

§292.301 [§292.101] Scope.

(a) Applicability. This subpart applies to the regulation of sales and purchases ~~OF ELECTRIC ENERGY AND CAPACITY~~ between qualifying ~~COGENERATION AND SMALL POWER PRODUCTION~~ facilities and electric utilities.

(b) Negotiated rates or terms. Nothing in this subpart:

(1) limits the authority of any electric utility or any qualifying facility to agree to a rate for any purchaseS, ~~OR SALES,~~ or terms or conditions relating to any purchase ~~SUCH SALES,~~ which differ from the rate or terms or conditions which would otherwise be required by this subpart; or

(2) affects the validity of any contract entered into between a qualifying facility and an electric utility for any purchase.

§292.302 [§292.103] Availability of electric utility system cost data.

(a) Applicability. (1) Except as provided in paragraph (a)(2) of this section, paragraph

(b) applies to each electric utility, in any calendar year, if the total sales of electric energy by such utility for purposes other than resale exceeded 500 million kilowatt-hours during any calendar year beginning after December 31, 1975, and before the immediately preceding calendar year.

(2) Each utility having total sales of electric energy for purposes other than resale of less than one billion kilowatt hours during any calendar year beginning after December 31, 1975, and before the immediately preceding year, shall not be subject to the provisions of this section until May 31 ~~JUNE 30,~~ 1982.

(b) General rule. To make available data from which avoided costs may be derived, not later than November 1, ~~JUNE 30,~~ 1980, May 31, 1982, and not less often than every two years thereafter, each regulated electric utility described in paragraph (a) of this section ~~TO WHICH THIS SECTION APPLIES~~ shall provide to its State regulatory authority, and shall maintain for public inspection, and each nonregulated electric utility described in paragraph (a)

of this section TO ~~WHICH THIS SECTION APPLIES~~ shall maintain for public inspection, the following data:

(1) the estimated avoided costs ~~OF ENERGY~~ on the electric utility's system, solely with respect to the energy component, for various levels of purchases from qualifying facilities. Such levels of purchases shall be stated in blocks of not more than 100 megawatts ~~OR LESS~~ for systems with peak demand of 1000 megawatts or more, and in blocks equivalent to not more than 10 percent of the system peak demand for systems of less than 1000 megawatts. The avoided costs shall be stated on a cents per kilowatt-hour basis, during daily and seasonal peak and off-peak periods, by year, for ~~THE IMMEDIATELY PRECEEDING CALENDAR YEAR AND ON AN ESTIMATED CENTS PER KILOWATT HOUR FOR~~ the current calendar year and each of the next 5 years;

(2) the electric utility's plan ~~AND SCHEDULE~~ for the addition of capacity by amount and type, for purchases of firm energy and capacity, and for capacity retirements for each ~~OF THE NEXT~~ year during the succeeding 10 years; and

(3) the estimated capacity costs at completion ON ~~THE BASIS OF DOLLARS PER KILOWATT~~ of the planned capacity additions and planned capacity firm purchases, on the basis of dollars per kilowatt, and the associated energy costs of each unit, expressed in cents per kilowatt hour. These costs shall ~~SHOULD~~ be expressed in terms of individual generating units and of individual planned firm purchases.

(c) Special rule for small electric utilities.

(1) Each electric utility (other than any electric utility to which paragraph (b) of this section applies) shall, upon request ~~OF A QUALIFYING FACILITY:~~ [not subdivided in original]

(i) provide ~~SUFFICIENT~~ comparable data to that required under paragraph (b) to enable ~~SUCH~~ qualifying facilities to ~~DETERMINE~~ estimate the electric utility's avoided costs for ~~ANY~~ periods described in paragraph (b) of this section; or

(ii) with regard to an electric utility which is legally obligated to obtain all its requirements for electric energy and capacity from another electric utility, provide the data of its supplying utility and the rates at which it currently purchases such energy and capacity.

(2) If any such electric utility fails to provide such information on ~~OR~~ request, the qualifying facility may apply to the state regulatory authority

(which has ratemaking authority over the electric utility) or ~~TO~~ the commission for an order requiring that the information be provided.

(d) Substitution of alternative method. (1) After public notice in the area served by the electric utility, and after opportunity for public comment, any State regulatory authority may require (with respect to any electric utility over which it has ratemaking authority), or any non-regulated electric utility may provide, data different than those which are otherwise required by this section if it determines that avoided costs can be derived from such data.

(2) Any state regulatory authority (with respect to any electric utility over which it has ratemaking authority) or nonregulated utility which requires such different data shall notify the Commission within 30 days of making such determination.

(e) State review. (1) Any data submitted by an electric utility under this section shall be subject to review by the State regulatory authority which has ratemaking authority over such electric utility.

(2) In any such review, the electric utility has the burden of coming forward with justification for its data.

§292.303 [§292.104] Electric utility obligations under this subpart.

(a) Obligation to purchase from qualifying facilities. ~~EXCEPT DURING PERIODS IDENTIFIED IN §292.105(e)~~ Each electric utility shall purchase, in accordance with §292.304 [§292.105], any energy and capacity ~~CAPACITY OR ENERGY~~ which is made available ~~EITHER DIRECTLY FROM THE QUALIFYING FACILITY OR WHICH IS TRANSMITTED TO SUCH UTILITY FROM THE QUALIFYING FACILITY THROUGH THE FACILITIES OF ANOTHER ELECTRIC UTILITY~~ from a qualifying facility:

(1) directly to the electric utility; or

(2) indirectly to the electric utility in accordance with paragraph (d) of this section.

(b) Obligation to sell to qualifying facilities. Each electric utility shall sell to any qualifying facility, in accordance with §292.305, any energy and capacity requested by ~~SUCH~~ the qualifying facility ~~IN ACCORDANCE WITH §292.106.~~

(c) Obligation to interconnect. (1) Subject to paragraph (c)(2) of this section, Any ~~SUCH~~ electric utility shall make ~~ALL~~ such interconnections with any qualifying facility as may be necessary to accomplish purchases or sales under this subpart. The obligation ~~FOR THE COST OF ANY SUCH~~ to pay for any

interconnection costs shall be determined in accordance with §292.306 [§292.108]

(2) No electric utility is required to interconnect with any qualifying facility if, solely by reason of purchases or sales over the interconnection, the electric utility would become subject to regulation as a public utility under Part II of the Federal Power Act.

(d) Transmission ~~OF PURCHASES~~ to other electric utilities. If a qualifying facility agrees, an electric utility which would otherwise be obligated to purchase energy or capacity from such qualifying facility may transmit the energy or capacity to any other electric utility. Any electric utility to which such energy or capacity is transmitted shall purchase such energy or capacity under this subpart as if ~~SUCH~~ the qualifying facility were supplying energy ~~AND~~ or capacity directly to such electric utility. ~~THE COST OF TRANSMISSION SHALL BE ASSIGNED TO THE QUALIFYING FACILITY PURSUANT TO §292.108 OF THESE RULES.~~ The rate for purchase by the electric utility to which such energy is transmitted shall be adjusted up or down to reflect line losses pursuant to [§292.105(d)(3)] §292.304(e)(4) and shall not include any charges for transmission.

(e) Parallel operation. Each electric utility shall offer to operate in parallel with a qualifying facility, provided that the qualifying facility complies with any ~~RELEVANT~~ applicable standards established in accordance with §292.308 [§292.110].

§292.304 [§292.105] Rates for purchases.

(a) Rates for purchases. (1) Rates for purchases ~~OF ENERGY AND CAPACITY FROM ANY QUALIFYING FACILITY~~ shall:

(i) [(1)] ~~SHALL~~ be just and reasonable to the electric consumer of the electric utility and in the public interest; and

(ii) [(2)] ~~SHALL~~ not discriminate against qualifying cogeneration and small power production facilities. ~~AND~~

(2) Nothing in this subpart requires any electric utility to pay more than the avoided costs for purchases

~~(3) SHALL NOT EXCEED THE AVOIDED COSTS OF SUCH A PURCHASE. THERE IS A REBUTTABLE PRESUMPTION THAT THE RATE FOR PURCHASES MEETS THE REQUIREMENTS OF THIS PARAGRAPH IF THE RATE REFLECTS THE AVOIDED COSTS RESULTING FROM SUCH~~

~~PURCHASE AS DETERMINED ON THE BASIS OF THE COSTS OF ENERGY AND CAPACITY SET FORTH PURSUANT TO §292.103(b) or (c)~~ .

(b) Relationship to avoided costs. (1) For purposes of this paragraph, "new capacity" means any purchase from capacity of a qualifying facility, construction of which was commenced on or after November 9, 1978.

(2) Subject to paragraph (b)(3) of this section a rate for purchases satisfies the requirements of paragraph (a) of this section if the rate equals the avoided costs determined after consideration of the factors set forth in paragraph (e) of this section.

(3) A rate for purchases (other than from new capacity) may be less than the avoided cost if the state regulatory authority (with respect to any electric utility over which it has ratemaking authority) or the nonregulated electric utility determines that a lower rate is consistent with paragraph (a) of this section, and is sufficient to encourage cogeneration and small power production.

(4) Rates for purchases from new capacity shall be in accordance with paragraph (b)(2) of this section, regardless of whether the electric utility making such purchases is simultaneously making sales to the qualifying facility.

(5) In the case in which the rates for purchases are based upon estimates of avoided costs over the specific term of the contract or other legally enforceable obligation, the rates for such purchases do not violate this subpart if the rates for such purchases differ from avoided costs at the time of delivery.

(c) [(b)] Standard rates for purchases. (1) ~~TARIFFS FOR PURCHASES FROM FACILITIES OF TEN KILOWATTS OR LESS~~. There shall be put into effect (with respect to each electric utility) ~~EACH ELECTRIC UTILITY, UPON REQUEST OF A QUALIFYING FACILITY, SHALL ESTABLISH A TARIFF OR OTHER METHOD FOR SETTING FORTH~~ standard rates for purchases from qualifying facilities with a design capacity of 100 [10] kilowatts or less.

(2) There may be put into effect standard rates for purchases from qualifying facilities with a design capacity of more than 100 kilowatts.

(3) The standard rates for purchases under this paragraph:

(i) shall be consistent with paragraphs (a) and (e) of this section; and

(ii) may differentiate among qualifying facilities using various technologies on the basis of the supply characteristics of the different technologies.

(d) [(c)] Purchases "as available" or pursuant to a legally enforceable obligation. Each A qualifying facility shall have the option either: ~~TO PROVIDE ENERGY OR CAPACITY TO AN ELECTRIC UTILITY~~ --

(1) to provide energy as the qualifying facility determines such energy ~~OR CAPACITY~~ to be available for such purchases, in which case the rates for such purchases ~~MAY~~ shall be based on the purchasing utility's avoided ~~ENERGY~~ costs calculated at the time of delivery; or

(2) to provide energy or capacity pursuant to a legally enforceable obligation for the delivery of energy or capacity ~~AT A FUTURE DATE~~ over a specified term, in which case the rates for such purchases ~~MAY~~ shall, at the option of the qualifying facility exercised prior to the beginning of the specified term, be based on either: ~~ESTIMATES OF FUTURE AVOIDED COSTS OF ENERGY OR CAPACITY~~

(i) the avoided costs calculated at the time of delivery; or

(ii) the avoided costs calculated at the time the obligation is incurred.

(e) [(d)] Factors affecting rates for purchases. ~~IN IMPLEMENTING THE PROVISIONS OF THIS SUBPART, A STATE REGULATORY AUTHORITY (WITH RESPECT TO ANY ELECTRIC UTILITY OVER WHICH IT HAS RATEMAKING AUTHORITY) OR NONREGULATED ELECTRIC UTILITY SHALL CONSIDER WITH REGARD TO RATES FOR PURCHASES THE FOLLOWING FACTORS.~~ In determining avoided costs, the following factors shall, to the extent practicable, be taken into account:

(1) the data provided pursuant to §292.302(b), (c), or (d), including state review of any such data;

(2) [(1)] the availability of capacity or energy from a qualifying facility during system daily and seasonal peak periods, including

(i) the ability of the utility to dispatch the qualifying facility;

(ii) [(iv)] the expected or demonstrated reliability of the qualifying facility;

(iii) [(v)] the terms of any contract or other legally enforceable obligation, including the duration of the obligation, termination notice requirement and sanctions for non-compliance; ~~THE LENGTH OF ANY CONTRACT TERM BETWEEN THE ELECTRIC UTILITY AND THE QUALIFYING FACILITY AND ITS TERMINATION~~

~~NOTICE REQUIREMENTS OR THE LENGTH OF ANY LEGALLY ENFORCEABLE OBLIGATION TO PROVIDE ENERGY OR CAPACITY UNDERTAKEN BY THE QUALIFYING FACILITY.~~

(iv) [(iii)] the extent to which scheduled outages of the qualifying facility can be usefully coordinated with scheduled outages of the utility's facilities; ~~THE LENGTH, FREQUENCY, AND SCHEDULING FLEXIBILITY OF SCHEDULED MAINTENANCE BY THE QUALIFYING FACILITY;~~

(v) [(ii)] the usefulness of energy and capacity supplied from a qualifying facility during system emergencies, including its ability to separate its load from its generation; ~~THE QUALIFYING FACILITY'S ABILITY AND WILLINGNESS TO PROVIDE ENERGY OR CAPACITY DURING SYSTEM EMERGENCIES~~;

(vi) [(2)(i)] the individual and aggregate value of energy and capacity from qualifying facilities on the electric utility's system; and ~~AS A RESULT OF THE AVAILABILITY INDIVIDUALLY OR IN THE AGGREGATE FROM QUALIFYING FACILITIES.~~

(vii) [(2)(ii)] the smaller capacity increments and shorter lead times available with additions of capacity from qualifying facilities; and

(3) [(2)] the relationship of the availability of energy or capacity from the A qualifying facility ~~TO AN ELECTRIC UTILITY'S CAPACITY AND ENERGY NEEDS AS EXPRESSED IN §292.103 INCLUDING~~ as derived in paragraph (e)(2) of this section, to [(2)(i)] the ability of the electric utility to ~~REDUCE OR~~ avoid costs, including the deferral of capacity additions and the reduction of fossil fuel use; and

(4) [(3)] the cost or savings resulting from variations in line losses from those that would have existed in the absence of purchases from a qualifying facility, if the purchasing electric utility generated an equivalent amount of energy itself or purchased an equivalent amount of electric energy or capacity.

(f) [(e)] Periods during which purchases not required.

(1) ~~AN~~ any electric utility which gives notice pursuant to paragraph (f)(2) of this section will not be required to purchase electric energy ~~AND~~ or capacity during any period ~~IDENTIFIED BY THE STATE REGULATORY AUTHORITY HAVING JURISDICTION OVER THE RATES OF SUCH UTILITY, OR THE NONREGULATED ELECTRIC UTILITY~~, during which, due to operational circumstances, purchases from qualifying facilities ~~MIGHT~~ will result in costs greater than those which the

utility would incur if it did not make such purchases, but instead generated ~~OR PURCHASED~~ an equivalent amount of ~~ELECTRIC~~ energy itself.

(2) Any electric utility seeking to invoke paragraph (f)(1) of this section must notify, in accordance with applicable State law or regulation, each affected qualifying facility in time for the qualifying facility to cease the delivery of energy or capacity to the electric utility.

(3) Any electric utility which fails to comply with the provisions of paragraph (f)(2) of this section will be required to pay the same rate for such purchase of energy or capacity as would be required had the period described in paragraph (f)(1) of this section not occurred.

(4) A claim by an electric utility that such a period has occurred or will occur is subject to such verification by its State regulatory authority as the State regulatory authority determines necessary or appropriate, either before or after the occurrence.

§292.305 [§292.106] Rates for sales.

(a) General rules. (1) Rates for sales: [not subdivided in proposed rule]

(i) shall be just and reasonable and in the public interest; and

(ii) shall not discriminate against any qualifying facility in comparison to rates for sales to other customers served by the electric utility.

(2) Rates for sales which are based on accurate data and consistent system wide costing principles shall not be considered to discriminate against any qualifying facility to the extent that such rates apply to the utility's other customers with similar load or other cost-related characteristics.

~~(b) EACH ELECTRIC UTILITY SHALL PROVIDE ELECTRIC ENERGY AND CAPACITY AND OTHER SERVICES TO ANY QUALIFYING FACILITY, AT A RATE AT LEAST AS FAVORABLE AS WOULD BE PROVIDED TO A CUSTOMER WHO DOES NOT HAVE HIS OWN GENERATION. THE COSTS OF INTERCONNECTION SHALL BE ASSIGNED PURSUANT TO §292.108 OF THIS PART.~~

(b) [(c)] Additional Services to be Provided to Qualifying Facilities. ~~EACH ELECTRIC UTILITY SHALL PROVIDE TO ANY QUALIFYING FACILITY THE FOLLOWING TYPES OF SERVICE, EVEN IF SUCH TYPES OF SERVICE ARE NOT PROVIDED TO OTHER RETAIL CUSTOMERS:~~

(1) Upon request of a qualifying facility, each electric utility shall provide:

(i) [(1)] supplementary power;

(ii) [(2)] back-up power;

(iii) [(4)] maintenance power; and

(iv) [(3)] interruptible power; ~~AND~~

(2) The State regulatory authority (with respect to any electric utility over which it has ratemaking authority) and the Commission (with respect to any nonregulated electric utility) may waive any requirement of paragraph (b)(1) of this section if, after notice in the area served by the electric utility and after opportunity for public comment, the electric utility demonstrates

and the State regulatory authority or the Commission, as the case may be, finds that compliance with such requirement will:

(i) impair the electric utility's ability to render adequate service to its customers; or

(ii) place an undue burden on the electric utility.

(c) [(d)] Rates for sales of back-up and maintenance power. The rates for sales of back-up or maintenance power:

(1) shall not be based upon an assumption (unless supported by factual data) that forced outages or other reductions in electric output by all qualifying facilities on an electric utility's system will occur simultaneously, or during the system peak, or both; and

~~(2) SHALL NOT BE BASED UPON AN ASSUMPTION (UNLESS SUPPORTED BY FACTUAL DATA) THAT FORCED OUTAGES OR OTHER REDUCTIONS IN ELECTRIC OUTPUT BY ALL QUALIFYING FACILITIES WILL OCCUR DURING THE SYSTEMS PEAK; AND~~

(2) [(3)] shall take into account the extent to which ~~A QUALIFYING FACILITY HAS COORDINATED PERIODS OF SCHEDULED MAINTENANCE WITH SUCH ELECTRIC UTILITY~~ scheduled outages of the qualifying facility can be usefully coordinated with scheduled outages of the utility's facilities.

[Note: §292.107 of the proposed rule has been omitted in the final rule]

§292.107 ~~SIMULTANEOUS PURCHASE AND SALE. A QUALIFYING FACILITY SHALL BE PERMITTED TO RECEIVE RATES ESTABLISHED PURSUANT TO §292.105(a) FOR THE ELECTRIC ENERGY AND CAPACITY GENERATED BY THE FACILITY, WHILE SIMULTANEOUSLY BUYING ENERGY AND CAPACITY FROM SUCH UTILITY FOR USE IN THE FACILITY AT RATES ESTABLISHED IN ACCORDANCE WITH §292.106(a) TO THE EXTENT THAT SUCH PURCHASES ARE PRODUCED BY CAPACITY THE CONSTRUCTION OF WHICH WAS COMMENCED AFTER THE DATE OF ISSUANCE OF THIS PART.~~

[Note: In the final rule this section has become part of section §292.304(b)]

§292.306 [§292.108] Interconnection costs. ~~COSTS OF INTERCONNECTION.~~

[Note: Definition moved to definitions section in final rule]

(a) Obligation to pay. Each qualifying facility shall be obligated to pay any interconnection costs which the state regulatory authority (with respect to any electric utility over which it has ratemaking authority) or nonregulated electric utility may assess against the qualifying facility on a nondiscriminatory basis with respect to other customers with similar load characteristics.

(b) Reimbursement of interconnection costs. Each state regulatory authority (with respect to any electric utility over which it has ratemaking authority) and nonregulated utility shall determine the manner for payments of interconnection costs, which may include reimbursement over a reasonable period of time.

~~(b) REIMBURSEMENT FOR INTERCONNECTION COSTS FOR PURCHASES. EACH QUALIFYING FACILITY MUST REIMBURSE ANY ELECTRIC UTILITY WHICH PURCHASES CAPACITY OR ENERGY FROM SUCH QUALIFYING FACILITY FOR ANY INTERCONNECTION COSTS. THESE COSTS ARE LIMITED TO THOSE COSTS WHICH THE PURCHASING UTILITY WOULD INCUR IF IT DID NOT MAKE SUCH PURCHASES BUT INSTEAD GENERATED AN EQUIVALENT AMOUNT OF ELECTRIC ENERGY ITSELF OR PURCHASED AN EQUIVALENT AMOUNT OF ELECTRIC ENERGY FROM OTHER SOURCES.~~

~~(c) REIMBURSEMENT FOR INTERCONNECTION COSTS FOR SALES EACH QUALIFYING FACILITY MUST REIMBURSE ANY ELECTRIC UTILITY WHICH SELLS CAPACITY OR ENERGY TO SUCH QUALIFYING FACILITY FOR ANY INTERCONNECTION COSTS. THE APPORTIONMENT OF INTERCONNECTION COSTS BETWEEN SUCH QUALIFYING FACILITY AND ELECTRIC UTILITY UNDER THIS PARAGRAPH SHALL NOT DISCRIMINATE AGAINST ANY QUALIFYING FACILITY IN COMPARISON TO ANY OTHER CUSTOMERS SERVED BY THE ELECTRIC UTILITY.~~

§292.307 [§292.109] System emergencies.

(a) Qualifying facility obligation to provide power during system emergencies. A qualifying facility shall be required to provide energy or capacity to an electric utility during a system emergency only to the extent:

not subdivided in proposed rule

(1) provided by agreement between such qualifying facility and electric utility; or

(2) ~~TO THE EXTENT~~ ordered under section 202(c) of the Federal Power Act.

(b) Discontinuance of purchases and sales during system emergencies. During any system emergency, an electric utility may discontinue:

(1) purchases from a qualifying facility if such purchases would contribute to such emergency; and

(2) sales to a qualifying facility, provided that such discontinuance is on a nondiscriminatory basis.

§292.308 [§292.110] Standards for operating reliability.

Any state regulatory authority (with respect to any electric utility over which it has ratemaking authority) or nonregulated electric utility may establish ~~ANY QUALIFYING FACILITY MAY BE SUBJECT TO~~ reasonable standards to ensure system safety and reliability ~~IN~~ of interconnected operations. Such standards may be recommended by any electric utility, any qualifying facility, or BY any other person. If any ~~EACH~~ state regulatory authority (with respect to any electric utility over which it has ratemaking authority) or ~~ANY~~ nonregulated electric utility establishes such standards, it shall specify the need for such standards ~~MAY ESTABLISH SUCH STANDARDS AS IT DETERMINES NECESSARY TO CARRY OUT THE PURPOSES OF THIS SECTION. SUCH STANDARDS MUST BE ACCOMPANIED BY A STATEMENT SETTING FORTH THE NEED FOR SUCH STANDARDS~~ on the basis of system safety and reliability ~~REQUIREMENTS.~~

SUBPART D [C] - Implementation

§292.401 [§292.301] Implementation by State regulatory authorities and nonregulated electric utilities.

(a) State regulatory authorities. Not later than one year after these rules take effect, each State regulatory authority shall, after notice and an opportunity for public hearing, commence implementation of Subpart C [A] (other than §292.302 [§292.103] thereof). Such implementation may consist of the issuance of regulations, an undertaking to resolve disputes between qualifying facilities and electric utilities arising under Subpart C [A], or any other action reasonably designed to implement such subpart (other than §292.302 [§292.103] thereof).

(b) Nonregulated electric utilities. Not later than one year after these rules take effect, each nonregulated electric utility shall, after notice and

an opportunity for public hearing, commence implementation of Subpart C [A] (other than §292.302 [§292.103] thereof). Such implementation may consist of the issuance of regulations, an undertaking to comply with Subpart C [A] or any other action reasonably designed to implement such subpart (other than §292.302 [§292.103] thereof).

(c) Reporting requirement. Not later than one year after these rules take effect, each State regulatory authority and nonregulated electric utility shall file with the Commission a report describing the manner in which it will implement Subpart C [A] (other than §292.302 [§292.103] thereof).

§292.402 [§292.302] Implementation of Certain Reporting Requirements ~~OBJECTIVES~~.

Any electric utility which fails to comply with the requirements of §292.302(b) [§292.103(b)] shall be subject to the same penalties to which it may be subjected for failure to comply with the requirements of the Commission's regulations issued under section 133 of PURPA.

§292.403 [§292.303] Waivers.

(a) State regulatory authority and nonregulated electric utility waivers. Any State regulatory authority (with respect to any electric utility over which it has ratemaking authority) or nonregulated electric utility may, after public notice in the area served by the electric utility, apply for a waiver from the application of any of the requirements of Subpart C [A] (other than §292.302 [§292.103] thereof).

~~(b) ELECTRIC UTILITY WAIVER. ANY ELECTRIC UTILITY MAY APPLY FOR A WAIVER FROM THE APPLICATION OF ANY OF THE REQUIREMENTS OF §292.103(c)~~ .

(b) [(c)] Commission action. The Commission will grant such a waiver only if an applicant under paragraph (a) OR [(b)] of this section demonstrates that compliance with any of the requirements of Subpart (C) ~~(A) OR §292.103, AS THE CASE MAY BE~~, is not necessary to encourage cogeneration and small power production and is not otherwise required under Section 210 of PURPA.

SUBPART F [D] - EXEMPTION OF QUALIFYING SMALL POWER PRODUCTION FACILITIES AND COGENERATION F..CILITIES FROM CERTAIN FEDERAL AND STATE LAWS AND REGULATIONS

§292.601 [§292.401] Exemption to ~~FOR~~ qualifying facilities from the Federal Power Act.

(a) Applicability. This section applies to:

(1) qualifying cogeneration facilities; and

(2) qualifying small power production facilitis which have a power production capacity which does not exceed 30 megawatts.

(b) General rule. Any qualifying facility described in paragraph (a) shall be exempt from all sections of the Federal Power Act, except:

(1) sections 1-30;

(2) sections 202(c), 210, 211, and 212;

(3) section 305(c); and

(4) any necessary enforcement provision of Part III with regard to the sections listed in paragraphs (b) (1), (2) and (3) of this section.

§292.602 [§292.402] Exemption to ~~FOR~~ qualifying facilities from the Public Utility Holding Company Act and certain State law and regulation.

(a) Applicability. This section applies to any qualifying facility described in §292.601(a) [§292.401(a)], and to any qualifying small power production facility with a power production capacity over 30 megawatts if such facility produces electric energy solely by the use of biomass as a primary energy source.

(b) Exemption from the Public Utility Holding Company Act of 1935. A ~~ANY~~ qualifying facility described in paragraph (a) shall not be considered to be an "electric utility company" as defined in section 2(a)(3) [79(b)(3)] of the Public Utility Holding Company Act of 1935, 15 U.S.C. 79b(a)(3).

(c) Exemption from certain State law and regulation.

(1) Any qualifying facility shall be exempted (except as provided in subparagraph (c)(2) of this section from State laws or regulations respecting:

(i) the rates of electric utilities ~~FOR SALES OF ELECTRIC ENERGY BY QUALIFYING COGENERATION AND SMALL POWER PRODUCTION FACILITIES TO ELECTRIC UTILITIES;~~ and

(ii) the financial and organizational regulation of electric utilities.

(2) A qualifying facility may not be exempted from State law and regulation implementing subpart C.

(3) [(2)] Upon request of a State regulatory authority or nonregulated electric utility, the Commission may consider a ~~ANY~~ limitation on the exemptions specified in ~~OF THE APPLICATION OF~~ subparagraph (1).

(4) [(3)] Upon request of any person, the Commission may determine whether a qualifying facility is exempt from a particular State law or regulation.

APPENDIX D

SUMMARY OF RECORDED TESTIMONY

SUMMARY OF RECORDED TESTIMONY: FERC HEARINGS ON THE PROPOSED RULES TO IMPLEMENT SECTION 210 OF PURPA

DOCKET NUMBER RM 79-55

APPENDIX D

SUMMARY OF RECORDED TESTIMONY: FERC HEARINGS ON THE PROPOSED RULES TO IMPLEMENT SECTION 210 OF PURPA DOCKET NUMBER RM 79-55.

I. Monday, November 19, 1979, Seattle, Washington

1) Ed Kennell: Clean Energy Products

Clean Energy Products expressed the concern that a failure to include producers under ten kilowatts will inhibit large scale development of small Wind Energy Conversion Systems, which they view as currently being the most advanced solar electric option.

They also wanted more definition of "standard rates" as they apply to qualifying facilities. They preferred that standard rates be realized through the use of net energy billing as it would benefit both the qualifying facility and the utility by eliminating rate negotiation and accounting procedures.

2) William J. Nicholson: American Paper Institute (API)

The API requested that utility cost data be reported and updated annually rather than biannually. They felt that it would benefit the qualifying facilities and not burden the utilities, as the utilities already have much of the information on hand.

In relation to the requirements of simultaneous purchase and sale in section 292.107 of the proposed rule they requested that the qualifying time limit on the start of construction be lifted. It was their opinion that this requirement would be unfair to many existing cogenerators that are now operating at less than their peak capacity due to the cost. The API also wanted qualifying facilities to be given formal participation in any waiver proceeding, to insure that their views were taken into consideration.

(3) Susan Milar: Citizens for Solar Washington

Three basic points were made by Citizens for Solar Washington: a) to prevent delays they want the Commission to monitor the reporting of data by the utilities; b) they requested that net energy billing be used; and, c) they request that some form of financing be provided for the interconnection costs charged to a qualifying facility.

4) Bob Bannon: Energy Communications Organization

This group expressed disagreement with the ten kilowatt size limitation on the grounds that it would all but eliminate small residential systems.

5) Bernie Burbaum: National Center for Appropriate Technology (NCAT)

The NCAT expressed strong support for tariffs on the grounds that not having them would cause delays and frustration for small qualifying facilities and could result in great administrative hassles for them. On the same grounds they supported the use of net energy billing, even though it might not account for the total avoided costs.

An interesting reason was given for eliminating the ten kilowatt limitation on qualification: to let the poor buy them as a source of neighborhood pride.

In order to protect both the qualifying facility and the utility, they requested that the rebuttable presumption, that rates reflecting avoided costs are acceptable, which appears in section 292.105 (a) of the proposed rule be eliminated.

Strong concern was expressed about the social impacts of the rule, like the possibility of rates going up because cogeneration and small power production may cause the utility to reduce its generation, as with water rates during the recent droughts in the West where people conserved water.

They also would like to have large generating utilities be required to supply data for small non-generating utilities to lessen the extent of the burden on the smaller utility.

NCAT also expressed the desire to have amortization of interconnection costs required in order to prevent the imposition of hugh front-end costs.

6) Donald Day: Oregon Department of Energy (ODOE)

The ODOE wanted the minimum size lowered to at least one kilowatt. They could see some reason for having a lowered limit, but it should not be higher than one kilowatt as this would allow individuals to participate in solving the energy problem.

They wanted a modification of the method for determining the size of a facility, especially the one mile rule, as it invites disputes. They suggested that capacity be changed to the total capacity of all generators, under one ownership, that are connected to the utility system through a single set of wires. This specifically related to wind farms.

In relation to the reporting of avoided costs data ODOE suggested the inclusion of additional data, specifically the statistics and the methodology used by the utility in ariving at its estimates. The definition of "avoided costs" was considered inappropriate. The suggestion was made that the definition be changed to: "equal the average incremental costs of the most costly energy supplied by the utility from sources whose effective capacity is equal to the aggregate amount of energy and capacity received from all qualified facilities on-line."

The Department also objected to the use of the rebuttable presumption that rates that "reflect" avoided costs satisfy the legal requirements. They wanted it eliminated and replaced with a requirement that rates be equal to but not less than avoided costs.

As to allowing the utility to not purchase power at certain times, the Department wanted that ability limited by requiring the utility to first try and sell the power to another utility. In effect then, they were asking that the utility first try to wheel the power.

Net energy billing was suggested as a proper method of implementing tariffs for systems of one to ten kilowatts.

7) Scott Bailey: Western Washington Solar Energy Association

Three basic points were made: 1) that the ten kilowatt minimum size be lowered; 2) that the rebuttable presumption concerning rates that reflect avoided costs be changed to having rates not exceed or be less than avoided costs; and 3) to finance interconnection costs they suggested that tax credits or low interest loans be made available.

II. Wednesday, November 28, 1979, New York, New York

1) Thomas Casten: Cogeneration Society of New York, Inc. and Cummins Cogeneration Company.

Mr. Casten suggested that an incentive be provided to utilities that are cooperative, in the form of an increased rate of return, and that the reverse be done as well.

As an alternative, it was suggested that standby rates match buy back rates minus the profit margin.

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2) Bertram Schwartz: Consolidated Edison Company of New York (Con Ed)

Con Ed believes that the incentives provided for in PURPA and the rules are unnecessary, as sufficient incentives already exist, at least for cogeneration, primarily in the form of tax incentives.

Con Ed would support giving qualifying status to existing oil and gas fired cogenerators but objects to encouraging the proliferation of those systems. Such systems may, now, be more efficient than the utilities, but they are tied to imported fuel and would continue to be tied to it for twenty or thirty years. On the other hand, utilities are going to burn American coal, a process which could be delayed by the additional capacity produced by oil and gas fired cogenerators.

The requirement that utilities provide inerruptible power even where it is not provided to other customers was also objected to, as being too rigid and possibly against Congressional intent, in that it may be discriminatory against other customers. Also, in situations where sufficient capacity exists interruptible power would have no beneficial effort, and a lower rate would amount to subsidization.

3) Nancy Alexander: Energy Unlimited, Inc.

The basic comment here was that the rebutable presumption allowing rates that only reflected avoided costs be eliminated in favor of a requirement that rates not exceed or be less than avoided costs.

It was also suggested the section 292.105(d)(2) be expanded. Apparently, this referred to the concept of aggregate capacity value.

4) Ted Finch: Bronx Frontier Development Corporation

This group likes the idea of using tariffs, but would like to see net energy billing used with it. They also wanted the ten kilowatt minimum size eliminated.

They would like to see some clarification of who, as between the qualifying facility and the utility, is liable for what. They want the utility, in the application process to pass on the application and then for the qualifying facility to be liable only for negligence or lack of maintenance.

5) Pentti Aalto: Consultant--representing himself

Mr. Aalto felt that anything that delivers power to the utility should get some capacity credit. He also felt that capacity credits should not be predicated only on contractual availability.

He also suggested that the simultaneous buying and selling of power should be at equal rates, and that tariffs should be increased in size "to cover all but the largest qualifying facilities."

He felt that utilities should not be allowed to decline to purchase power, but rather, that they should be required to wheel it.

6) Maura O'Neil: Consumer Action Now (CAN)

CAN would like to see the ten kilowatt minimum size limit eliminated. Also, for systems of under ten kilowatts, they would like to see a methodlogy provided for establishing tariffs. They would prefer the use of net energy billing.

CAN wants clarity in the rules as to when and under what conditions a utility can refuse to purchase power. They fear that the utilities may attempt to use the section as an escape clause, and they want that possibility forestalled.

CAN also wants the rebuttable presumption allowing rates to "reflect" avoided costs changed to require that rates neither exceed or be less than avoided costs.

As to interconnection costs, they would like the Commission to provide for amortization.

7) Richard Napoli: Polytechnic Institute of New York

The Institute suggested that the ten kilowatt minimum size limit be eliminated. Most of their testimony dealt with promoting a new Fiat cogeneration engine and taking shots at Con Ed.

8) Glenn Stice: Sierra Club (speaking for himself)

The basic concern was the continued dependence on foreign oil caused by encouraging oil and gas fired cogeneration, even though presently more efficient, which will cause delay in utility conversion to coal and other improvements.

He likes the idea of a minimum size in order to advance the policing of individual units.

9) Elliot Taubman: N.Y. State Attorney General's Office

Apparently, the attorney general's office would like to see environmental costs considered in setting rates, and also felt that the definition of "cost of service" in section 115(a) of PURPA should be used in the rule.

III. Friday, November 30, 1979, Lakewood, Colorado

1) Harrison Call, Jr: Los Angeles Department of Water and Power:

Los Angeles does not disagree with the avoided costs concept for determining rates for purchase from Qualifying Facilities (QF). Nor are they opposed to the conceptual basis being system lambda or incremental costs. However, they question the utility of the measure unless the qualifying facility is very large. Administration of the pricing system would be very complicated and expensive partly because prices would vary from hour to hour.

Los Angeles would like to be able to estimate their incremental cost. "We hope that the rules finally adopted by the Commission will allow for rates to be established on the basis of incremental cost, but not necessarily incremental costs per se."

Their reason for this is that they wish to use average cost as approximating incremental costs. They also believe that cogenerators will receive a windfall as oil prices increase.

2) Peggy Wrenn: Director, Solar and Renewable Energy Program, Colorado Office of Energy Conservation.

The Colorado Energy Office agrees with the avoided cost concept. However, because there is no method proposed for determining it, they fear the various Public Utility Commissions (PUC) will be unable to check utility determinations, and that utilities will not acknowledge any avoided costs.

The Colorado Energy Office proposes that: (1) no minimum size limit be set; (2) net energy billing be considered; (3) wholesale rates might be used as the buy back rate, dependent on real costs; (4) a minimum price level be set.

3) Harry Winters: University of California

The University of California (U.C.) objects to the implication in section

292.107 of the proposed rule that obligations under the rules would not attach if construction of the facility commenced prior to issuance of the rules.

They also feel that local utilities are monopsonists and that regulation of the purchase price will provide assurance of a market. In addition, the ability to require a utility to wheel power could provide a competitive alternative, and would minimize repetitive regulatory activity.

The University wants the Commission to disclaim any intent to preclude required transmission. Also, they want the rules to apply, at least, to the gray area of plants on which construction was begun prior to the issuance of the rules, but which are not yet in operation.

4) John Morrisey: Pacific Gas and Electric

Pacific Gas and Electric (PG&E) is, in general, very pleased with the proposed rules. They are already trying to encourage cogeneration, by offering to buy power at marginal cost. They approve of the proposals concerning self-certification and notice.

PG&E would like to see greater clarity in cost data and the definition of avoided costs, essentially leaving it up to the state authority to certify or approve the costs reported by the utility.

They would like to see factors other than cost included in the determination of when the utility is not required to purchase power. They are especially concerned about the situation where the utility is on minimum load and cannot back-off in order to purchase power, even if cheaper.

PG&E would also like for the utility to have the right to review the proposed plan of construction of a qualifying facility.

Concerning simultaneous buying and selling, PG&E feels that where it is used that the qualifying facility does not have a protected load, and wants this recognized. Where a protected load is desired the utility should only be required to purchase surplus power.

5) Donald Handy: Pan Aero Corp., Golden, Colorado

Pan Aero thinks the rules contain "serious deficiencies." They believe that having state regulations implementing the FERC regulations is contrary to the congressional intent behind PURPA to eliminate the regulatory burden. They want the rules to be definitive with mandatory state implementation and rapid enforcement, combined with a shorter lead time for state implementation or adoption.

They also dislike the reference to wind systems not being able to displace capacity. When dealing with clusters of wind systems Pan Aero believes they can replace significant capacity.

They also want rates for purchase to equal not approximate avoided costs.

They want the legally enforceable obligation requirement to only require that the qualifying facility offer to enter into such an agreement, not that the agreement itself be entered into. The fear is that a utility, by refusing to enter into such an obligation, would prevent the qualifying facility from obtaining that part of a payment. They want the price set by law and the right to it to be conditioned only on the good faith of the qualifying facility.

They also want the aggregate affect, at least of a number of wind systems, to be taken together to count for firm power.

Pan Aero would like to see the factors affecting rates for purchases under proposed section 292.105(e) dropped on the basis that the qualifying facility should always be able to get something for its power.

5) Girtz Krumins: Colorado-Ute Electric Association

Basically they are concerned over the purchase requirement when it is applied to very small utility systems. They are equally concerned over the provisions for simultaneous purchase and sale, due to the unusual cost picture of these small utilities (low fuel-high fixed costs).

They want the qualifying facility to have to satisfy its own needs before being allowed to sell to the utility.

6) Jim Welch: Solar Consultant

He agrees that this is not a major federal action significantly affecting the environment.

He is primarily concerned with, and would like to see eliminated, the ten kilowatt minimum size limitation.

7) Roger Kahn: Colorado Coalition for Full Employment

They wish to lower or eliminate the ten kilowatt limitation. Apparently, they want net energy billing: two way meters.

There is some expressed concern over safety requirements. They feel that safety problems for renewables are no where near as bad as presently exist in the energy industry: from mining to generation.

They also want to see an extended period of payback for interconnection costs.

8) Paul Smolen: Texas Public Utility Commission

Basically the Texas PUC is concerned about the amount of time they will have to spend to implement the rules. They are concerned that they will be rushed and not be able to do an adequate job in the time they will have.

9) Kenneth Stretch: Hawaii Electric Company

They are concerned about the provisions for rates for purchase in light of their unique position.

They consider the rules to be detrimental to the utility and the other rate payers. This is because all the benefits are going to the qualifying facility and none to the utility and consequently the rate payers. They are especially concerned that the rules will provide a windfall to long term former suppliers. They are also afraid that a fuel escalation clause will be required.

They want the price required to be paid to rise only to the point of a reasonable return to the QF.

They also want cost data to remain secret in order to insure arms length negotiation.

10) Tyrone Cashman: American Wind Energy Association (AWEA)

They think the purpose of PURPA is to "unleash the ingenuity of the American entrepeneur." They want the rules to go as far as possible in encouraging renewables and would like to see high incentives.

AWEA feels that the utilities can and should give actual costs rather than estimated costs for power produced now. They want future capacity costs to be determined by a third party to prevent utilities from taking advantage of inherent difficulties in accurate forecasting. They want all costs to be taken into consideration, including decommissioning and waste disposal.

They dislike the term "reflect" in the rebuttable presumption that the purpose is fulfilled by a purchase rate that "reflects" avoided costs. They want the full avoided costs to be required. They see it as both the statutory minimum and maximum.

They like the ten kilowatt minimum size requirement, as wind systems are resource efficient even at small sizes. They dislike the provision for tariffs for systems under ten kilowatts, and net energy billing.

They do not object to the one mile rule linking systems together, but they do want to be able to link systems together that are more than one mile apart.

Mr. Ain had a comment after this testimony to the effect that even where a solar system is producing during the wet season and displaces hydro, there is still some avoided cost in that it permits the retention of more water to use later when oil would otherwise be burned.

11) Douglas Jardin:" Kaman Sciences Corporation

12) Patrick Binns: Colorado Solar Energy Association (CSEA)

CSEA is very concerned with the independent contracting provisions. The fear is that utilities will be able to force disadvantageous contacts on a qualifying facility by drawing out the negotiating time. (Mr. Ain explained that that provision could be bypassed by a qualifying facility that wanted to go straight by the statute and rules.)

They are also concerned that no methodology is provided for determining avoided costs. They want financial assistance to be given to the understaffed P.U.C.s so that they can review utility determinations and not just become rubberstamps for the utilities.

CSEA would like to see a minimum price provided, as well as a maximum.

CSEA wants the utilities to have to monitor selected qualifying facility in the service area as well as the districts solar resources in order to more accurately estimate rates. This should be part of the cost of service for all customers.

They are also concerned about the lack of criteria in the section allowing utilities not to purchase power at certain times.

CSEA wants the cost of interconnection to be amortized.

13) Elizabeth Coppinger: Anaerobic Energy Systems, Inc.

Several concerns were voiced: (1) that some sections may jeopardize biomass production; (2) the effect on Rural Electric Associations not buying power but only transmitting it, as well as the reporting of transmission costs; and (3) the lack of a minimum purchase rate.

IV. Tuesday - Wednesday, December 4-5, 1979, Washington, D.C.

1) Terry Ferrar: Edison Electric Institute (EEI)

EEI is concerned with equity to all the customers of a utility. While they recognize the importance of incentives to cogeneration they feel it is improper to, as the rule does, give all the incentive to the cogenerator and none to the utility. They feel that some of the benefit should go to the utility, where it would devolve to the other customers.

They want the determination of avoided costs, if retained, to be looser. They don't feel that avoided costs should be presumed to be the appropriate rate. In their view it is not supported by legislative history. Also, rather than look to the individual utilities avoided costs, they want to look to the entire power pool.

Instead of the utility being allowed to refuse to purchase power from qualifying facilities they think the utility should be able to charge the qualifying facility for taking and disposing of the power.

EEI wants some clarification of the ability to enter into long term contracts, which they see as good, business-like, arms length transactions. Now, when these contracts come up for renegotiation, the benefit spread implicit in them is changed by the rules.

2) Herbert Blinder: American Public Power Association

The Association fears that safety problems will become exacerbated with large numbers of qualifying facilities operating in parallel. At the same time they are unsure that reasonable standards can be established and enforced for mutual protection during periods of special hazard. Also, costs of protection systems may be prohibitive for small qualifying facilities. They are also concerned over the difficulty and cost of maintaining administrative control over large numbers of qualifying facilities.

They also expressed uncertainty over the ability to reasonably apply the avoided costs approach to systems of up to eighty megawatts.

The Association asserts that firm capacity can only be provided when the qualifying facility maintains the same quality control and maintenance as the utility does. They also note that there may be a problem in defining capacity in small utility systems. If enough qualifying facilities come on to the

system it could eliminate any need for future additions of capacity, and thus eliminate a capacity credit for new qualifying facilities. This could also upset the expected revenue stability of the utility.

As to tariffs, the Association would like to see the maximum size raised to 100 kilowatts. Also, they like the idea of net energy billing for small systems.

Where utilities purchase all their power under all requirements contracts, it is feared that there could be a serious effect on both existing and future contracts. In these situations, there are additional problems concerning the availability of avoided cost data, and the ability of very small systems to establish meaningful avoided costs data.

The benefits arising from interconnection should be shared where that would be appropriate, although it may not be during the early life of the system.

The Association fears that utilities may be charged with discrimination if they have to pay more to new facilities than they are now paying to existing facilities which do not benefit from the rule. They want it clarified that municipal systems can give benefits to existing facilities.

They object to the idea that a qualifying facility may sell power at more than they are purchasing it for, i.e., paid avoided costs at peak but purchasing utility generated power at average cost.

3) Patrick Forrester: Massachusetts Assistant Director for Resource Development

They want as much flexibility as is possible to be left to the states in implementing and carrying out the regulation. They would also like to have qualifying facilities treated as a separate class of customers.

4) Joe T. Moore: SWEL, Inc.

Mr. Moore requested that cost data be reported by category: A) price of fuel; B) cost of system; C) salaries; D) line losses; E) return on investment; and F) stock dividends.

5) Bruce Anderson: Solar lobby

The request was made that utility cost data be published prior to a qualifying facility having to request it, including the data used by the utility to make investment decisions.

Wherever possible they want economic simplicity in the rules.

They also want marginal cost to be the basis of the purchase price for power bought from qualifying facilities.

They wanted the ten kilowatt minimum size eliminated.

6) Ray Billups, Jr.: Southern Company Services, Inc. (SCSI)

SCSI expressed support for the avoided costs concept, but wanted it stressed that the data is only an estimate. They feel that paying full avoided costs takes away any incentive for the utility, so they would like to see some sharing of the benefit. Also, SCSI feels that the avoided costs should, but does not, take into account the cost of dealing with the qualifying facility.

They object to the wording of the wheeling provision. They think it should be put into a separate section, and that it should be permissive, because requiring it is beyond the scope of section 210. Also, they feel that there is no requirement in PURPA that a utility purchase power from a qualifying facility outside its service area.

SCSI doesn't think that a utility should be required to purchase power when it is operating at minimum base load, even if it would still be cheaper to purchase it from the qualifying facility.

They want the provision authorizing the simultaneous purchase and sale of electricity to eliminate the possibility of a net payment to the qualifying facility.

Finally, they want existing facilities excluded from the coverage of the rule.

7) Blair Ross: American Electric Power Service Corporation (AEPSC)

AEPSC wants the payment for deferment of future capacity to wait until that future capacity is needed.

They want the basis for rates to be average cost minus administrative costs and costs for light loading problems. This is because they feel that using marginal cost is unfair to, and will raise the costs to, other customers.

AEPSC wants to be able to place an extra charge on the qualifying facility for administration, extra metering, protective equipment, etc.

They feel that capacity credits should be at average costs, not future incremental costs.

AEPSC wants to pay actual cogeneration capacity costs if equal to or less than the average costs to the system.

8) Larry Smukler: Energy Law Institute (personal views)

Mr. Smukler would like to see some clarification of the contracting provisions. He wants it to apply only to contracts executed after the effective date of the regulations. The validity of preexisting contracts should be determined by state law. He would like to see more discussion concerning the methodology for wheeling rates.

He wants the rebuttable presumption language clarified to prevent the utilities from interpreting it as shifting the burden away from the utilities to justify their rate positions.

Mr. Smukler suggested that the provision allowing the utility to decline to purchase should be eliminated.

He would like to see more guidance given to the state regulatory authorities on how to determine avoided cost. Also, he wants clarification about what state laws and regulations qualifying facilities are exempted from.

9) Martin Ringo: Energy Law Institute

He wants general clarification of the methodology and terminology associated with the determination of avoided costs.

10) William Price: Central Power and Light Companies

They want the definition of "system emergency" to delete the term "significant number of customers" as giving rise to controversy over its interpretation and possibly being in conflict with established procedures.

It should be clarified that a utility is not liable if avoided costs calculated for a specific site differ from the estimates.

The obligation to interconnect should be specifically linked to system safety and reliability.

An additional factor needs to be incorporated into the "factors affecting rates for purchases," that is, the electrical characteristics of the purchased power.

They want the state regulatory authority to be able to consider adjustment clauses that will insure that a utility does not, at least, break even. However, they would prefer that the utility and consequently the other customers gain some of the benefit.

They want the language of the section dealing with rates for sales to be less favorable to qualifying facilities.

As to interconnection costs, they want the inclusion of a number of other factors, to include all expenses of contract negotiation, rate litigation, and economic or engineering evaluations relating to the interconnection.

They want the discontinuance of purchases and sales during system emergencies to be pursuant to the utility's load relief program rather than based on nondiscrimination.

11) Alan S. Miller: Natural Resources Defense Council (NRDC)

NRDC feels that "rates for purchases" requires more definition.

It is almost misleading to stress quantitative precision in estimates of the impact of avoided costs on solar and wind systems. It implies that more is known than is actually the case.

NRDC wants reliability standards to insure that a qualifying facility is not held to a greater standard of reliability than is actually maintained by other facilities in the utility's system.

They also want full avoided costs to include such factors as administrative costs. This is based on the intent of the statute. They also feel that the language discussing avoided costs is ambiguous, and should be clarified.

They approve of the use of tariffs for systems larger than ten kilowatts. Additionally, they feel that a tariff might be more beneficial than an offer of full avoided costs which have yet to be determined.

12) William Hayes: Granite State Electric Company

They would like to see the benefit shared between the qualifying facility and the utility and its customers.

There is a possibility that the marginal savings of oil and gas by cogeneration will prevent the building of non-oil or gas fired generation, because the capacity they provide would no longer be needed.

Where a subsidiary is purchasing retail from an affiliated wholesale supplier the purchaser should be able to use the suppliers costs.

13) Benjamin Wolff: American Wind Energy Association

The Association disagrees with the assertion that wind systems do not have any capacity value.

They want demand charges specifically disallowed to prevent a utility from imposing them on a small system.

They would prefer to have net energy billing for small systems. Where it turns a net sale for the qualifying facility then the price should be determined by the rules.

They want more accurate guidelines for state implementation of the rules.

14) John Plunkett: Institute for Local Self Reliance

The Institute supports the use of tariffs and net energy billing. This is based on the fact that small qualifying facilities are likely to be renewable resource systems, primarily on residences. This, especially in light of the lack of methodology for rate setting, will avoid sub-standard treatment of small systems and keep them out of the long evidentiary process. Also, such systems will minimize line losses.

Because interconnection fees will compound an already high front-end cost for renewable resource systems, they would like to see the utilities amortize the costs at their imbedded capitalization rate.

They want the rebuttable presumption allowing rates for purchase to reflect the avoided costs to be changed to make the rates equal avoided costs.

15) John Schaefgen: Carolina Power and Light Company

They raise the question of the status of contracts executed under the rules. Do they have to be filed with the Commission as contracts affecting rates for sales to wholesale customers? The problem arises where the utility is regulated but the other party is not.

APPENDIX E

PROPOSED REGULATIONS FOR QUALIFICATION

The following pages comprise the preamble to the "Proposed Regulations Providing for Qualification of Small Power Production and Cogeneration Facilities" under section 210 of the Public Utility Regulatory Policies Act of 1978 (Docket No. RM 79-54, 44 Fed. Reg. 38872 (July 3, 1979)).

[18 CFR Part 292]

[Docket No. RM79-54]

Proposed Regulations Providing for Qualification of Small Power Production and Cogeneration Facilities Under Section 201 of the Public Utility Regulatory Policies Act of 1978

Issued June 27, 1979.

AGENCY: Federal Energy Regulatory Commission.

ACTION: Notice of Proposed Rulemaking.

SUMMARY: These regulations establish rules under which small power production and cogeneration facilities may be certified as qualifying facilities under Section 201 of the Public Utility Regulatory Policies Act of 1978.

DATES: Comments by August 1, 1979.

ADDRESS: All comments to: Secretary, Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, D.C. 20426 (Reference Docket No. RM79-54).

FOR FURTHER INFORMATION CONTACT:

Adam Wenner, Office of the General Counsel, Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, D.C. 20426 (202) 275-0423.
Bernard Chew, Office of Electric Power Regulation, Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, D.C. 20426 (202) 275-4770.

Issued June 27, 1979.

Section 201 of the Public Utilities Regulatory Policies Act of 1978 (PURPA) mandates that the Commission prescribe rules under which small power production facilities and cogeneration facilities can obtain "qualifying" status.

Section 201 of PURPA [1] defines a "small power production facility" as a facility which:

(1) produces electric energy solely by the use, as a primary energy source of biomass, waste, renewable resources, or any combination thereof; and

(2) has a power production capacity which, together with any other facilities located at the same site (as determined by the Commission) is not greater than 80 megawatts.

A cogeneration facility is defined as a facility which produces electric energy and steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating or cooling purposes.[2]

A cogeneration or small power production facility may be deemed "qualified" if it is owned by a person not primarily engaged in the generation or sale of electric power (other than electric power solely from cogeneration or small power production facilities), and if it meets such requirements as the Commission may prescribe, such as fuel use, fuel efficiency, reliability and minimum size.

In this notice of proposed rulemaking the Commission sets forth proposed requirements for qualifying cogeneration and small power production facilities and procedures by which such facilities may obtain qualification. Subsequent rulemaking proceedings will implement the provisions of Section 210 of PURPA.

A qualifying facility may be exempted from the Federal Power Act, the Public Utility Holding Company Act, and from State laws and regulations. Section 210(a) of PURPA requires that the Commission prescribe such rules as it finds necessary to encourage cogeneration and small power production, including rules requiring electric utilities [3] to offer to sell electric energy to and purchase electric energy from qualifying small power production and cogeneration facilities.

Under Section 210(b), the Commission's rules must insure that, in requiring any electric utility to purchase electric energy from qualifying facilities, the rates for such a purchase must be "just and reasonable to the electric consumer of the electric utility", "in the public interest," non-discriminating against qualifying facilities, and shall not exceed the incremental cost to the electric utility of alternative sources. Finally, under Section 206(c)(5) of the Natural Gas Policy Act of 1978 (NGPA), the Commission may exempt qualifying cogeneration facilities from the incremental pricing provision of the NGPA.

Purpose of the Proposed Requirements and Procedures

The Commission believes that the intent of § 201 and § 210 of PURPA is to Encourage the development or better utilization of energy resources through cogeneration and small power production. These provisions of PURPA attempt, among othr purposes, to assure entreprenurial opportunities to sell electricity to electric utilities, when such electricity is generated through use of renewable energy sources or better use of industrial process heat. They reflect a belief that improved energy resource utilization may be accomplished with projects based on unconventional technologies or using small unit sizes which might not be developed by electric utilities. The provisions are not intended, however, to require the rate payers of a utility to subsidize cogenerators or small power producers.

It is the commission's view that an ojective of the qualifying requirements is to limit the benefits of the qualifying designation to facilities which represent serious and significant efforts to improve energy resource utilization. Moreover, qualifying facilities must be suitable for interconnected operation with electric utility systems and must make effective use of resources.

Any specific requirements of our regulations will necessarily reflect the current state of the the art, and the commission recognizes the need to consider facilities of novel character as well as to provide for operation of experimental and developmental facilities. Consequently, the proposed regulations contain a provision for granting qualifying status to facilities which might not otherwise qualify, if the commission determines that granting such status is in the public interest.

Scope of the Proposed Rules

In this rulemaking the Commission proposes to deal only with the determination of qualifying status under Section 201 of PURPA. Subsequent rulemakings will implement the PURPA provisions regarding terms and conditions for sale and purchase of electricity by qualifying facilities, including the rates for such transactions, and the provisions for exemption from some forms of electric utility regulation.

Summary of the Proposed Regulations

§ 292.201 *Scope.*

The proposed new § 292.201 of the Commission's Regulations states that the section applies to the certification of

[1] Section 3(17)(A) of the Federal Power Act.

[2] Section 3(18)(A) of the Federal Power Act.

[3] Section 3(22) of the amended Federal Power Act defines "electric utility" as "any person or State agency which sells electric energy; such term includes the Tennessee Valley Authority, but does not include any Federal power marketing agency." The definition includes intrastate utilities which are not "public utilities" under Section 201(b) of the Federal Power Act.

small power production and cogeneration facilities for qualifying status.

§ 292.202 *Application for certification of qualifying status.*

Subparagraph (a) provides that any person seeking qualifying status must file an application pursuant to this section. The Commission believes that many potential problems between applicants for certification of qualifying status and affected electric utilities may be eliminated by the initiation of informal discussions between the applicant and the affected utility. In order to insure that an applicant has considered the suitability of his facility for interconnected operation, we propose to require that the applicant initiate discussions with affected utilities, and submit a summary of these discussions with his application for certification. This requirement appears in paragraph (b).

Paragraph (c) sets forth the contents of an application for certification. The application must contain technical information describing the facility, a summary of discussions between the applicant and affected electrical entities, and a description of the equity ownership of the facility.

Paragraph (d) sets forth requirements specifically applicable to small power production facilities. The applicant is required to submit information identifying the primary energy source as one of the energy sources which qualifying small power production facilities are permitted to use by section 3(17)(A)(i) of the Federal Power Act. Generally, applicants are required to supply the location of the facility in relation to other qualifying small power production facilities owned by the applicant and using the same energy resource. This subparagraph provides information needed to implement the power production capacity requirement of section 3(17)(A)(ii) that qualifying small power production facilities located at the same site not exceed 80 megawatts.

Paragraph (e) sets forth additional requirements for applications for cogeneration facilities. In addition to the information acquired under § 292.202(c), applications for certification as qualifying cogeneration facilities must contain information set forth describing the energy input and energy output of the facility in both the heat engines and thermal processes.

§ 292.203 *Notice.*

This section requires an applicant for qualifying status to serve notice of the application upon any electric utility with which the applicant proposes to operate in coordination, and to any state regulatory body with jurisdiction over that entity.

§ 292.204 *Protests.*

This section provides that any entity served with notice under § 292.203, or any other interested party may file a protest to the application for certification. The protest must be filed within 30 days of the service of notice of application. Any person filing a protest is required to serve a copy of the protest on the applicant.

Subparagraph (b) provides that the applicant may file an answer to the protest. Such an answer must be filed within 15 days of the filing of the protest and must be served on the party filing the protest.

§ 292.205 *Qualifying requirements for small power production facilities.*

Section 292.205 sets forth qualification requirements for small power production facilities. Paragraph (a) sets for the requirement that the primary energy source for a qualifying small power production facility must be biomass, waste, renewable resources or any combination thereof. The statement on the part of the managers which accompanies the Conference Report of PURPA states that the definition of small power production facility includes solar electric systems, wind electric systems, systems which produce electric energy from wast or biomass, electric energy storage systems, and hydroelectric facilities for existing dams. It also states that the term "waste" includes wood and liquid or solid waste.

For the purpose of the regulations, the term "biomass" means plant materials which are obtained from cultivation, or harvested from naturally occurring vegetation without significant depletion of the resource. The term "waste" covers municipal, agricultural, and industrial wastes and includes any byproduct materials of any operation for which market value is less than disposal cost. Waste may be solid, liquid, or gaseous. Municipal sewage sludge would be a qualifying fuel under this definition. Manure and cornstalks are examples of qualifying agricultural wastes. Wood derived waste and debris from sawmill, lumbering, or pulp mill operations would qualify as bilogically derived industrial wastes.

A fuel (such as methane) which is conventionally derived from fossil sources would be a permissible primary fuel if it is obtained from biomass or waste as defined above.

The term "renewable resource" means any application of solar, wind, or geothermal energy. Biomass also may be a renewable resource, but fossil fuels are not. Electric energy storage facilities such as electro-chemical systems, flywheels, or pumped storage units qualify as long as they do not involve the primary use of fossil fuels as direct inputs to the storage cycle. Senate floor debate established that the definition also includes systems using geothermal resources to produce electricity (S17800, October 9, 1978).

The Conference Report states that water is to be included within the meaning of the term renewable resources "with respect to hydro-electric facilities at existing dams." Clause (i) of paragraph (a) implements this requirement by excluding water as a renewable resource if it is used at a facility which contains a dam or other structure for impounding water, construction of which was not complete as of the date of the application for qualification, or which requires additional construction or enlargement (other than repair or reconstruction) in order to become operative. Under these standards a hydroelectric facility can not become a qualifying small power production facility unless the impoundment portion of the facility is complete as of the date of the filing for qualification.

The definition of "primary energy source" for small power production facilities as set forth in section 3(17)(B) of the Federal Power Act, indicates that qualifying small power production facilities may make limited use of fossil fuels for ignition, startup, testing, flame stabilization and control purposes, as well as for fuel substitution during outages of a normal fuel supply system.

For ignition, startup and testing purposes, the Commission proposes in subparagraph (2), that the amount of fossil fuel planned to be burned for such purposes not exceed 500 barrels of oil (or its Btu equivalent in gas) per megawatt of rated capacity per year. For flame stabilization and control purposes, the proposed maximum amount is the equivalent of 0.2 barrels of oil per megawatt-hour of generation except for facilities burning solid municipal waste, for which the limit is the equivalent of 0.5 barrels of oil per megawatt-hour of generation.

Most facility outages are likely to involve essential power generation equipment, including the fuel combustion unit, and substitution of a fossil fuel would not restore the facility to proper operation. Based on utility experience with outages which do not

involve the generator, turbine or fuel combustion unit, we propose that the amount of fossil fuel used as a substitute during outages of the normal fuel supply system not exceed the Btu equivalent of 110 barrels of oil per megawatt of rated capacity per year.

The proposed total amount of fossil which may be utilized for all purposes thus would not exceed the equivalent of 610 barrels of oil per year per megawatt of rated capacity, plus the equivalent of 0.2 barrels of oil per hour (0.5 for solid municipal waste) per megawatt of rated capacity during operation of the facility. Subparagraph (3) requires the applicant to submit an estimate of planned use of fossil fuel by the facility, supported by any design characteristics or specifications of the equipment used in the facility.

Paragraph (b) implements the statutory requirement that the rated power production capacity of a small power production facility not exceed 80 megawatts. In order to implement this limitation, we propose to limit the maximum size standard to facilities that use the same energy resource and are owned by the same person. The Commission believes that limiting the applicability of the 80 megawatt maximum size to facilities meeting these stricter standards will encourage the development of small power production facilities as intended by the Congress. For purposes of this section, we propose to define "facilities located at the same site", except for hydroelectric facilities, as facilities located within one mile of the facility for which certification is sought. For hydroelectric facilities, we set forth the additional requirement that, to be considered to be located at the same site, the hydroelectric facilities must use water from the same impoundment for power generation. We propose to add this additional limitation to hydroelectric facilities because use of the one mile rule alone might discourage the development of facilities on a portion of a river with high energy potential which could not be effectively developed with one larger unit.

Clause (iii) states that an applicant may seek to rebut the presumption that facilities located within one mile of the facility for which certification is sought, using the same energy resource and owned by the same person should be considered to be located at the same site. Determinations regarding the rebuttal of the presumption will be based upon the extent to which factors other than an attempt to circumvent the 80 megawatt capacity limitation required smaller physically separated facilities and the extent to which rebutting the presumption is consistent with conservation of energy and optimal development of resources.

We considered but rejected as administratively infeasible a rule by which facilities located beyond the one mile limit solely for the purpose of circumventing the 80 mw limit would be excluded from qualification. We invite comment on how to implement the Congressional purpose of limiting the benefits of qualifying status and yet not discourage the development of resources.

Subparagraph (2) sets forth provisions for the minimum size of qualifying small power production facilities. It is clear that the minimum fixed costs associated with a small power production facility will set some minimum size of a generating unit below which there is little possibility that the unit can be economic, and therefore resource-efficient. These minimum fixed costs will vary between alternative forms of small power production facilities, both as a consequence of technology advancements and because the cost of interconnecting each facility to a power system varies with respect to metering, switching, supervision, control and safety provisions.

Nevertheless, we have made an effort to identify a practical minimum size, in order to reduce consideration of possibilities which are unlikely to prove viable. A 10-kilowatt unit is proposed as the minimum size for qualification, unless there is a showing that waiver is necessary to encourage conservation of energy and optimization of use of resources.

We recognize that the Department of Energy is sponsoring the development of a number of wind power units of less than 10 kilowatts capacity. Testing and demonstration of these units will require interconnection with utility systems, and, in the event that qualifying status is needed, we may invoke the standard as set forth above for such test operations. However, there seems to be no advantage in encouraging uneconomic operation of commercial systems or burdening utilities with analysis and planning for hypothetical systems which are unlikely to be constructed because they cannot recover the investment costs. Hence, we propose a minimum size of 10-kilowatts with a provision for exemption. We request comment on the feasibility and advisability of a 10-kilowatt minimum size limitation.

Paragraph (c) sets for efficiency standards for small power production facilities using limited access renewable resources.

Where use of a primary energy resource will not significantly limit its use by others, economics will generally dictate the optimum level of efficiency for a small power production facility. Therefore, no minimum standard of efficiency will be mandated for facilities deriving primary energy input from biomass and renewable resources such as solar energy or the wind, which at this time are characterized by essentially unlimited access.

For facilities deriving primary input from energy sources characterized by limited supply or access, such municipal waste, geothermal wells or existing dams, minimum efficiency standards may be desirable to assure reasonable energy recovery from a limited resource. (Access to the limited resource may confer a degree of monopoly power, so that economic forces may not necessarily assure efficient use of the resource.)

For such limited energy resources other than hydroelectric facilities, we propose that the facility achieve a minimum level of 40 percent of the ideal Carnot efficiency achievable with practical working fluid temperatures. Efficiency is defined as the ratio of the output of the heat engine as useful mechanical energy to the energy input to the facility.

Hydroelectric small power production facilities are a special case of a limited access energy resource. The existing licensing criteria include a determination of whether a proposed installation will have an acceptable level of efficiency. For non-jurisdictional hydroelectric projects, we propose that a minimum hydraulic efficiency of 60 percent be realized.

Paragraph (d) is designed to implement the requirement in the new sections 3(17)(C)(ii) and (18)(B)(ii) that a qualifying small power production facility or cogeneration facility be owned by a person not primarily engaged in the generation or sale of electric power (other than electric power solely from cogenerational facilities or small power production facilities). Regarding this provision, the Commission notes that the Conference Report states that:

> [e]lectric utilities may participate in an entity which owns such (qualifying small power production or cogeneration) facilities with other persons, and such entity could qualify under these definitions.
>
> The test of this case is whether the entity which owns the facility is primarily engaged in the generation or sale of electric power other than in connection with its ownership of the cogeneration facilities or small power production facilities.

Thus, either directly or through a subsidiary company, an electric utility could participate in the ownership of a qualifying cogeneration or small power production facility. We note that under a literal interpretation of the Conference Committee's statement, several electric utilities could form a subsidiary which owned small power production or cogeneration facilities. Such a subsidiary would constitute an entity which is not primarily engaged in the generation or sale of electric power other than in connection with its ownership of cogeneration or small power production facilities. Under such an interpretation, the subject facilities would be eligible to receive qualifying status. We believe, however, that the thrust of Section 201 of PURPA is to limit the advantages of qualifying status to cogeneration and small power production facilities which are not owned exclusively by electric utilities or their subsidiaries. Under the proposed regulations, based on the proportion of ownership by electric utilities, public utility holding companies, or subsidiaries of either, the Commission will determine whether more than 50 percent of the entity which owns the cogeneration or small power production facility is comprised of these electric interests. If it is, then the facilities may not be granted qualifying status.

§ 292.206 Qualifying requirements for cogeneration facilities.

Section 292.206 sets forth the requirements for qualifying cogeneration facilities. Paragraph (a) provides that the cogeneration facility must produce electric energy and other forms of useful energy (such as heat or steam) which are used for industrial, commercial heating or cooling purposes. These standards are set forth in subsection 3(18)(A) of the Federal Power Act, as amended by PURPA. This definition reflects the focus of PURPA on sales of electricity by industrial or commercial generating facilities. The key concept is that electricity production as a co-product of process heat or non-electric energy forms may be more resource-efficient than separate production of electricity and other energy forms and, when so, should not be inhibited by artificial barriers. Resource efficiency translates generally to economic efficiency. Hence, a major objective of the Commission's rules is to help assure that projects are economic, and specifically to assist potential cogenerators in their evaluations of project economic feasibility.

Paragraph (b) sets forth the same limitations on utility ownership as apply to small power production facilities (see pp. 16–18, *supra*).

Paragraph (c) sets forth definitions for terms used to provide efficiency standards for qualifying cogeneration facilities. The Commission's concern with the fuel efficiency of a qualifying cogeneration facility is that the benefits obtained by such a designation be matched by significant improvement in resource utilization. Addition of a heat recovery unit to a diesel engine exhaust, or of a steam turbine generator unit to a process heat waste gas stream might constitute cogeneration in the strict sense of the term, but would only represent a significant improvement in resource utilization if a substantial fraction of the energy potentially available from the thermal stream is actually recovered and used. Consequently, threshold values of efficiency and heat utilization are proposed as a primary basis for qualification of units using energy resources of limited availability, specifically natural gas and petroleum. Lower values may be justified by presentation of evidence that the specified levels are not practicably attainable and that significant resource conservation will be achieved.

For a cogeneration facility coupled to an industrial process which operates in a batch mode, the performance of the facility shall be determined in terms of average values over the duration of a batch run. For any other cogeneration process, the performance of the system shall be determined in terms of steady state operation at rated capacity.

Subparagraph (1) defines "heat engine" as a device which operates on a thermodynamic cycle and converts heat energy to mechanical energy. Subparagraph (2) defines "efficiency of a heat engine" as the ratio of the useful output of a heat engine as mechanical energy to the sum of the energy inputs to the heat engine. Subparagraph (3) defines the "useful energy output of a thermal process" as the difference between the heat inputs to the process and the heat carried away by the heating medium. Subparagraph (4) specifies that, in the use of energy in the form of fossil fuel, energy input is to be measured by the lower heating value of such fuel.

Finally, subparagraph (5) defines "overall energy efficiency" as the ratio of the sum of all useful energy outputs including the useful output of any thermal process to the energy input to the facility. Any energy used exclusively in the thermal process of a topping cycle, or exclusively in the heat engine of a bottoming cycle (supplementary filing) is not included as energy output or energy input for the purpose of determining the overall cogeneration system efficiency.

A qualifying cogeneration facility may be subject to fuel use regualtions established under the Powerplant and Industrial Fuel Use Act (FUA). Under the Act, new powerplants or fuel burning installations of a single unit having a design fuel heat input of 100 million Btu's per hour or greater, or which result in two or more units at the same site having a combined design fuel heat input rate of 250 million Btu's per hour or greater are prohibited from burning natural gas or petroleum, unless an exemption is provided by the Secretary of Energy. FUA specifically authorizes the Secretary to exempt cogeneration facilities from the prohibition if the benefits of cogeneration are otherwise unobtainable. The Economic Regulatory Administration has issued interim rules under which such exemptions might be granted.

Under PURPA, the Commission may establish fuel use requirements for qualifying cogenerators of any size, but any such requirements regarding the use of natural gas or petroleum would only be effective at fuel heat input levels below the thresholds established by FUA for action by the Secretary of Energy. At such lower levels, a fuel burning installation that does not seek classification as a qualified cogenerating facility would not be subject to an FERC rule and could burn natural gas or oil. Hence, a restriction on the use of gas or oil for cogeneration, imposed by the Commission, could discourage cogeneration at the lower heat input levels, while not significantly reducing the use of oil or natural gas. We conclude that restrictions or requirements on fuel use by qualifying cogeneration facilities are not appropriate in this proposed rule.

Paragraph (d) sets forth efficiency standards for cogeneration facilities using bottoming cycles which use any primary energy source except coal or coal-dervied fuels. Because of the abundance of this energy resource at this time, we propose not to impose any limit on the efficiency of such cogeneration facilities and rather to let the marketplace provide the motivation for optimizaiton of efficiency.

For bottoming cycle cogeneration facilities using energy resources other than coal or coal-derived fuels to obtain qualifying status, either the useful energy output of the heat engine must be no less than 15 percent of the difference between the energy input to the facility

and the useful energy output of the thermal process, or the heat engine must attain a minimum of 40 percent of the ideal Carnot efficiency achievable with the maximum and minimum temperature experienced by the working fluid. In either case, the overall cogeneration facility energy efficiency must be no less than 60 percent.

Efficiency standards for cogeneration facilities using topping cycles vary depending on the primary energy source. Paragraph (e) sets forth efficiency standards for topping-cycle cogeneration facilities using natural gas, petroleum, or any derivative thereof as a primary energy source. The prices of these energy sources are subject to government control, and therefore the prices do not reflect replacement costs. As a result the failure to limit the benefits of qualification to efficient facilities might encourage overconsumption of these fuels. To prevent that result, we propose only to qualify gas or oil burning facilities if:

(1) the useful energy output of the heat engine is no less than 20 percent of the energy input to the facility;

(2) the useful energy output of the thermal process is no less than 45 percent of the heat energy discharged by the heat engine, and

(3) the overall facility energy efficiency is no less than 60 percent.

The next category of topping-cycle cogeneration facilities are those whose primary energy source is characterized by limited access. Use of these resources by one cogenerator deprives another, possibly more efficient cogeneration facility of the opportunity to use these particular energy sources. As a result, we propose to impose efficiency standards on facilities using these resources. The proposed standards are lower than those imposed on facilities using oil or gas.

There is an additional need for efficiency standards for facilities of over 30 megawatts electrical capacity which use biomass or renewable resources, and for which a condition of limited access characterizes the primary energy source. For such facilities, efficiency standards are necessary to ensure that the facility represents a *bona fide* cogeneration system, and not merely an attempt to evade the 30 megawatt statutory limit on exemption from regulation for small power production facilities. The proposed standard is identical to that proposed for facilities of all sizes using primary energy sources characterized by limited access. We do not expect that this standard will exclude any serious cogeneration proposal from the benefits of qualifying status.

Accordingly, in paragraph (f), we propose that, for topping-cycle cogeneration facilities over 30 megawatts using biomass, renewable resources and waste other than municipal waste, or geothermal energy or any combination thereof, and for topping cycle facilities of any size using geothermal or municipal waste as their primary energy source, efficiency standards be set as follows:

(1) the useful energy output of the heat engine must be no less than 15 percent of the energy input to the facility

(2) the energy output of the thermal process must be no less than 40 percent of the heat energy discharged by the heat engine, and

(3) the overall facility energy efficiency must be no less than 55 percent.

For cogeneration facilities using either topping or bottoming cycles using coal or coal derived fuel as the primary energy source There are no statutory limits on efficiency for qualification The abundance of this energy resource permits reliance on the market to optimize efficiency

Paragraph (g) sets forth a proposed minimum size of 10 kilowatts (electric).

§ 292.207 Exemptions from qualifying requirements.

This section provides that the Commission may waive certain requirements for qualification of cogeneration or small power production facilities, if it determines that waiver is necessary to encourage conservation of energy and optimization of efficiency of use of resources. The Commission may not waive the qualifying requirements for small power production facilities concerning the primary energy source of the facility and limiting ownership to persons not primarily engaged in the generation or sale of electric power. We propose that the ownership limitations for cogeneration facilities similarly be excepted from the waiver provisions along with the statutory definition of a cogeneration facility set forth in § 292.206(a).

§ 292.208 Procedures for determination of qualifying status.

Section 292.208 sets forth the procedures to be used for the Commission to determine whether a facility is to be granted a qualifying status. Paragraph (a) provides that in uncontested proceedings the Commission shall issue an order granting, denying or tolling the time for issuance of an order within 90 days of the filing of the application. Unless the applicant requests that the presumptions set for in § 292.205(b)(1) be rebutted, if no order is issued within 90 days of the filing of the application, it shall be deemed to have been granted. If any party files a protest to an application, the time for the issuance of an order is extended to 120 days. In the case of contested applications, the provisions for automatic granting of qualifying status do not apply.

Under clause (2) if an applicant seeks to rebut the presumptions concerning facilities located at the same site for purposes of compliance with the 80 megawatt maximum limit on small power production facilities the application will be treated as a contested application In that case the time for issuance of an order is extended to 120 days and qualifying status is not automatically granted if the Commission does not issue an order within that time period

§ 292.209 Modification of qualifying facilities

Paragraph (a) provides that the Commission may revoke the qualifying status of a facility if it ceases to comply with the qualifying requirements for small power production or cogeneration facilities. Paragraph (b) provides that, prior to undertaking any substantial alteration of a qualifying facility, a small power producer or cogenerator may apply to the Commission for a determination that the facility as modified, will retain its qualifying status.

If a small power producer or cogenerator undertakes such changes without obtaining prior Commission approval, he must apply to the Commission to retain qualifying status. Under these procedures, the Commission is attempting to assure that facilities enjoying the benefits of qualifying status continue to comply with the standards for qualification, and also to enable a qualifying facility to undergo necessary changes with assurance that its qualifying status will no thereby be imperiled.

APPENDIX F

PREAMBLE TO THE NOTICE OF PROPOSED RULEMAKING

The following pages contain the preamble to the "Notice of Proposed Rulemaking on Small Power Production and Cogeneration - Rates and Exemptions" (Docket No. RM 79-55, 44 Fed. Reg. 61190 (October 24, 1979)).

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

18 CFR Part 292

[Docket No. RM79-55]

Small Power Production and Cogeneration—Rates and Exemptions

AGENCY: Federal Energy Regulatory Commission.

ACTION: Notice of Proposed Rulemaking

SUMMARY: The proposed rules would implement section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA). The rules set forth rates for the sale of electric energy between qualifying small power production and cogeneration facilities and electric utilities, and provide for the exemption of qualifying facilities from certain State and Federal regulation. The proposed rules also provide guidelines for the interconnection arrangements between qualifying facilities and electric utilities.

DATE: Written comments by December 1, 1979. Dates of the public hearings will be announced at a later time.

ADDRESS: All responses to reference Docket No. RM79-55, and to be addressed to: Office of the Secretary, Federal Energy Regulatory Commission, 825 North Capitol Street, N.E., Washington, D.C. 20426. Locations of the public hearings will be announced at a later time.

FOR FURTHER INFORMATION CONTACT: Adam Wenner, Executive Assistant to the Associate General Counsel, 825 North Capitol Street, N.E., Washington, D.C. 20426 (202) 357-8171.

SUPPLEMENTARY INFORMATION:

Issued: October 18, 1979.

Section 210(a) of the Public Utility Regulatory Policies Act of 1978 (PURPA)→

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requires that the Commission prescribe rules as it determines necessary to encourage cogeneration and small power production, requiring electric utilities to offer to:

(1) Sell electric energy to qualifying cogeneration facilities and qualifying small power production facilities, and

(2) Purchase electric energy from such facilities.

In addition, section 210(e) of PURPA requires the Commission to prescribe rules under which qualifying cogeneration and small power production facilities are exempted, in whole or in part, from the Federal Power Act, from the Public Utility Holding Company Act of 1935, and from State laws and regulations respecting the rates or respecting the financial or organizational regulation of electric utilities, if the Commission determines such exemption is necessary to encourage cogeneration and small power production.

On June 26, 1979, in Docket No. RM79-54, the Commission issued proposed rules regarding the determination of which cogeneration and small power production facilities are qualifying cogeneration facilities or qualifying small power production facilities. Such qualifying facilities are entitled to avail themselves of exemptions set forth in section 210 of PURPA, and are eligible for exemption from the incremental pricing provisions of section 206(c) of the Natural Gas Policy Act of 1978 (Order No. 49, § 282.203(c), issued September 28, 1979, 44 FR 57726).

On June 27, 1979, in Docket No. RM79-55, the Commission issued a Staff discussion paper regarding issues arising under section 210 of PURPA.[1] The Staff discussion paper set forth many legal and policy questions arising under section 210 of PURPA. In addition to those issues, comments received in response to the Staff discussion paper and in the public hearings held in San Francisco, Chicago, and Washington, D.C. in July, 1979 on this topic raised new questions regarding the Commission's responsibility to exercise its authority under section 210. The Commission has taken into consideration these questions and comments in developing this proposed rulemaking.

[1] The Staff discussion paper in Docket No. RM79-55 concerned subjects also addressed in this proposed rulemaking. Since interested persons may submit comments in response to this rulemaking, the deadline for the filing of comments on the Staff discussion paper was not extended beyond the original deadline of August 1, 1979.

Summary

The proposed rules provide that electric utilities must purchase electric energy and capacity made available by qualifying cogenerators and small power producers at a rate reflecting the cost that the purchasing utility can avoid as a result of obtaining energy and capacity from these sources, rather than generating an equivalent amount of energy itself or purchasing the energy from other suppliers. To enable potential cogenerators and small power producers to be able to estimate these avoided costs, the rules require electric utilities to furnish data with regard to present and future costs of energy and capacity on their systems.

These rules also provide that electric utilities must furnish electric energy to qualifying facilities on a non-discriminatory basis, at a rate that is just and reasonable and in the public interest, and must provide certain types of service which may be requested by qualifying facilities to supplement or back up those facilities' own generation.

The rule exempts all qualifying cogeneration facilities and certain qualifying small power production facilities from rate and certain other regulations under the Federal Power Act, from the provisions of the Public Utility Holding Company Act of 1935 related to electric utilities, and from State laws regulating electric utility rates and financial organization.

The implementation of these rules is reserved to the State regulatory authorities and nonregulated electric utilities. Within one year of the issuance of the Commission's rules, each State regulatory authority or nonregulated utility must implement these rules. That implementation may be accomplished by the issuance of regulations, on a case-by-case basis, or any other means reasonably designed to give effect to the Commission's rules.

The Commission observes that this rulemaking represents an effort to evolve concepts in a newly developing area within rigid statutory constraints. The Commission is attempting to afford broad discretion to the State regulatory authorities and nonregulated electric utilities in recognition of the variety of institutional, economic, and local circumstances which may be affected by this proposed rulemaking. In this regard, the Commission seeks the fullest range of comments on the legal authority of proposed Commission action, and on the technical and practical aspects of the proposals set forth in this rulemaking.

Section-by-Section Analysis

Subpart A—Arrangements Between Electric Utilities and Qualifying Cogeneration and Small Power Production Facilities under Section 210 of the Public Utilities Regulatory Policies Act of 1978.

§ 292.101 Scope.

Section 292.101(a) describes the scope of Subpart A of Part 292 of the Commission's rules. Subpart A applies to sales and purchases of electric energy and capacity between qualifying cogeneration and small power production facilities and electric utilities, and actions related to such sales and purchases. Section 292.101(b) provides that the authority of this subpart does not preclude negotiated agreements between qualifying cogenerators or small power producers and electric utilities which differ from rates or terms which would otherwise be required under this subpart. Paragraph (b)(1) reflects the Commission's view that the rate provisions of section 210 of PURPA apply only if a qualifying cogenerator or small power producer chooses to avail itself of the rights and protections set forth in that section. An agreement between an electric utility and a qualifying cogenerator or small power producer to conduct sales or purchases at rates higher or lower, or under terms or conditions different from those set forth in these rules, does not violate the Commission's rules under section 210 of PURPA. Nor would provisions of State law or regulations which provide different incentives for small power production and cogeneration than are provided in the Commission's rules be preempted. The Commission recognizes that the ability of a qualifying cogenerator or small power producer to negotiate with an electric utility is buttressed by the existence of the statutory rights and protections of these rules, and the right of State regulatory agencies and nonregulated electric utilities to provide further encouragement of these technologies.

If, prior to the existence of the rights and protections set forth in PURPA, a cogenerator or small power producer entered into a contractual agreement by which he received sufficient financial incentive to sell his electric output to a utility, the encouragement of cogeneration or small power production does not require that he be given additional incentives. Accordingly, paragraph (b)(2) provides that Subpart A will not affect the validity of any contract between a qualifying cogenerator of small power production

facility and an electric utility. At the expiration of the contract, a cogenerator or small power producer will be able to avail himself of these rules.

§ 292.102 Definitions.

This section contains definitions applicable to Subpart A.

Paragraph (a) provides that terms defined in PURPA have the same meaning as they have in PURPA, unless further defined in this part of the Commission's regulations.

Subparagraph (1) defines a qualifying facility as a cogeneration or small power production facility which is a qualifying facility under § 292.208 of the Commission's regulations. Those regulations implement section 201 of PURPA, and are the subject of Docket No. RM79-54.

Subparagraph (2) defines "purchase" as the purchase of electric energy or capacity from a qualifying facility by an electric utility.

Subparagraph (3) defines "sale" as the sale of electric energy or capacity by an electric utility to a qualifying facility.

Subparagraph (4) defines "system emergency" as a condition on a utility's system which is likely to result in disruption of service to a significant number of customers or is likely to endanger life or property.

Subparagraph (5) defines "rate" as any price, rate charge, or classification made, demanded, observed, or received with respect to the sale or purchase of electric energy or capacity, or any rule, regulation, or practice respecting any such rate, charge, or classification, and any contract pertaining to the sale or purchase of electric energy or capacity.

Subparagraph (6) defines "avoided costs" as the costs to an electric utility of energy or capacity or both which, but for the purchase from a qualifying facility, the electric utility would generate or construct itself or purchase from another source. This definition is derived from the concept of "the incremental cost to the electric utility of alternative electric energy" set forth in section 210(d) of PURPA. It includes both the fixed and the running costs on an electric utility system which can be avoided by obtaining energy or capacity from qualifying facilities.

The costs which an electric utility can avoid by making such purchases generally can be classified as "energy" costs or "capacity" costs. Energy costs are the variable costs associated with the production of electric energy (kilowatt-hours). They represent the cost of fuel, and some operating and maintenance expenses. If, by purchasing electric energy from a qualifying facility, a utility can reduce its energy costs or can avoid purchasing energy from another utility, the rate for a purchase from a qualifying facility is to be based on those energy costs which the utility can thereby avoid.

Capacity costs are the costs associated with providing the capability to deliver energy; they consist primarily of the capital costs of facilities. If a qualifying facility offers energy of sufficient reliability and with sufficient legally enforceable guarantees of deliverability to permit the purchasing electric utility to avoid the need to construct a generating unit, to enable it to build a smaller, less expensive plant, or to purchase less firm power from another utility, then the rates for such a purchase will be based on the net avoided capacity and energy costs.[1]

There is considerable language in both the statute and the Conference Report, as well as the Federal Power Act, in support of the proposition that capacity payments are not only legally permitted to be required by the Commission, but also, at least in some circumstances, mandated.

The Conference Report addresses the calculation of the alternative cost standard at some length. The final paragraph of this section of the Report is the following:

> The conferees expect that the Commission, in judging whether the electric power supplied by the cogenerator or small power producer will replace future power which the utility would otherwise have to generate itself either through existing capacity or additions to capacity or purchase from other sources, will take into account the reliability of the power supplied by the cogenerator or small power producer by reason of any legally enforceable obligation of such cogenerator or small power producer to supply firm power to the utility.[2]

The references to "additions to capacity" and to obligations "to supply firm power" (the rates for which, in this Commission's experience, always include a capacity component) lead the Commission to the conclusion that, under Section 210, capacity payments to qualifying facilities can be required under certain circumstances; and that a utility's refusal to make payments based in part on avoided capacity payments could be discriminatory.

In addition, the Commission notes that the statutory language used in the Federal Power Act uses the term "electric energy" to describe the rates for sales or resale in interstate commerce. Demand or capacity rates are a traditional part of such rates. The term "electric energy" is used throughout the Act to refer both to electric energy and capacity. The Commission does not find any evidence that the term "electric energy" in section 210 of PURPA was intended to refer only to fuel and operating and maintenance expenses, instead of all of the costs associated with the provision of electric service.

To interpret this phrase to include only the energy would lead to the conclusion that the rates for sales to qualifying facilities only include the energy component of the rate. It is the Commission's belief that this was not the intended result, and thus provides an additional reason to interpret the phrase electric energy to include both energy and capacity.

§ 292.103 Availability of electric utility system cost data.

In order to be able to evaluate the financial viability of a cogeneration or small power production facility, an investor needs to be able to ascertain, before construction of a facility, the expected return on a potential investment. This return will be determined in part by the price at which the qualifying facility can sell its electric output. Under § 292.105 of these rules, the rate at which a utility must purchase

[1] "Net avoided costs" are the excess of the total costs of the system developed in accordance with the utility's optimum capacity expansion plan, excluding the qualifying facility, over the system's total costs (before payment to the qualifying facility) developed in accordance with the utility's optimum capacity expansion plan including the qualifying facility. This concept recognizes that the energy cost associated with a deferred or avoided unit may be different from the energy costs of the qualifying facility which permitted that deferral or avoidance. In determining an optimum capacity expansion plan, a utility must consider both capacity and energy costs in order to minimize the anticipated total system costs. In providing for payments for avoided capacity, the Commission uses the term "net avoided cost" in recognition of the fact that various types of capacity will not produce the same amount of energy, so that some change in the dispatch of generation may be necessary from the remaining plants after a planned unit is deferred and the qualifying facility's capacity is substituted along with other available capacity to produce the same amount of energy at the minimum cost. This is particularly true, for example, where the capacity factor for the qualifying facility is less than the planned capacity factor of a base load (high capacity cost—low energy cost) alternative facility which is deferred. In such a case, although adequate capacity may exist on the system due to the purchase from the qualifying facility in lieu of the deferred base load unit, additional energy costs may be incurred due to increased generation from intermediate plants to make up the difference between the planned generation from the base load plant and the lesser total energy produced by the qualifying facility. Such increased energy cost is appropriately recognized by providing for the payment to the qualifying facility of the *net* avoided costs. In this way, the ratepayers are assured of paying no more than the total costs that would have been incurred had the unit not been deferred.

[2] Conference Report on H.R. 4018, Public Utilities Regulatory Policies Act of 1978, H. Rep. No. 1750, 95th Cong., 2d Sess. (1978).

that output is based on the utility's avoided costs.

In order to provide data to qualifying facilities which will assist them in determining the utility's avoided costs, § 292.103(b) of the rules requires electric utilities to make available to cogenerators and small power producers data concerning the present and anticipated future costs of energy and capacity on the utility's system. The data required to be provided to determine these avoided costs will have been prepared in compliance with the Commission's rules implementing section 133 of PURPA.[4] This section will thus, for the most part, require a table presenting data already developed.

Section 133 of PURPA applies to each electric utility whose total sales of electric energy for purposes other than resale exceeded 500 million kWh during any calendar year beginning after December 31, 1975, and before the immediately preceding calendar year. (The phrase "before the immediately preceding calendar year" refers to the year two years prior to the current year. For example, if an electric utility exceeded the 500 million kWh limit both during 1976 and 1979, it must comply with section 133 requirements in 1981.) Section 290.102(d) of the Commission's rules implementing section 133 of PURPA granted an extension until June 30, 1982,[5] to electric utilities covered by that section having total sales of energy for purposes other than resale of less than 1 billion kWh in each of the calendar years 1976, 1977, and 1978.

The proposed coverage under paragraph (a) of these regulations is the same as that provided pursuant to section 133 of PURPA and the Commission's rules implementing that section, with an exception provided in paragraph (c) as will be discussed.

Paragraph (b) provides that each regulated electric utility must furnish to the State regulatory authority, and maintain for public inspection, data related to the costs of energy and capacity of the electric utility's system. Each nonregulated electric utility must maintain such data for public inspection.

Subparagraph (1) requires each electric utility to provide the estimated avoided cost of energy on its system for various levels of purchases from qualifying facilities. The levels of purchases are to be stated in blocks of one hundered megawatts or less for systems with peak demand of 1000 megawatts or more, and in blocks equivalent to not more than ten percent of system peak demand for systems less than 1000 megawatts. This information is to be stated on a cents per kilowatt-hour basis, for daily and seasonal peak and off-peak periods, for the immediately preceding year, and on an estimated cents per kWh basis for the current calendar year and for each of the next five years.

Subparagraph (2) requires each electric utility to provide its schedule for the addition of capacity, planned purchases of firm energy and capacity, and planned capacity retirements for each of the next 10 years.

Subparagraph (3) requires each electric utility to provide the estimated costs at completion, on the basis of dollars per kilowatt, of planned capacity additions, including planned firm purchases.

Qualifying facilities may wish to sell energy or capacity to electric utilities which are not subject to the reporting requirements of paragraph (b). In that event, paragraph (c) provides that, upon request of a qualifying facility, an electric utility not otherwise covered by paragraph (b) must provide sufficient data to enable the cogenerator or small power producer to determine the utility's avoided costs. If such utility refuses to supply the requested data, the qualifying facility may apply to this Commission for an order requiring that the information be supplied. The Commission, in considering such applications, will take into account the burden on the utility.

A non-generating electric utility which does not own or plan to acquire generating capacity may incorporate the data provided by each of its supplying utilities in its compliance with the provisions of this section.

§ 292.104 Electric utility obligations under this subpart.

Section 210(a) of PURPA provides that the Commission shall prescribe rules requiring electric utilities to offer to purchase electric energy from qualifying facilities. The Commission interprets this provision to impose on electric utilities an obligation to purchase all electric energy and capacity made available from qualifying facilities, except during periods prescribed in § 292.105(e) and during system emergencies.

There are several circumstances in which a qualifying facility might desire that the electric utility with which it is interconnected not be the purchaser of the qualifying facility's energy and capacity, but would prefer instead that an electric utility with which the purchasing utility is interconnected make such a purchase. If, for example, the purchasing utility is a non-generating utility, its avoided costs will be the price of bulk purchased power ordinarily based on an average figure representing the average cost of energy and capacity on the supplying utility's system. As a result, the rate to the qualifying facility would be based on those average costs. If, however, the qualifying facility's output were purchased by the supplying utility, its output could replace energy supplied by specific peaking units, and its capacity might enable the supplying utility to avoid the addition of new capacity. The costs, and thus the avoided costs, of peaking energy and new capacity are generally greater than system average figures.

Under these proposed rules, certain small electric utilities are not required to provide system cost data, except upon request of a qualifying facility. If, with the consent of the qualifying facility, a small electric utility chooses to transmit energy from the qualifying facility to a second electric utility, the small utility can avoid the otherwise applicable requirements that it provide the system cost data for the qualifying facility and that it purchase the energy itself.

Accordingly, paragraph (d) provides that a utility which receives energy or capacity from a qualifying facility may, with the consent of the qualifying facility, transmit such energy to another electric utility. However, if the first utility does not transmit the purchased energy or capacity, it retains the purchase obligation. Any electric utility to which such energy or capacity is delivered must purchase this energy under the obligations set forth in these rules as if the purchase were made directly from the qualifying facility.[6]

The costs of transmission are not a part of the rate which an electric utility to which energy is transmitted is obligated to pay the qualifying facility.

[4] For example, § 290.303(h) of the Commission's rules implementing section 133 of PURPA requires such electric utilities to report marginal energy costs for each month of the reporting period and for each month of the next five years. Section 290.302(g) of these rules requires electric utilities to report the estimated cost, in dollars per kilowatt of generation, of generation units likely to be installed to meet increases in peak demand. Section 290.302(f) requires the reporting of estimates, for the next ten years of information regarding total system capacity, and capacity to be supplied by other utilities.

[5] Docket No. RM79-8, issued June 5, 1979, granted an extension until May 31, 1982, to electric utilities having total sales of electric energy for purposes other than resale of less than 1 billion kilowatt-hours in each of the calendar years 1976, 1977, and 1978. The Commission recently issued revised regulations in this docket which extended this date to June 30, 1982.

[6] The Commission notes that while a purchase from a qualifying facility may have value as energy and capacity, what is actually transmitted to the second utility is properly described as electric energy. The utility to which energy is transmitted, however, must pay rates based on energy and capacity value.

These costs are part of the costs of interconnection, and are the responsibility of the qualifying facility under § 292.108 of these rules. However, pursuant to agreement between the qualifying facility and any electric utility which transmits electric energy on behalf of the qualifying facility, the transmitting utility may share the costs of transmission. The electric utility to which the electric energy is transmitted has the obligation to purchase the energy at a rate which reflects the costs that it can avoid as a result of making such a purchase.

Paragraph (b) sets forth the statutory requirement of section 210(a) of PURPA that electric utilities offer to sell electric energy to qualifying facilities. This section creates a Federal right for qualifying facilities to obtain electric service, in addition to any service the electric utility is obligated to provide under State laws.

The Staff discussion paper dealt with the issue of whether there is inherent in section 210 of PURPA the authority to order interconnections between electric utilities and qualifying facilities, or whether qualifying facilities must use the procedures set forth in the new sections 210 and 212 of the Federal Power Act to gain interconnection.[1] The Commission believes that the requirement to interconnect is within the legal authority of the Commission under section 210 of PURPA, particularly subsumed within the requirement to buy and sell. To hold otherwise would mean that Congress intended to have qualifying facilities go through an extended and expensive proceeding simply to gain interconnection, contrary to the entire thrust of sections 201 and 210 of PURPA.

These sections evince the clear Congressional intent to encourage development of these desirable forms of generation, and to have the commercial development of these facilities proceed expeditiously. In other words, Congress has already made the judgment that these kinds of facilities serve one of the purposes of the Act as set out in section 101, *viz.*, "the optimization of the efficiency of use of facilities and resources by electric utilities", and it would be both redundant and unduly burdensome to have the sponsors of individual facilities show in an evidentiary hearing conducted under section 210 of the Federal Power Act that their project in particular would serve this end (or one of the other related goals established as criteria for an interconnection order in section 210(c)(2)). The purpose of an interconnection application, whether under section 202 or 210 of the FPA, is to secure service, whether emergency or otherwise; and section 210 of PURPA establishes the entitlement of a qualifying facility to service from the interconnected utility. In effect, the proponents of the view that a qualifying facility must apply under sections 210 and 212 of the FPA have the burden of showing that Congress intended interconnection and the entitlement to buy and sell be denied to a qualifying facility which is unable to make the showings required by those sections, especially in light of the fact that a previously interconnected customer installing qualifying facilities would not have to so apply.

This is not to say that all of the protections that Congress has given the target of an interconnection application in sections 210 and 212 of the FPA are necessarily absent from section 210 of PURPA. The Conference Report on section 210 states that customers of utilities are not to be compelled to subsidize qualifying facilities, and this principle would seem to bear on the question of who pays the costs of interconnection as well as on the per-unit price to be paid for energy. On the other hand, the Conference Report includes a proscription against "unreasonable rate structure impediments, such as unreasonable hook up charges." This provides another argument in favor of reading section 210 of PURPA as including interconnection authority, since the elaborate cost determination required under sections 210 and 212 of the FPA is redundant if the costs of interconnection are viewed simply as a feature of the rate structure with the charge therefor based on the cost of the utility. However, the Commission does view section 210 of the FPA as an alternate avenue for remedy available to any qualifying facility which wishes to apply under it.

The obligation to interconnect can be part of either an electric utility's option to purchase from or sell to a qualifying facility. With regard to the obligation to sell, State law ordinarily sets out the obligation of an electric utility to provide service to customers located within its service area. The Commission believes that State law will normally impose on an electric utility the obligation to interconnect and that the Commission's proposal will not, in most instances, impose any additional obligation on electric utilities.

As noted in the Staff discussion paper, by installing certain equipment, an electric utility can be protected from disruption of its operations caused by a qualifying facility. The Commission has not received comments which disagree with this understanding. Therefore, through the allocation of the costs associated with such equipment to the qualifying facilities, as provided in § 292.109, and through the imposition of standards for operating reliability under § 292.110, appropriate physical and financial protection for the electric utilities is provided in the Commission's proposed rules.

Several commentors urged that the Commission require electric utilities to offer to operate in parallel with a qualifying facility. By operating in parallel, a qualifying facility is enabled automatically to export any electric energy which is not consumed by its own load. Therefore, provided that the qualifying facility complies with the standards set forth in § 292.110 regarding operating reliability, the Commission proposes in paragraph (e) that electric utilities be required to offer to operate in parallel with a qualifying facility.

§ 292.105 *Rates for purchases.*

Section 210(b) of PURPA provides that in requiring any electric utility to purchase electric energy from a qualifying facility, the Commission must insure that the rates for such purchases be just and reasonable to the electric consumers of the purchasing utility, in the public interest, nondiscriminatory to qualifying facilities, and that they not exceed the incremental costs of alternative electric energy (the costs of energy, which, but for the purchase, the utility would generate from another source).

Types of Purchases

In implementing this statutory standard, it is helpful to review industry practice respecting sales between utilities. Sales of electric power are ordinarily classified as either firm sales, where the seller provides power at the customer's request, or non-firm power sales, where the seller and not the buyer makes the decision whether or not power is to be available. Rates for firm power purchases include payments for the cost of fuel and operating expenses, and also for the fixed costs associated with the construction of generating units needed to provide power at the purchaser's discretion. The degree of certainty of deliverability required to constitute "firm power" can ordinarily be obtained only if a utility has several generating units and adequate reserve capacity. The capacity payment, or demand charge, will reflect the cost of the utility's generating units and the

[1] Staff discussion paper, *supra*, at 10-14.

associated costs of assuring that firm power will be available on demand.

In contrast, the ability to provide electric power at the selling utility's discretion imposes no requirement for the construction of capacity on the seller. In order to provide power to customers at the seller's discretion, the selling utility needs only to provide for the cost of operating its generating units. These costs, called "energy" costs, ordinarily are the ones associated with non-firm sales of power.

Purchases of power from qualifying facilities will fall somewhere on the continuum between these two types of electric service. Thus, for example, wind machines that furnish power only when wind velocity exceeds twelve miles per hour may be so uncertain in availability of output as only to permit a utility to avoid generating an equivalent amount of energy. The utility must continue to provide capacity that is available to meet the needs of its customers. Rates for such sporadic purchases should thus be based on the utility system's avoided incremental cost of energy (system lambda), and not based on avoided capacity.

On the other hand, photovoltaic cells, although subject to some uncertainty in power output, have the general advantage of providing their maximum power coincident with the system peak when used on a summer peaking system. The value of such power is greater to the utility than power delivered during off-peak periods. Since the need for capacity is based on system peaks, the qualifying facility's coincidence with the system peak should be reflected in the allowance of some capacity value and an energy component that reflects the avoided energy costs at the time of the peak.

A facility burning municipal waste or biomass can operate more predictably and reliably than solar or wind systems. It can schedule its outages during times when demand on the utility's system is low. If such a unit demonstrates a degree of reliability that would permit the utility to defer or avoid construction of a generating unit or the purchase of firm power from another utility, then the rate for such a purchase should be based on the avoidance of both energy and the capacity costs.

In order to be able to defer or cancel the construction of new generating units, a utility must obtain a commitment, sufficiently ahead of the lead time for the construction of its own new capacity, that provides contractual or other legally enforceable assurances that capacity from alternative sources will be available. If a qualifying facility makes such a commitment, the Commission believes that, as a matter of both policy and interpretation of section 210, the qualifying facility is entitled to receive rates based on the utility's avoided costs resulting from the capacity the qualifying facility supplies. Moreover, if a cogenerator or small power producer were permitted to receive only the energy (fuel, and operating and maintenance) expenses which the purchasing utility can avoid—while the cogenerator or small power producer must himself invest in new, and often highly capital-intensive, machinery—these potential sources of energy may go undeveloped. In light of the Commission's statutory obligation to encourage cogeneration and small power production, the Commission believe that a proper interpretation of "the incremental costs of alternative electric energy" requires that, when purchases of energy can substitute for intermediate, or base-load, the rate to the cogenerator or small power producer include the net avoided capacity and energy costs.

If a qualifying facility opts to receive rates based on avoided energy costs, such rates should reflect the energy costs of the electric utility's units which otherwise would have been operated. The Commission believes that there are a variety of acceptable ways to carry out this policy at the State level. The general concept here is that rates for purchases from the qualifying facility would be based on the highest energy cost unit then operating. The qualifying facility would continue to be dispatched until the cost of energy from the utility's generating unit with the highest energy costs is lower than the price at which the qualifying facility wishes to sell.

The Commission neither expects nor requires that the determination of utilities' avoided costs will be so precise. By definition, these costs are based on estimates of costs which would be incurred if certain events were to take place. Electric rates are ordinarily calculated on the basis of averaging. So long as a rate for purchases reasonably accounts for the avoided costs, and does not fail to provide the required encouragement of cogeneration and small power production, it will be considered as implementing these rules.

Paragraph (a) therefore provides that the statutory requirements regarding rates for purchases of energy and capacity from a qualifying facility are satisfied if the rate reflects the avoided costs resulting from such a purchase as determined on the basis of the cost of energy and capacity set forth pursuant to § 292.103(b) or (c).

Method of Implementation

The Commission is required under section 210 of PURPA to prescribe rules requiring electric utilities to offer to sell electric energy to and purchase electric energy from qualifying facilities. Paragraphs (b) and (c) of section 210 set forth the standards regarding the rate at which such purchases and sales shall be made. The implementation of Commission rules promulgating these standards is reserved to the State regulatory authorities and non-regulated utilities, which are required under section 210(f) to implement the Commission's rules.

One major area of concern expressed in comments received from electric utilities, cogenerators and small power producers, and State regulatory authorities has been that the Commission's rules should state general principles sufficient to leave the states and non-regulated utilities flexibility.[1] The basis for this recommendation is the need for experimentation in a new technological area and in an area that is subject to a variety of State procedures, the diverse nature of cogeneration and small power production systems, and the differences in the costs of energy and capacity on individual electric systems. As a result, while we herein propose that, for example, capacity costs must be paid if a utility can actually avoid the construction or purchase of capacity, our rules will not dictate the method by which such a payment is to be determined. Rather the Commission proposes to leave the selection of a methodology to the States and nonregulated electric utilities with the understanding that should a State or nonregulated utility not fulfill the intent and purposes of our rules and of section 210 of PURPA, the Commission and others have available the enforcement power set forth in section 210(h) of PURPA to assure compliance. Additionally, the Commission is authorized to revise these rules in the future to provide greater specificity to these rules if that is necessary.

Paragraph (b) requires electric utilities, on request of a qualifying facility, to promulgate a tariff or other method for establishing rates for purchases from qualifying facilities of ten kilowatts or less. In Docket No. RM79-54 the Commission proposed a minimum size limitation for qualifying facilities of ten kilowatts. However,

[1] Comments of American Electric Power, filed August 1, 1979, at 2-3; Comments of Electric Consumer Resource Council (ELCON), filed August 1, 1979, at 6; Comments of the National Association of Regulatory Utility Commissioners (NARUC), filed August 1, 1979, at 2-5.

comments received in response to that proposed rulemaking indicate that such a limitation could hamper the development of auxiliary solar and wind power units. Without finally determining that question in this rulemaking, it appears to the Commission that the burden of interconnected operation on both utilities and qualifying facilities can be minimized if standard tariffs are used.

Some utilities already have such tariffs in effect. For units of ten kilowatts or less, it is likely that few changes in the utility's distribution system would be required. For example, an electric utility might offer to permit certain customers to reverse their electric meters, thus permitting consumption by the customer. While the Commission will deal more extensively with the matter of a size limitation for qualifying facilities in its final rule in Docket No. RM79-54, the Commission solicits comment here on the merits of requiring utilities to promulgate tariffs for qualifying facilities of ten kilowatts of less.

Paragraph (c) concerns a problem arising in the implementation of the concept of avoided costs. At the time that a qualifying facility delivers electric energy to an electric utility, that utility can determine its system lambda and thus calculate the costs it can avoid by making the purchase. Subparagraph (1) therefore provides rates for purchases made on an "as available" basis may be based on the purchasing utility's avoided energy costs.

In order to establish certainty of future revenue, a qualifying facility might seek to obtain a contract from a utility providing that the utility will pay a certain price for energy from a qualifying facility, under specified terms and conditions. Indeed, a qualifying facility desiring to obtain capacity credit must provide the purchasing utility with assurance that such capacity will continue to be available.

In the case of future purchases pursuant to a legally enforceable obligation, the utility's avoided energy or capacity costs may be based on the costs of production facilities which are not built and for which the only available cost data are estimates. When the qualifying facility actually supplies electricy, the utility's avoided costs may deviate from these estimated figures. The Commission believes that these potential deviations are a normal result of risk allocation resulting from contractual commitments or other legal obligations, and believes that they must be permitted if the Commission is to fulfill its mandate to encourage cogeneration and small power production. Accordingly, subparagraph (2) provides that rates for such purchases may be based on future estimated utility costs of energy or capacity regardless of whether these estimated costs actually track the actual costs that are incurred.

Paragraph (d) sets forth factors on the basis of which the State regulatory authority or nonregulated utility should determine a utility's avoided costs. These principles relate both to the quality of power available from the qualifying facility and its ability to displace or replace energy and capacity on the utility's system.

Subparagraph (1) deals with the availability of capacity from a qualifying facility during system daily and seasonal peak periods. If a qualifying facility can provide energy to a utility during peak periods when the electric utility is running its most expensive generating units, this energy has a higher value to the utility than energy supplied during offpeak periods during which only units with lower running costs are operating. Ideally, the rates for purchases would reflect the cost in the purchasing utility's system at the precise moment when such energy is supplied. The metering equipment that would be required to ascertain these times of delivery with the requisite specificity may be either unavailable or prohibitively expensive. To the extent that such metering equipment is available, however, the State or nonregulated utility should take into account the time at which the purchase from a qualifying facility is made.

Clauses (i), (ii), (iii), (iv), and (v) deal with the reliability of a qualifying facility. When an electric utility provides power from its own generating units or from those of another electric utility, it normally controls the production of such power from a central location. The ability to so control power production enhances a utility's ability to respond to changes in demand and thereby enhances the value of that power to the utility. A qualifying facility may be able to enter into an arrangement with the utility which gives the utility the advantage of dispatching the facility.[8]

Clause (ii) refers to a qualifying facility's ability and willingness to provide power and energy during system emergencies. Section 292.109 of these proposed regulations concerns the provision of electric services during system emergencies. It provides that, to the extent that a qualifying facility is willing to forego its own use of energy during system emergencies and provide power to a utility's system, the rate for purchases from the qualifying facility should reflect the value of that service. Small power production and cogeneration facilities could provide significant back-up capability to electric systems during emergencies. One benefit of the encouragement of interconnected cogeneration and small power production may be to increase overall system reliability during such emergency conditions. Any such benefit should be reflected in the rate for purchases from such qualifying facilities.

Clause (iii) deals with periods during which a qualifying facility is unable to provide power. Electric utilities schedule maintenance outages for their own generating units at periods during which demand is low. If a qualifying facility can similarly schedule its maintenance outages during periods of low demand, or during periods in which a utility's capacity will be adequate to handle existing demand, it will enable the utility to avoid the necessity to provide redundant capacity. With regard to forced or unscheduled outages, addressed in clause (iv), it is clear that a utility cannot avoid the construction or purchase of capacity if it is likely that the qualifying facility which would replace such capacity may go out of service during the period when the utility needs its power to meet demand. Based on estimated and demonstrated reliability of the qualifying facility, the rate for purchases from a qualifying facility should be adjusted to reflect its forced and scheduled outage rate.

Subclause (v) refers to the lenght of time during which the qualifying facility has contractually or otherwise guaranteed that it will supply energy or capacity to the electric utility. A utility-owned generating unit normally will supply power for the life of the plant, or until it is replaced by more efficient capacity. In contrast, a cogeneration or small power production unit might cease to produce power as a result of changes in the industry or in the industrial processes utilized. Accordingly, the value of service from the qualifying facility to the electric utility will be affected by the degree to which the qualifying facility contractually insures that it will continue to provide power. In order to provide capacity value to an electric utility a qualifying facility need not necessarily agree to provide power for the life of the plant. A utility's generation expansion plans normally include temporary purchases of firm power from other utilities in years preceeding the addition of a major

[8] See comments of Hawaiian Electric Company, filed July 27, 1979, at 2.

generation unit. If a qualifying facility contracts to deliver power, for example, for a one year period, it may enable the purchasing utility to avoid entering into a bulk power purchase arrangement with another utility. The rate for such a purchase should thus be based on the price that such power is purchased, or can be expected to be purchased, based upon bona fide offers from another utility.

Subparagraph (2) concerns the relationship of energy or capacity from a qualifying facility to the purchasing electric utility's need for such energy or capacity. If an electric utility has sufficient capacity to meet its demands and is not planning to add any new capacity to its system, then the availability of capacity from qualifying facilities will not immediately enable the utility to avoid any capacity costs.[10] This is not to say that electric utilities with systems which have excess capacity need not make purchases from qualifying facilities, qualifying facilities may obtain payment for the avoided energy costs on a purchasing utility's system. Utility systems with excess capacity normally have intermediate or peaking units which use fossil fuel. As a result, during peak hours the energy costs on the systems are high, and thus the rate to a qualifying utility from which the electric utility purchases energy should similarly be high. In addition, an electric utility system with excess capacity may nevertheless plan to add new, more efficient capacity to its system. If purchases from qualifying facilities enable a utility to defer or avoid these new planned capacity additions the rate for such purchases should reflect the avoided costs of these additions.

Clause (i) of subparagraph (2) refers to the aggregate capability of capacity from qualifying facilities to displace existing or planned utility capacity. In some instances, the small amounts of capacity provided from qualifying facilities taken individually might not enable a purchasing utility to defer or avoid scheduled capacity additions or purchases. The aggregate capability of such purchases, may, however, be sufficient to permit the deferral or avoidance of a capacity addition. Moreover, while an individual qualifying facility may not provide the equivalent of firm power to the electric utility, the diversity of these facilities may collectively reflect the equivalent of firm power. The States and nonregulated utilities should attempt to devise rate mechanisms which will appropriately compensate qualifying facilities whose aggregate capacity enables the purchasing utility to defer or avoid capacity additions.

Clause (ii) refers to the fact that the lead time associated with the addition of capacity from qualifying facilities may be less than the lead time that would have been required if the purchasing utility had constructed its own generating unit. Such reduced lead time might produce savings in the utility's total power production cost.

Subparagraph (3) addresses the cost of savings resulting from line losses. In determining an appropriate rate for purchases from a qualifying facility the rate should reflect the cost savings actually accruing to the electric utility. If energy produced from a qualifying facility undergoes line losses such that the delivered power is not equivalent to the source of power it replaces, then the qualifying facility should be reimbursed only for the equivalent amount. If the load served by the qualifying facility is closer to the qualifying facility than it is to the utility, it is possible that there may be net savings resulting from reduced line losses. In such cases, the rates should be adjusted upwards.

Subparagraph (4) provides that an electric utility will not be required to purchase energy and capacity from qualifying facilities during periods in which such purchases might result in net increased operating costs to the electric utility. Identification of these periods will be made by the State regulatory authority which has jurisdiction over the utility or by the nonregulated electric utilities. Comments received in response to the Staff discussion paper noted that "if, for example, during low load periods, a utility were operating a nuclear plant as its most expensive unit, and were forced to cut back output from such a unit in order to accommodate a purchase from a qualifying facility, the utility would experience increased costs in increasing the output from the nuclear facility when the system demand increases."[11]

Thus, because the avoided cost is zero or actually involves expense to the utility, requiring the utility to purchase energy from a qualifying facility during such a period would not be just and reasonable to the consumers of the electric utility, because it would result in increased costs to the system's rate payers. Under the proposed § 202.104(a) an electric utility would not be required to make energy purchases during such a period.

Tax Issues

The Statement of the Committee of Conference states that

> * * * the examination of the level of rates which should apply to the purchase by the utility of the cogenerator's or the small power producer's power should not be burdened by the same examination as are utility rate applications to determine what is the just and reasonable rate that they should receive for their electric power.

We note that section 301(b)(2) of the Energy Tax Act of 1978 [12] made eligible for increased business investment tax credit certain property that may be used by small power producers or cogenerators. However, section 301(b)(2)(D) excludes from such eligibility property "which is public utility property (within the meaning of section 46(f)(5) of the Internal Revenue Code of 1954)." [13] As a result, if a qualifying facility were to be classified as a public utility under section 46(f)(5) of the Internal Revenue Code, it would not be eligible for the increased investment tax credit otherwise available.

The Commission notes that a recent change [14] in Treasury Department regulations amended the definition of the exclusion "public utility property" for purposes of eligibility for the investment tax credit so as to exclude [from the definition] property used in the business of the furnishing or sale of electric energy if the rates are not subject to regulation that fixes a rate of return on investment. Prior to the change, any rate regulation made property subject thereto (and involved in the furnishing or sale of energy) public utility property.

The Commission observes that the rates for purchases set forth in this rulemaking for purchases of energy from qualifying facilities are *not* based on a rate of return on investment. As a result, the Commission believes that property owned by qualifying facilities should not be classified as public utility property under section 46(f)(5) of the Internal Revenue Code of 1954. If such property is not classified as public utility property, the qualifying facility will be eligible to receive the additional investment tax credit set out in section 301(b) of the Energy Tax Act of 1978. The Commission wishes to express its opinion on this matter in an effort to further encourage cogeneration and small power production by means of this rulemaking process.

[10] Such availability may, however, permit the utility to advance the retirement of its least effective units.

[11] Comments of Commonwealth Edison Company, filed August 1, 1979 at 4.

[12] Pub. L. No. 95-618, 92 U.S.C. §§ 46, 48, November 9, 1978.

[13] 21 U.S.C. § 46(c)(3)(D).

[14] Treasury Reg. § 1.46-3(g)(2), T.D. 7602 (March 23, 1979).

§ 292.106 Rates for sales.

Section 210(c) of PURPA provides that the rules requiring utilities to sell electric energy to qualifying facilities shall ensure that the rates for such sales are just and reasonable, in the public interest, and nondiscriminatory against qualifying cogenerators or small power producers. As noted in the Staff discussion paper,[15] this section contemplates rates formulated on the basis of traditional ratemaking (*i.e.*, cost of service) concepts.

Paragraph (a) provides that rates for sales from electric utilities to qualifying facilities shall not be discriminatory against such facilities in comparison to rates to other customers served by the electric utility. Paragraph (a) also states that such rates shall be just and reasonable and in the public interest.

A qualifying facility is entitled to purchase back-up or standby power at a rate which reflects the probability that the qualifying facility will or will not contribute to the need for utility capacity and the use of utility capacity.[16] Thus, when the utility must reserve capacity to provide service to a qualifying facility, the costs associated with that reservation are properly recoverable from the qualifying facility if the utility would assess these costs to non-generating customers.[17]

Paragraph (b) provides that electric utilities must provide to qualifying facilities any services which would be provided by the electric utility to a retail customer who does not have his own generation.

Normally the determination of an appropriate rate to a class of customers is based on an examination of load data relating to such customers. At this time, however, even those utilities which have good load data regarding existing customer classes do not have load data regarding usage by qualifying cogeneration and small power production facilities. Until such data is collected, the Commission believes that rates for sales to qualifying facilities should be at least as favorable as those available to utility customers having comparable load characteristics or falling under similar load classifications.

Paragraph (c) sets forth certain types of service which electric utilities are required to provide to qualifying facilities even if such types of service are not provided to other customers. These types of service are: supplementary power, back-up power, interruptible power, and maintenance power. The Commission believes that this requirement is necessary to encourage small power production and cogeneration.

Supplementary power is power used by a facility in addition to that which it ordinarily generates on its own. Thus, a cogeneration facility with a capacity of ten megawatts might require five more megawatts from a utility on a continuing basis to meet its electric load of fifteen megawatts. The five megawatts supplied by the electric utility would normally be provided as supplementary power.

Back-up power is power available to replace power generated by a facility's own generation equipment. In the example provided above, a cogeneration facility might contract with an electric utility for the utility to have available ten megawatts, should the cogenerator's units experience an outage.

Interruptible power is power supplied by a utility on an "as available" basis. Because interruptible power normally is sold at a lower rate, a qualifying facility may wish to cease operations when utility power is interrupted rather than pay the higher rate necessary to assure firm supplementary supplies.

Maintenance power is supplied during scheduled outages. By prearrangement, a utility can agree to provide such power during periods when the utility's other loads are low, thereby avoiding the imposition of large demands on the utility during peak periods.

Paragraphs (d)(1) and (d)(2) provide that rates for sales of back-up or maintenance power shall not be based on the assumption that forced outages or other reductions in output by each qualifying facility on an electric utility's system will occur simultaneously or on the assumption that they will occur during the system peak. Like other customers, qualifying facilities have intraclass diversity. In addition, because of the variations in size and load requirements among various types of qualifying facilities, such facilities will have interclass diversity.

The effect of such diversity is that an electric utility supplying back-up or maintenance power to qualifying facilities will not have to plan for reserve capacity to serve such facilities on the assumption that every facility will use power at the same moment. The Commission believes that probabilistic analysis of their demand will show that a utility need not reserve capacity on a one-to-one basis to meet back-up requirements. Paragraphs (d)(1) and (d)(2) prohibit utilities from basing rates on the unsupported assumption that qualifying facilities will impose demands simultaneously and at system peak.

Paragraph (d)(3) provides that rates for sales from an electric utility to a qualifying facility shall take into account the extent to which a qualifying facility has coordinated periods of scheduled maintenance with an electric utility. If a qualifying facility coordinates periods of outage with an electric utility the demand that the qualifying facility imposes on the utility's system will not create capacity requirements to the same extent that such a demand would create if the utility were required to provide such service without prior notice.

§ 292.107 Simultaneous purchase and sale.

Section 292.107 deals with the situation referred to in the Staff discussion paper in which a cogenerator or small power producer desires to sell all of its output to a utility and purchase all of its needs from the utility simultaneously. As observed in the Staff discussion paper, and efficient use of society's resources requires that when there is a need for additional capacity, and a utility's customer can construct a new plant more cheaply than the utility can, he should be encouraged to do so.[18] A qualifying facility may have previously used a portion of its electric output to supply its own power needs. That it chose to generate its own electric power, rather than purchase such power from an electric utility, indicates that there were sufficient economic incentives to so act. To permit such a facility to sell that portion of its electric output to the utility at the utility's avoided costs and replace that electricity from the electric utility at non-incremental (and presumably lower) rates would increase the purchased power costs of the pruchasing utility and thus would increase the rates charged to the utility's other customers. The Commission believes that it is not necessary to the encouragement of cogeneration and small power production that a qualifying facility be permitted to obtain avoided cost-based rates for that portion of its electric output. Accordingly, the Commission proposes that for energy generated by a new facility or by capacity installed after the date of issuance of these rules, a qualifying facility be permitted to sell its output at rates established under the section 210(b) of PURPA pricing mechanism while simultaneously purchasing electric energy from a utility pursuant to its retail rate schedules.

[15] Staff discussion paper, *supra*, at 14-20.

[16] Comments of ELCON (Electricity Consumer Resource Council), filed August 1, 1979, at 3.

[17] Comments of Consumers Power Company, filed August 1, 1979, at 3.

[18] Staff discussion paper, *supra* at 24-25.

§ 292.108 Costs of interconnection.

Paragraph (a) defines "interconnection costs" as the reasonable costs of connection, switching, metering, transmission, safety provisions and other costs to an electric utility resulting from interconnected operation between an electric utility and a qualifying facility.

Paragraph (b) states that each qualifying facility must reimburse any electric utility which purchases capacity or energy from the qualifying facility for any interconnection costs. These costs are limited to the net increased costs imposed on an electric utility compared to those it would have incurred had it generated the energy itself or purchased an equivalent amount of energy or capacity from another source.

If, with the consent of a qualifying facility, an electric utility elects to transmit energy from the qualifying facility to another electric utility, the costs of transmission constitute interconnection costs as defined in this paragraph. Under paragraph (b), these costs must be borne by the qualifying facility unless the transmitting utility agrees to share them.

The cost responsibility of the qualifying facility was well summarized in comments by The Southern Company:

> We believe that the interconnection costs which should be addressed in the rules are those incremental costs that go beyond the cost to the system for connecting a normal (i.e., no generation) customer. These costs will include the additional relaying, switching, metering, line, and protective equipment—inclusive of equipment changeout cost—required in the general vicinity of the facility because of the customer's generation. Recognition must be given to the fact that protection goes beyond the protection of equipment and personnel of the qualifying facility and utility. The rules also must provide for the protection of other customers of the utility that may be affected by the operation of the qualifying facility.[18]

Thus, it is only the additional costs which result from interconnected operation for which the qualifying facility is responsible; if the utility would have provided retail service to the customer, those expenses may not be assessed against the qualifying facility merely because the facility is also supplying power and energy. If, however, as a result of the qualifying facility's export of power, the utility is required to install additional switching, safety or other equipment, the qualifying facility is responsible for those expenses.

Paragraph (c) provides that a qualifying facility must reimburse an electric utility which sells capacity or energy to the qualifying facility for interconnection costs resulting from such sale. Ordinarily, the service obligation of an electric utility will contain standard procedures for the allocation of interconnection costs between a retail customer and the electric utility. Paragraph (c) also provides that interconnection costs to qualifying facilities shall not be discriminatory in relation to the practices of the electric utility with regard to other retail customers.

§ 292.109 System emergencies.

Paragraph (a) provides that, except as provided under section 202(c) of the Federal Power Act or pursuant to a contract or agreement between a qualifying facility and an electric utility, no qualifying facility shall be compelled to provide energy or capacity to the electric utility during an emergency beyond the extent provided by agreement between the qualifying facility and the utility.

Many comments from cogenerators and small power producers expressed concern that, during a system emergency, they might be required to make available all of their generation to the utility. Such a requirement might interrupt industrial processes with resulting damage to equipment and manufactured goods. Many industries install their own generating equipment in order to insure that even during a system emergency, their supply of power is not interrupted. To put in jeopardy the availability of power because of the facility's ability to provide power to the system during non-emergency periods would result in the discouragement of interconnected operation and a resultant discouragement of cogeneration and small power production. The Commission therefore proposes that the qualifying utility's obligation to provide power be established through contract.

In order to receive full credit for capacity, a qualifying facility must offer power during system emergencies to the same extent that it has agreed to provide power at the purchasing utility's discretion. For example, a 30 megawatt cogenerator may require 20 megawatts for its own industrial purposes, and thus may contract to provide 10 megawatts of capacity to the purchasing utility. During an emergency, the cogenerator must provide the 10 megawatts contracted for to the utility; it need not disrupt its industrial processes by supplying its full capability of 30 megawatts. Of course, if it should so desire, a cogenerator could contractually agree to supply the full 30 megawatts during system emergencies. The availability of such additional back-up capacity should increase utility system reliability, and should be accounted for in the utility's rates for purchases from the cogenerator.

Paragraph (b) provides that an electric utility may discontinue purchases from a qualifying facility during a system emergency if such a purchase would contribute to the emergency. In addition, during system emergencies, a qualifying facility must be treated on a non-discriminatory basis—i.e., on the same basis that other customers of a similar class with similar load characteristics are treated with regard to interruption in service.

§ 292.110 Standards for operating reliability.

Section 210(a) of PURPA states that the rules requiring electric utilities to buy from and sell to qualifying facilities shall include provisions respecting minimum reliability of qualifying facilities (including reliability of such facilities during emergencies) and rules respecting reliability of electric energy service to be available to such facilities from electric utilities during emergencies. Staff's analysis presented in the discussion paper regarding reliability of a particular qualifying facility concluded that every incidence of qualifying facility reliability can be accounted for through price; namely, the less reliable a qualifying facility might be, the less it should be entitled to receive for purchases of its power by the utility. The majority of comments received regarding this issue endorsed the Staff's recommendation. Accordingly, the Commission proposes that there be no specific standard relating to the reliability in the sense of ability to provide power for qualifying facilities.

Many commentors have proposed that the Commission's rules ensure that interconnection with qualifying facilities does not disrupt system reliability. One commentor proposed that qualifying facilities must automatically disconnect from utility lines upon interruption or interference with utility service, or upon the flow of excessive current between the utility system and the non-utility generator.[19]

It is the Commission's understanding that safety equipment exists which can ensure that qualifying facilities do not energize utility lines during utility outages. This section accordingly provides that any qualifying facility may be subject to reasonable standards to ensure system safety and reliability in

[18] Comments of The Southern Company, filed July 30, 1979, at 5.

[19] Comments of Illinois Power Company, filed August 14, 1979.

interconnected operations. Each State regulatory authority and nonregulated electric utility is permitted to establish standards for interconnected operation between electric utilities and qualifying facilities. These standards may be recommended by a utility or any other person. The standards must be accompanied by a statement showing the need for the standard on the basis of system safety and operating requirements.

Subpart C

Summary of This Subpart

Rules proposed in this subpart are intended to carry out the responsibility of the Commission to encourage cogeneration and small power production by clarifying to all parties concerned the nature of the obligation to implement the Commission's rules under section 210.

In the Commission's view, section 210(f) affords the State regulatory authorities and nonregulated electric utilities great latitude in determining the manner of implementation of the Commission's rules so long as the manner chosen is reasonably designed to implement the requirements of Subpart A. The Commission recognizes that many States and individual nonregulated electric utilities have ongoing programs to encourage small power production and cogeneration. The Commission also recognizes that economic and regulatory circumstances vary from State to State and utility to utility. It is within this broad latitude, and with the recognition of the work already begun and of the variety of local conditions that the Commission proposes to promulgate its regulations requiring implementation of rules issued under section 210.

Because of the Commission's desire not to create unnecessary burdens at the State level, these proposed rules provide a procedure whereby a State regulatory authority or nonregulated electric utility may apply for a waiver if it can demonstrate that compliance with certain requirements of Subpart A is not necessary to encourage cogeneration or small power production and is not otherwise required under section 210.

Implementation

Section 210(f) of PURPA requires that within one year after the date that this Commission prescribes its rules under subsection (a), and within one year of the date any of these rules is revised, each State regulatory authority and each nonregulated electric utility, after notice and opportunity for hearing, must implement the rules or revisions thereof, as the case may be.

The obligation to implement section 210 rules is a continuing obligation which begins within one year after promulgation of such rules. The requirements to implement may be fulfilled either through (1) the enactment of laws or regulations at the State level, (2) by application on a case-by-case basis by the State regulatory authority, or nonregulated utility, of the rules adopted by the Commission, or (3) by any other action reasonably designed to implement the Commission's rules. In the first case, implementation would consist of the issuance of rules after notice, and an opportunity for a hearing. In the second case, the State regulatory authority or nonregulated utility would be required to hold hearings regarding its proposed procedure for operating on a case-by-case basis, within the one-year statutory period.

Review and Enforcement

Section 210(g) of PURPA provides one of the means of obtaining judicial review of a proceeding conducted by a State regulatory authority or nonregulated utility for purposes of implementing the Commission's rules under section 210. Under subsection (g), review may be obtained pursuant to procedures set forth in section 123 of PURPA. This section contains provisions with regard to judicial review and enforcement of determinations made by State regulatory authorities and nonregulated utilities under Subtitle A, B, or C of Title I in the appropriate State court. These provisions also apply to review of any action taken to implement the rules under section 210. This means that persons can bring actions in State court to require the State regulatory authorities or nonregulated utilities to implement these regulations. Section 123(c)(2) of PURPA restates the requirements of section 123(c)(1) as they apply to Federal agencies. This distinction between Federal agencies and non-Federal agencies also applies to review and enforcement of the implementation of the rules under section 210.

Finally, the Commission believes that review and enforcement of implementation under section 210 of PURPA, can consist not only of review and enforcement as to whether the State regulatory authority or nonregulated electric utility has conducted the initial implementation properly—namely put into effect regulations implementing section 210 rules or procedures for that implementation, after notice and an opportunity for a hearing. It can also consist of review and enforcement with regard to the application by a State regulatory authority or nonregulated electric utility, on a case-by-case basis, of its regulations or any other provision it may have adopted to implement the Commission's rules under section 210.

Section 210(h)(2)(A) of PURPA states that the Commission may enforce regulations under section 210(f). The Congress has provided not only for private causes of action in State courts to obtain judicial review and enforcement of the implementation of the Commission's rules under section 210, but has also given to the Commission that authority.

Section-by-Section Analysis

§ 292.301 Implementation by State regulatory authorities and nonregulated utilities.

Paragraph (a) of § 292.301 sets forth the obligation of each State regulatory authority to commence implementation of Subpart A within one year of the date these rules take effect. In complying with this paragraph the State regulatory authorities are required to provide for notice and opportunity for public hearing. As described in the summary of this part, such implementation may consist of the adoption of the Commission's rules, an undertaking to resolve disputes between qualifying facilities and electric utilities arising under Subpart A, or any other action reasonably designed to implement Subpart A.

This section does not cover one provision of Subpart A which is not required to implemented by the State regulatory authority or nonregulated electric utility. This provision is § 292.103, the implementation of which is subject to § 292.302, which will be discussed below.

Subsection (b) sets forth the obligation of each nonregulated electric utility to commence, after notice and opportunity for public hearing, implementation of Subpart A. The nonregulated electric utilities, being both the regulator and the utility subject to the regulation, may satisfy the obligation to commence implementation of Subpart A through issuance of regulations, an undertaking to comply with Subpart A, or any other action reasonably designed to implement that subpart. Paragraph (c) sets forth a reporting requirement under which each State regulatory authority and nonregulated electric utility is to file with the Commission not later than one year after these rules take effect, a report describing the manner in which it is proceeding to implement Subpart A.

§ 292.302 Implementation of reporting objectives.

The obligation to comply with § 292.103 is imposed directly on electric utilities. This is different from the rest of Subpart A where the obligation to act is imposed on the State regulatory authority or nonregulated electric utility in its role as regulator. The Commission is exercising its authority under section 133 of PURPA to require this reporting.

Any electric utility which fails to comply with the requirements of § 292.103(b) is subject to the same penalties as it might receive as a result of a failure to comply with the requirements of the Commission's regulations issued under section 133 of PURPA. As stated earlier in this preamble, the data required by § 292.103 will form the basis for the rates for purchases; § 292.103 is thus a critical element in the program this Commission is providing. The Commission believes that, with regard to utilities subject to section 133 of PURPA, the Commission may exercise its authority under section 133 to require the data required by § 292.102(b) on the basis that the Commission finds such information necessary to allow determination of the costs associated with providing electric services. With regard to utilities not subject to section 133, if they fail to provide the data called for in § 292.103(c), the Commission may compel its production under the Federal Power Act and other statutes which give the Commission authority to require reporting of this data.

§ 292.303 Waivers.

Paragraph (a) provides for a procedure by which any State regulatory authority or nonregulated electric utility may apply for a waiver from the application of any of the requirements of Subpart A other than § 292.103. This provision is included in recognition of the need for the Commission to afford flexibility to the States and nonregulated utilities to implement the Commission's rules under section 210.

Paragraph (b) provides that any electric utility subject to the requirements of § 292.103(c) may apply to the Commission for a waiver from the application of such requirements. This provision is included to afford to the Commission flexibility to enforce the obligations of § 292.103(c) so that it may consider the burden which may be placed on the utility by application of this section.

Subpart D—Exemption of Qualifying Small Power Production and Cogeneration Facilities From Certain Federal and State Laws and Regulations

§ 292.401 Exemptions for qualifying facilities from the Federal Power Act.

Section 210(e) of PURPA states that the Commission shall prescribe rules under which qualifying facilities are exempt in part from the Federal Power Act, from the Public Utility Holding Company Act of 1935, from State laws and regulations respecting the rates, or respecting the financial or organizational regulation, of electric utilities, or from any combination of the foregoing, if the Commission determines such exemption is necessary to encourage cogeneration and small power production. As noted in the Staff discussion paper, the Congress intended the Commission to make liberal use of its exemption authority in order to remove the disincentive of utility-type regulation. The Commission believes that broad exemption is appropriate.

Section 210(e)(2) of PURPA provides that the Commission is not authorized to exempt small power production facilities of 30 to 80 megawatt capacity from any of these laws. An exception is made for small power production facilities using biomass. Such facilities between 30 and 80 megawatts may be exempted from the Public Utility Holding Company Act of 1935 and from State regulations but may not be exempted from the Federal Power Act.

Paragraph (a) sets forth those facilities eligible for exemption. Paragraph (b) provides that facilities described in paragraph (a) shall be exempted from all but certain specified sections of the Federal Power Act.

Section 210(e)(3)(C) of PURPA provides that no qualifying facility may be exempted from any license or permit requirement under Part I of the Federal Power Act. Accordingly, the Commission proposes not to exempt qualifying facilities from Part I of the Federal Power Act. The Commission recently issued simplified procedures for obtaining water power licenses for hydroelectric projects of 1.5 megawatts or less, and has issued proposed regulations to expedite licensing of existing facilities.[21]

As noted in the discussion paper, cogenerators and small power production facilities could be the subject of an order under section 202(c) of the Federal Power Act requiring them to provide energy if the Economic Regulatory Administration determines that an emergency situation exists. Because application of this section is limited to emergency situations and is not affected by the fact that a facility attains qualifying status or engages in interchanges with an electric utility, the Commission proposes that qualifying facilities not be exempted from section 202(c) of the Act.

Sections 203, 204, 205, 206, 208, 301, 302 and 304 of the Act reflect traditional rate regulation or regulation of securities of public utilities. The Commission proposes that qualifying facilities be exempted from these sections of the Federal Power Act.

Section 305(c) of the Act imposes certain reporting requirements on interlocking directorates. The Commission proposes that any person who otherwise is requred to file a report regarding interlocking positions not be exempted from such requirement because he or she is also a director or officer of a qualifying facility.

Finally, the enforcement provisions of Part III will continue to apply with respect to the sections of the Federal Power Act from which qualifying facilities are not exempt.

§ 292.402 Exemptions for qualifying facilities from the Public Utility Holding Company Act and Certain State Laws and Regulations.

Under section 210(e) of PURPA the Commission can exempt qualifying facilities from regulation under the Public Utility Holding Company Act of 1935 and State laws and regulations concerning rates or financial organizations. Only cogeneration facilities and small power production facilities of 30 megawatts or less may be exempted from both of these laws, with the exception that any qualifying small power production facility (i.e., up to 80 megawatts) using biomass as a primary energy source can be exempted from these laws.

The Staff discussion paper recommended that, where a qualifying facility is subjected to more stringent regulation than other companies solely by reason of the fact that it is engaged in the production of electric energy, these more stringent requirements should be eased through exemption of qualifying facilities. By excluding any qualifying facility from the definition of an "electric utility company" under section 79 (b)(3) of the Public Utility Holding Company Act of 1935, such facilities would be removed from Public Utility Holding Company Act regulation which is applied exclusively to electric utility companies. Moreover, by excluding

[21] *See* Order No. 11, Simplified Procedures for Certain Water Power Licenses, Docket No. RM79-9, issued September 5, 1978, and Application for License for Major Project—Existing Dam, Docket No. RM79-36, 44 F.R. 24095 (April 21, 1979).

qualifying facilities from this definition, parent companies of qualifying facilities would not be subject to additional regulation as a result of electric activities of their subsidiaries. The Commission therefore believes that in order to encourage cogeneration and small power production it is necessary to exempt cogenerators and small power producers from the provisions of the Public Utility Holding Company Act of 1935.

Accordingly, paragraph (b) states that no qualifying facility shall be considered to be an "electric utility company", as defined in section 79 (b)(3) of the Public Utility Holding Company Act of 1935.

Section 210(e) of PURPA states that qualifying facilities which may be exempted from the Public Utility Holding Company Act may also be exempted from State laws and regulations respecting the rates or respecting the financial or organization regulation of electric utilities. The Staff discussion paper sets forth two approaches to be taken to exemption from State law. One would be to analyze the laws of each State and apply the exemptions citing specific sections of State law and regulations. The second approach discussed would be to make a broad proscription from State laws and regulations which would conflict with the State's implementation of the Commission's rules under section 210.

All of the comments received recommended the broader approach. The Commission believes that such broad exemption is necessary to encourage cogeneration or small power production. Accordingly, subparagraph (c)(1) provides that any qualifying facility shall be exempt from State laws and regulations respecting rates for sales of electric energy to electric utilities, and from financial and organizational regulation of electric utilities.

Subparagraph (c)(2) provides that, upon request of a State regulatory authority a nonregulated electric utility, the Commission may limit the applicability of the broad exemption from the State laws. This provision is intended to add flexibility to the exemption.

The Commission perceives that there may be instances in which a qualifying facility would wish to have an interpretation of whether or not it is subject to a particular State law in order to remove any uncertainty. Under subparagraph (c)(2), the Commission may determine whether a qualifying facility is exempt from a particular State law or regulation.

APPENDIX G
QUALIFYING STATUS

That portion of the preamble to the final rules on small power production and cogeneration facilities that pertains to "Qualifying Status" (Docket No. RM 79-54, Fed. Reg. 17959 (March 20, 1980)) appears on the following pages.

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

18 CFR Part 292

[Docket No. RM79-54]

Small Power Production and Cogeneration Facilities—Qualifying Status

AGENCY: Federal Energy Regulatory Commission, DOE.

ACTION: Final rule.

SUMMARY: The Federal Energy Regulatory Commission hereby adopts regulations that implement section 201 of the Public Utility Regulatory Policies Act of 1978. These rules set forth criteria and procedures by which small power producers and cogeneration facilities can obtain qualifying status to receive the rate benefits and exemptions set forth in the Commission's rules implementing section 210 of PURPA, which were issued on February 19, 1980 (45 FR 12214, February 25, 1980).

EFFECTIVE DATE: March 13, 1980

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

March 13, 1980.

Section 201 of the Public Utility Regulatory Policies Act of 1978 (PURPA) mandates that the Federal Energy Regulatory Commission (Commission) prescribe rules under which small power production facilities and cogeneration facilities can obtain "qualifying" status, and thus become eligible for the rates and exemptions set forth in the Commission's rules implementing section 210 of PURPA.

Section 201 of PURPA[1] defines a "small power production facility" as a facility which:

(1) Produces electric energy solely by the use, as a primary energy source, of biomass, waste, renewable resources, or any combination thereof; and

(2) Has a power production capacity which, together with any other facilities located at the same site (as determined by the Commission), is not greater than 80 megawatts.

A cogeneration facility is defined as a facility which produces electric energy and steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating, or cooling purposes.[2]

Thus, cogeneration facilities simultaneously produce two forms of useful energy, namely electric power and heat. Cogeneration facilities can use significantly less fuel to produce electricity and steam (or other forms of energy) than would be needed to produce the two separately. By using fuels more efficiently, cogeneration facilities can make a significant contribution to the Nation's effort to conserve its energy resources.

Small power production facilities as defined in the Act use biomass, waste, or renewable resources, including wind, solar energy and water, to produce electric power. Reliance on these sources of energy can reduce the need to consume fossil fuels to generate electric power.

Prior to the enactment of PURPA, a cogenerator or small power producer seeking to establish interconnected operation with a utility faced three major obstacles. First, a utility was not generally willing to purchase the electric output or was not willing to pay an appropriate rate. Secondly, some utilities charged discriminatorily high rates for back-up service to cogenerators and small power producers. Thirdly, a cogenerator or small power producer which provided electricity to a utility's grid ran the risk of being considered an electric utility and thus being subjected to extensive State and Federal regulation.

Sections 201 and 210 of PURPA are designed to remove these obstacles. Each electric utility is required under section 210 to offer to purchase available electric energy from cogeneration and small power production facilities which obtain qualifying status under section 201 of PURPA, and to provide back-up power and other services to such facilities on a non-discriminatory basis. For such purchases, electric utilities are required to pay rates which are just and reasonable to the ratepayers of the utility, which are in the public interest, and which do not discriminate against cogenerators and small power producers. Section 210(e) of PURPA provides that the Commission can exempt qualifying facilities from State regulation regarding utility rates and financial organization, from Federal regulation under the Federal Power Act (other than licensing under Part I), and from the Public Utility Holding Company Act. Finally, under section 206(c)(3) of the Natural Gas Policy Act of 1978 (NGPA), the Commission may exempt qualifying cogeneration facilities from the incremental pricing program under Title II of the NGPA.

In this rulemaking, the Commission sets forth requirements for qualifying cogeneration and small power production facilities and procedures by which such facilities may obtain qualification. Rules implementing section 210 of PURPA have been prescribed in Docket No. RM79-55.[3]

Any qualifying facility is eligible for the exemptions set forth in Subpart F of this part of the Commission's regulations immediately upon issuance of these rules. With regard to the rate benefits for qualifying facilities found in Subpart C of this part, however, the statute provides that the State regulatory authorities and nonregulated electric utilities will have up to one year to implement the Commission's rules. Therefore, the latest date by which qualifying facilities will be eligible to receive these PURPA-derived rate benefits is February 19, 1981.

I. Procedural History

On June 27, 1979, the Commission issued proposed rules in this docket [4] to determine which cogeneration and small power production facilities may become "qualifying" cogeneration or small power production facilities under section 201 of PURPA.

Public hearings on RM79-54 were held in San Francisco on July 23, 1979, Chicago on July 27, 1979, and Washington, D.C. on July 30, 1979. Written comments were also received.

On October 18, 1979, the Commission issued a Notice of Proposed Rulemaking Under Section 210 of PURPA in Docket No. RM79-55.[5] On October 19, 1979, the Commission made available its preliminary Environmental Assessment (EA) of the proposed rules in Docket Nos. RM79-54 and RM79-55.

In a Request for Further Comments,[6] the Commission requested further public

[1] Section 3(17)(A) of the Federal Power Act.

[2] Section 3(18)(A) of the Federal Power Act.

[3] 18 C.F.R. Part 292, Subparts A, C, D and F; 45 FR 12214 (Feb. 25, 1980).

[4] 44 FR 38872 (July 3, 1979).

[5] 44 FR 61190 (Oct. 24, 1979).

[6] 44 FR 61977 (Oct. 29, 1979).

comment on both proposed rules, and on the findings set forth in the preliminary EA. In order to obtain the data, views, and arguments of interested persons, the Commission Staff held public hearings in Seattle on November 16, 1979, in New York City on November 26, 1979, in Denver on November 30, 1979, and in Washington, D.C. on December 4 and 5, 1979. The Commission also received written comment. All of the comments were considered in the formulation of this final rule.

II. Summary

These rules set forth criteria and procedures by which cogeneration and small power production facilities can obtain qualifying status to receive the rate benefits and exemptions set forth in the Commission's rules implementing section 210 of PURPA.

The rules in this docket permit qualification without a need for specific Commission action. They also make available an optional procedure under which, should it prove desirable, a facility can gain certification as a "qualifying facility." For qualifying small power production facilities, the efficiency standards contained in the proposed rule have been eliminated, and the permitted level of oil, natural gas and coal use for startup, testing, flame stabilization, and operation during outages of the primary energy supply system has been increased and the form of that requirement has been simplified. For qualifying cogeneration facilities, efficiency standards still must be met by certain new facilities using oil or gas. In addition, certain operating standards have been adopted for purposes of assuring that a qualifying cogenerator is a *bona fide* cogenerator.

III. Section-by-Section Analysis

§ 292.201 Scope

Section 292.201 describes the scope of Subpart B of the Commission's rules. Subpart B provides the criteria for and manner of qualification of small power production and cogeneration facilities.

§ 292.202 Definitions

This section contains definitions applicable to this subpart of the Commission's rules.

Paragraph (a) defines "biomass" as any organic material not derived from fossil fuels. The proposed rule defined "biomass" as plant materials which are obtained from cultivation, or harvested from naturally occurring vegetation without significant depletion of the resource. Commenters recommended that the Commission expand the definition to include any organic material not derived from fossil fuels. The commenters stated that most studies dealing with energy recovery from organic material other than fossil fuels have included municipal (and most industrial) solid waste within the more general category of biomass.

The Commission agrees with the commenters who urged the Commission to expand the scope of this definition. The Commission observes that applying a narrow definition of biomass might hinder development of small power production facilities between 30 megawatts and 80 megawatts in capacity. Use of a definition of biomass which includes by-products of the manufacturing, harvesting, and growing of agricultural products, including wood, will enable a greater number of small power producers between 30 and 80 megawatts to take advantage of the exemption from State law and regulation regarding rates and financial organization of electric utilities and from the Public Utility Holding Company Act, as provided in subpart F of this part of the Commission's rules.

One commenter questioned whether the Commission meant to include peat within the definition of biomass. The Commission wishes to clarify this point by stating that peat is included in the definition of biomass for purposes of this subpart.

Paragraph (b) defines "waste" as any by-product materials other than biomass. In most instances, waste is a by-product of fossil fuels. Examples of waste include petroleum coke, refinery gas, and plastics.

Paragraph (c) defines "cogeneration facility" 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.

Several commenters requested clarification of the applicability of the Commission's rules to cogeneration in the residential sector. The issue arises because of the absence of any explicit mention of residential energy use in the statutory language. The Commission's definition of cogeneration facility tracks the statutory language in that residential use is not specifically identified.

The Commission intends that residential sector cogeneration be included. The Commission believes that the phrase "heating, or cooling purposes" applies to any industrial, commercial, or residential heating or cooling purpose. The Commission has not found anything in the legislative history of PURPA which suggests that the terms "industrial" and "commercial" were intended to modify "heating, or cooling". Separate mention of "residential" use is unnecessary because heating and cooling adequately encompass the residential use of thermal energy. In the industrial sector, thermal energy in the form of process steam is used as an input to many industrial processes. The separate identification of industrial and heating uses is necessary since not all industrial uses of thermal energy are for heating or cooling purposes. In addition, in many instances, commercial heating purposes include heating of residential apartment buildings, so that the exclusion of residential heating and cooling from this program would be difficult to accomplish even if such purpose were within the realm of statutory construction.

Sequential Use

Several commenters recommended that the Commission define cogeneration as the "combined" or "joint" production of heat and power. However, the terms "combined" or "joint" production of heat and power do not fully describe the cogeneration process. The final rules contain an explicit requirement for the sequential use of energy in cogeneration facilities. This means that rejected heat from a power production or heating process is used in another power production or heating process. It is precisely this "cascading" use of energy in sequential processes that gives rise to the energy conserving characteristic of cogeneration.

By adding the phrase "through the sequential use of energy" to the definition of cogeneration facility, the Commission makes explicit what was intended in the proposed rule. The discussions in the proposed rule relating to topping and bottoming-cycle cogeneration and the efficiency standards were expressed in the context of sequential use. Many commenters apparently recognized this fact and, in their discussions of alternative efficiency standards, compared hypothetical cogeneration systems to reference cases of noncogeneration, separate production of heat and power. Additionally the explanation of supplementary firing in the proposed rules implied that energy inputs other than supplementary firing would have to flow through both a thermal and a power production process. The explicit mention of sequential use is therefore not a new requirement; it is a clarification of intent.

Several comments filed in this rulemaking in response to the Commission's November 9, 1979 Interim

Rule [1] raised questions about how the sequential use concept would apply in certain situations. One commenter noted that many industries commonly route steam directly from their boilers to processes without expansion in a turbine. This practice is simply the raising of process steam; it is not cogeneration. The fact that some other steam from the same boiler is routed to cogeneration equipment does not mean that all steam from the boiler is used for cogeneration. The coincident raising of process steam relates to the cogeneration rules in two ways. First, any energy expended in raising such steam should not be entered into any efficiency calculations. Secondly, natural gas used for raising process steam is not rendered exempt from incremental pricing solely because the boiler may also supply steam for cogeneration.

A commenter also questioned the applicability of the sequential use test to a combustion turbine coupled with a waste heat recovery boiler. The commenter noted that the boiler could not capture all of the heat in the turbine exhaust and thus not all of the turbine's power could be said to be sequential. The Commission does not adopt this interpretation. The high efficiency of combustion turbine/waste heat recovery boilers derives from the fact that a substantial quantity of waste heat is recovered. The Commission does not require that all heat be recovered. Strictly speaking, some of the available thermal energy in a steam turbine cogeneration system is lost (due to pressure drop in piping along with convective and radiative heat losses) before the steam is delivered to a useful process. As long as any applicable efficiency and operating standards are met, the Commission is not concerned with energy losses within the system.

A final issue concerning the definition of a cogeneration facility involves combined-cycle electric generation plants. Such plants burn gaseous or liquid fuels in a combustion turbine and use the turbine exhaust to raise steam. The steam is directed through a fully condensing steam turbine. Only electricity is produced, albeit through the sequential use of energy. The Commission is of the opinion that combined-cycle electric generation plants are not cogeneration facilities, since only one form of energy is produced.

[1] Interim Rule for Qualification of Gas-fired Cogeneration Facilities for Purposes of the Incremental Pricing Program, 44 FR 65744 (Nov. 15, 1979)

In paragraph (d), the Commission has added the definition of "topping-cycle cogeneration facility" which is a cogeneration facility in which the energy input to the facility is first used to produce power, and the reject heat from power production is then used to provide useful heat.

Paragraph (e) has been added to define a "bottoming-cycle cogeneration facility" as a cogeneration facility in which the energy input to the system is first applied to a useful heating process, and the residual heat emerging from the process is then used for power production.

The Commission has added paragraph (f), which defines "supplementary firing" as an energy input to the cogeneration facility used only in the thermal process of a topping-cycle cogeneration facility, or only in the electric generating process of a bottoming-cycle cogeneration facility.

The distinguishing characteristic of supplementary firing as defined here is that none of the energy is used sequentially. In topping cycles, supplementary firing is commonly practiced by introducing natural gas or oil into the hot exhaust of a combustion turbine. The turbine exhaust will typically have sufficient oxygen to support combustion of the added fuel. The resulting heat can either be used directly in a high-temperature direct heat application or used to raise process steam. Supplementary firing is also possible in steam turbine cogeneration facilities, through reheat of steam which exists from a turbine. In all cases, the added energy is not used to produce power as well as useful thermal energy.

In a bottoming-cycle cogeneration facility, supplementary firing can be used to increase the output of the power production equipment by firing additional fuel in the thermal process exhaust. Again, the added energy is not used sequentially for both power production and a thermal process.

Commission recognizes that there will be questions as to the application of the standards of this subpart to complex facilities which may contain combinations of topping and bottoming-cycle cogeneration equipment. The optional procedure for qualification under § 292.207 is available specifically to help any cogenerator who wishes clarification as to whether his facility would qualify.

Paragraph (g) adds the definition of "useful power output" of a cogeneration facility as the electrical or mechanical energy made available for use, exclusive of any such energy used in the power production process. Although electric power output is required of a qualifying facility, any additional mechanical power may be taken into account in determining "useful power output".

Paragraph (h) has been added to define "useful thermal energy output" of a topping-cycle cogeneration facility as the thermal energy made available for use in any industrial or commercial process, or used in any heating or cooling application.

The proposed rules contained a definition of the "useful energy output of a thermal process." The term was intended to reflect the heat actually used in a thermal process rather than heat made available for use. The proposed term found application in proposed efficiency standards for both topping and bottoming cycles. Only a few commenters mentioned the proposed term, but they did raise serious questions about the feasibility (and desirability) of performing the necessary calculations. It was argued that computation of the "useful energy output of a thermal process" in accordance with the proposed definition would be difficult and would yield unintended results—particularly in the case of bottoming cycles.

The Commission notes that in its final rules the efficiency of bottoming-cycle facilities is evaluated only with respect to supplementary firing. No evaluation of efficiency is now required for the thermal process of a bottoming cycle.

For new topping-cycle facilities burning natural gas or oil, however, the degree to which heat is recovered and put to use remains a concern. The final rules contain a definition of "useful thermal energy output" which eliminates the problems of the proposed terminology. Under the new definition, in the case of industrial or commercial process use of thermal energy, the thermal energy made available for use in the process may be considered useful thermal energy output of a cogeneration facility. Thus an industrial process which uses steam or heat need not be analyzed for the purpose of determining what fraction of the energy delivered to the process is actually put to use.

In the case of space heating and cooling, water heating, and related heating and cooling applications, a cogeneration facility's useful thermal energy output is the energy actually used in the application. For example, a cogeneration facility may consist of a combustion turbine with exhaust heat recovery used for space heating. In this example, the useful thermal energy output would be the heat recovered from the exhaust and actually used for space heating, not all of the heat available in the exhaust.

Paragraph (i) defines "total energy output" of a topping-cycle cogeneration facility as the sum of the useful power output and useful thermal energy output.

Paragraph (j) defines the term "total energy input" as the total energy of all forms supplied from external sources, other than supplementary firing, to the facility.

The total energy input to a cogeneration facility includes all fuels and renewable resources used in the facility. Energy taken from one part of the facility and used in another part of the cogeneration process does not meet the test of being supplied from an external source. For example, boiler feedwater pumping, heating, and deaerating are energy uses internal to the cogeneration facility and are not to be considered as either energy inputs or energy outputs.

The Commission has added the definition of natural gas in paragraph (k) as it is defined in the Natural Gas Act, which is natural gas unmixed, or any mixture of natural gas and artificial gas. This is intended to cover natural gas supplied by any natural gas company as defined in the Natural Gas Act or any distribution company selling natural gas. As a result, the efficiency standards under § 292.205 only apply with respect to the natural gas so defined and do not apply with regard to any synthetic gas which is unmixed in the pipeline, or mixed by the end-user, such as coke oven gas, blast furnace gas, or gas derived from coal or shale oil.

The definition of "oil" has been added in paragraph (l) to mean crude oil, residual fuel oil, natural gas liquids, or any refined petroleum products. This definition does not include refinery-off gas, petroleum coke, or other waste products of the refinery process.

Finally, the Commission has provided in paragraph (m) that, for purposes of this subpart, in the case of energy in the form of natural gas or oil, energy input is to be measured by the lower heating value of such fuel.

In the proposed rules, energy inputs in the form of fossil fuels were to be evaluated in terms of the lower heating value of such fuels. A few commenters took issue with the use of lower heating values and recommended that higher heating values be specified in the final rule.

Lower heating values were specified in the proposed rules in recognition of the fact that practical cogeneration systems cannot recover and use the latent heat of water vapor formed in the combustion of hydrocarbon fuels. By specifying that energy input to a facility excludes energy that could not be recovered, the Commission hoped that the proposed energy efficiency standards would be easier to understand and apply. The Commission also wished to apply a standard that would be more uniform in the treatment of natural gas and oil. Owing to the difference in chemical composition, more latent, unrecoverable heat is lost in the combustion of gas as compared to oil. The Commission did not wish indirectly to make qualification more difficult for natural gas-fired cogeneration facilities by requiring a higher level of sensible heat recovery.

The commenters opposing the use of lower heating values generally argued that customary practice is to use higher heating values. The Commission does not find this argument compelling. Both heating values of fuels can easily be found in handbooks. Moreover, if a cogenerator wishes to use the higher heating value of fossil fuel inputs for computing efficiency, the Commission has no objection. Any facility qualifying with efficiency so computed would certainly qualify under the more lenient rules set forth. As a result, the Commission does not believe it appropriate to change this aspect of the proposed rule in this final rule.

§ 292.203 General requirements for qualification.

The proposed rule provided that any person seeking qualifying status for a facility had to initiate discussions with the utility with which it wishes to interconnect and file an application with this Commission. The proposed rule set forth the contents of an application for certification which included technical information describing the facility, a summary of discussions required to be held between the applicant and the affected electric utility, and a description of the equity ownership of the facility. In addition, a small power producer was required to provide information about its primary energy source and its location. A cogenerator was required to submit information describing the energy input and output of the facility in both the heat engines and thermal processes.

The majority of comments favored eliminating the filing requirement either for all qualifying facilities or for specific classes of qualifying facilities. Several commenters suggested that the complexity, delays, and uncertainties created by a case-by-case qualification procedure would act as signficant economic disincentive to owners of smaller facilities. Other commenters recommended exempting smaller facilities, such as facilities with an aggregate electrical capacity of up to 250 or 500 kW, from formal filing requirements. A utility [8] stated that the application procedure does not serve any party or the public's interest. This commenter preferred to see regulations on an "exception" basis where the utility, State regulatory authority or other interested party could object to the granting of qualifying status.

The Commission finds substantial merit in these comments. The Commission believes the initiation of purchase and sale arrangements, pursuant to Subpart C of this part of the Commission's rules, will necessitate the flow of information between potential qualifying facilities and affected electric utilities. The Commission therefore notes that the requirements contained in the proposed rule both for discussions between a potential qualifying facility and the utility with which it wishes to interconnect and for the filing of substantial information with this Commission are not necessary.

For example, one commenter [9] suggested modifying the pre-application negotiation requirements to require that an applicant initiate discussions with the utility prior to filing if the cogenerator or small power producer is intending to negotiate an individual contract. However, if the applicant merely wants to establish his eligibility for an already-published rate schedule for qualifying facilities, this commenter claims that there would be nothing to negotiate, and thus no reason to require that discussions be held. It was asserted that notification to the utility at the time of application would suffice in such cases. The Commission believes that this is what would and should happen without any requirement from the Commission. In addition, the Commission believes that, as a practical matter, an electric utility, which is notified by a qualifying facility that it wishes to interconnect with the utility in order that the utility may purchase the power produced by the facility, will need to know the nature of the qualifying facility's expected purchases and sales so as to be able to arrange safe and reliable interconnected operation at appropriate rates.

As a result, the requirement for case-by-case qualification has been eliminated. Section 292.207(a) of this rule provides that any small power production or cogeneration facility which meets the requirements for qualification set forth in that section is a qualifying facility.

However, the Commission has provided an optional procedure in § 292.207(b) of this rule whereby an

[8] Pacific Gas and Electric Company.
[9] U.S. Department of Energy.

application for Commission certification of qualifying status may be filed at the discretion of the owner or operator of the facility.

There was some confusion in the comments as to who actually qualifies under this program. The facility qualifies and that entitles the owners and operators of the facility to receive the benefits of qualification under this part. The benefits of qualification under this part, however, are only with respect to the qualifying facility. For example, the owner or operator of a qualifying cogeneration facility is entitled to require the utility to sell power to his qualifying facility in compliance with the terms of § 292.305 as implemented by the State regulatory authority. The owner or operator has no entitlement to require such rate treatment for the utility's sales to other facilities he may own or operate which are not qualifying facilities. Similarly, his sales to the utility will be exempt under Subpart F of this part from certain Federal and State regulation only to the extent the sales are from a qualifying facility.

§ 292.203(a) Small power production facilities.

Section 292.203(a) provides that a small power production facility is a qualifying facility if it meets three criteria.

The first requirement is that the power production capacity of the facility, together with the capacity of any other facilities that use the same energy resource and are owned by the same person and are located at the same site, may not exceed 80 megawatts. The method by which the capacity is determined is described in this preamble under § 292.204.

The second requirement is that the primary energy source of the facility must be biomass, waste, renewable resources, or any combination thereof. This means that more than 50 percent of the total energy input must be in these categories. In addition, the aggregate use of oil, natural gas, and coal by the facility may not exceed 25 percent of its total energy input during any calendar year. These fuel use criteria are discussed further in § 292.204(b).

Thirdly, a small power production facility will not be eligible for qualifying status if more than 50 percent of the equity interest in the facility is held by an electric utility or public utility holding company or any person owned by either. Section 292.206 describes this ownership test in greater detail.

One commenter raised the question as to whether a facility is included within the definition of a small power production facility in the statute, and hence the Commission's regulations. If the facility is only part of the process of producing electric energy; namely, raising steam. This commenter produces steam using municipal solid waste, which steam is then sold through an adjoining wall to an electric utility to run through a turbine and produce electricity. In a sense, this facility indirectly produces electric energy. It is unclear to the Commission how this steam-raising facility would benefit from the regulations under section 210. It is not selling electric energy to the utility; it may be buying some electric energy from the utility; and it seems unlikely that it would be subject to electric utility regulation. Therefore, the Commission does not, at this time, see the need to allow qualification for these kinds of facilities, without judging as to whether the Commission could allow such qualification under the statute.

§ 292.203(b) Cogeneration facilities.

Section 292.203(b) provides that, with the exception of new diesel cogeneration facilities, a cogeneration facility may be a qualifying facility if it satisfies two requirements. First, it must meet the same ownership test as that required for a small power production facility. Secondly, it must meet any operating and efficiency standards described in § 292.205(a) and (b).

In addition, cogeneration facilities which wish to qualify for the incremental pricing exemption permitted under Title II of the Natural Gas Policy Act of 1978 (NGPA) and Part 282 of the Commission's rules must meet the requirements stated in § 292.205(c).

Section 201 of PURPA provides that "a 'qualifying cogeneration facility' means a facility which—(i) the Commission determines, by rule, meets such requirements (including requirements respecting minimum size, fuel use, and fuel efficiency) as the Commission may, by rule, prescribe * * *". Several comments contended that the statutory language *requires* the Commission to establish standards relating to all of the mentioned criteria. The legislative history of this section indicates that the phrase "as the Commission may * * *" was added in conference; it did not appear in either the House or Senate bill.[10] The plain meaning of the provision, as adopted by the Conferees, is that a qualifying cogeneration facility must meet requirements that the Commission, in its discretion, establishes. These may, but need not, include requirements respecting minimum size, fuel use, and fuel efficiency.

The Commission received numerous comments from utilities recommending that oil- and natural gas-fired cogeneration facilities not be considered eligible for qualifying status. These commenters generally argued that encouragement of such facilities would be contrary to Congressional intent and national energy policy. Comments were also received expressing strong support for the policy presented in the proposed rule, which did not impose a restriction on oil and natural gas use.

The Commission believes the policy expressed in the proposed rules is consistent with Congressional intent and national energy policy. Had Congress not intended that the benefits of qualifying status be extended to oil- and natural gas-fired cogeneration facilities, the statute or Joint Explanatory Statement of the Committee on Conference ("Conference Report") would have contained a restriction on fuel use similar to that which is provided for small power producers. The Congress knew that cogeneration facilities typically use natural gas and oil. In addition, the Natural Gas Policy Act of 1978 contains an express exemption from the incremental pricing program for natural gas used in qualifying cogeneration facilities, which further indicates Congressional recognition that cogeneration facilities use natural gas.

Thirdly, the Congress enacted the Powerplant and Industrial Fuel Use Act (PIFUA) at the same time as PURPA. PIFUA provides authority to the Secretary of Energy to restrict the use of oil and gas in cogeneration facilities. Therefore, the Commission does not believe it necessary or appropriate to require an additional layer of fuel use regulation on technologies which the Commission is charged with encouraging and for which another agency has authority to restrict fuel use.

The Commission also notes that the findings in section 2 of PURPA specifically require "a program providing for * * * increased efficiency in the use of facilities and resources * * *". To the extent that oil- and natural gas-fired cogeneration facilities provide for more efficient use of these resources, the Commission believes that the benefits of qualifying status should be extended to them.

Some of the comments stated that permitting qualifying cogeneration facilities to use oil, especially in diesel engines, will use up available air quality increments, thereby preventing the conversion of large utility oil-fired

[10] See Comparative Print to H.R. 4018, Public Utility Regulatory Policies Act, 72, 95th Cong., 2d Sess. (1978)

boilers to coal. As noted above, the Commission believes it is not proper to address this fuel use issue within the context of this program. However, the Commission has not made a final determination regarding the environmental effects of new diesel cogeneration facilities, and is therefore including in these regulations an interim exclusion from qualification of this technology until work on an environmental impact statement has been completed.

§ 292.203(c) Interim exclusion.

Section 292.203(c) provides that, pending further Commission action, any cogeneration facility which is a new diesel cogeneration facility may not be a qualifying facility. A new diesel cogeneration facility is described as a cogeneration facility which derives its useful power output from a diesel engine, the installation of which began on or after March 13, 1980.

Through the issuance of these rules and the rules implementing section 210 of PURPA, the Commission intends to carry out the legislative mandate to provide encouragement to the energy technologies included within the program. The Commission is required under the National Environmental Policy Act of 1969 (NEPA) to take the environmental effects of this encouragement into account. The Commission has circulated and received public comment on a preliminary Environmental Assessment (EA) of these rules which was issued on October 19, 1979.

(See Appendix I)

Environmental Findings

The identification of the environmental effects associated with a "major Federal action"[1] is not ordinarily a difficult task. These effects typically are those associated with the construction and operation of a particular project in which the Federal government is playing a major role, such as by funding or licensing. In contrast, these rules and the rules implementing section 210 of PURPA do not authorize or fund any particular projects; moreover, they do not authorize or forbid the use of certain fuels. Instead, they provide certain economic incentives to, and remove other disincentives (*i.e.*, assurance of a market for electrical production and exemption from utility regulation) from certain classes of technologies. It is important to note that, even without these rules, these technologies have been, and would continue to be, utilized. The environmental effects associated with this "base-case" level of development cannot be ascribed to these rules. Instead, the proper way to isolate and identify the effects of these rules is to predict the "base-case" (no PURPA) level of development, and determine the environmental effects of that level of development, and compare it to the effects of the projected development with these rules in place. Under this approach, any changes from the base-case review are properly classified as effects of these rules.

The first step used in determining the environmental effects of these rules was to compare, by region, representative electric utility rates with the cost of generating electricity by use of a qualifying facility. This comparison established which technologies would be economically viable. Next, the costs of generating electricity by the facility were compared to an estimate of utilities' avoided costs on a regional basis. If, by receiving the avoided cost for its output, a facility would operate economically, it was considered to have been "PURPA-induced." Avoided cost is the maximum price inducement under this program.

For technologies which would, as a result of PURPA, be economic, regional levels of market penetration were established on the basis of site availability and manufacturing capability. Finally, the environmental effects associated with the predicted level of development were calculated.

The Environmental Assessment accompanying this order describes the environmental effects associated with all of the types of technologies encompassed in section 201 of PURPA. The quantitative effects associated with the predicted market penetration of each technology were then estimated.

The Environmental Assessment includes an extensive market-penetration analysis of each technology eligible for qualification under the Commission's proposed rules and of the aggregate of all of these technologies. Since the proposed rules took the broadest view of which technologies would be eligible for qualification, the analysis covers all technologies, which, under the statute, may be eligible for qualification. On the basis of this analysis, the Commission has estimated the amount of capacity expected to be induced on a regional and national basis through January 1, 1995, assuming the broadest implementation of this program.

This analysis shows that this program may result in the construction of 12,000 MW of new capacity by qualifying facilities by 1995, and the reduction in utility construction of 10,000 MW of new capacity. It also indicates a possible fuel savings in 1995 of 40,000 bbl/day of oil, 40 000 bbl/day equivalent of natural gas, and 120,000 bbl/day equivalent of coal, as the use of renewable resources increases, and more efficient use is made of both renewable and non-renewable resources.

The Environmental Assessment finds that there will be both adverse and beneficial environmental effects associated with this program. Some of the technologies produce certain air emissions, water effluents, and other environmental effects. However, material and thermal by-products of industrial, commercial, agricultural and other activities that would otherwise contribute to environmental degradation will be consumed or otherwise utilized in the production of useful energy under this program.

In addition, the Environmental Assessment indicates that utilities will be able to defer or cancel construction of certain facilities, originally scheduled for construction between 1980–1995. These deferrals or cancellations are expected to include some eleven 500 MW coal-fired steam plants, one 1,000 MW nuclear plant, a number of 75 MW gas turbines, and certain large scale hydropower and combined cycle installations. The environmental impacts associated with the construction and operation of these facilities would be avoided.

Finally, the market-penetration analysis in the Environmental Assessment indicates that the incentives provided by this program will not significantly affect the development of some technologies while they will significantly encourage others. For example, it appears that this program will significantly encourage small hydroelectric power development. Water power project impacts are usually site-specific and localized, with no cumulative impact on a national basis, and few impacts of regional significance. The Commission notes that hydroelectric projects in almost all cases must be licensed by the Commission. License applications are evaluated on a case-by-case basis to determine the significance of the environmental impacts and the need for a site-specific EIS. In addition, impacts of individual projects on a waterway may be cumulative, and the Commission reviews each project in relation to others on the waterway under the "comprehensive development" standard of section 10(a) of the Federal Power Act. Therefore, even though only the

[1] Section 102(2)(c) of the National Environmental Policy Act of 1969, Pub. L. 91-190

general nature of the kinds of environmental effects can be evaluated in this programmatic environmental assessment of national scope, requirements of the National Environmental Policy Act of 1969 (NEPA) will be met as each application is filed.

For certain other technologies, the level of environmental effects associated with the PURPA-induced market penetration of these technologies will not approach a significant level in the near term.[12] The Commission will monitor the PURPA-induced market penetration of these technologies carefully.

In the public comments, evidence was presented indicating that the environmental consequences of qualifying new diesel cogeneration may be significant in the near term, in certain geographic areas, even with a moderate level of market penetration. Therefore, the Commission believes that it is appropriate to delay action on qualification of new diesel cogeneration until completion of an EIS. The Commission will circulate a draft EIS within the next month and conclude its analysis within 90 days of circulation.

The Commission acknowledges the difficulties in identifying the levels of the environmental effects associated with the programmatic encouragement and deregulation of various types of technologies as are present under this program. There are, of course, a great number of uncertainties in any such analysis. However, the Commission is required under NEPA to assess these effects to the fullest extent possible.

On the basis of its environmental review, the Commission has made the following findings in its Environmental Assessment:

—The program, taken as a whole, will not have a significant impact on the quality of the human environment within the meaning of section 102 of NEPA. The Commission also has noted certain beneficial environmental impacts that may result from this program.

—Where the expected market penetration of technologies which could qualify under this program is not expected to cause any significant environmental effects in the near term, the Commission will allow qualification of these technologies without delay.

—Where a technology is expected to cause significant environmental effects in the near term, an EIS covering the technology will be prepared and considered before the Commission acts on qualification.

—The Commission is establishing a monitoring program to alert the Commission to the likelihood or extent of market penetration by technologies which qualify under this program. This is designed to produce information that may be relevant to taking appropriate environmental protection action in the future before the program reaches a stage of investment or commitment to implementation likely to determine subsequent development or restrict later alternatives.

[12] See Figures 3 through 7 in the Environmental Assessment.

§ 292.204(a) Criteria for qualifying small power production facilities.

Section 292.204 sets forth qualification requirements for small power production facilities. Paragraph (a) implements the statutory requirement that the power production capacity of a small power production facility not exceed 80 megawatts at any site. In order to implement this limitation, the proposed rules provided that the capacity of all facilities which use the same energy resource, are owned by the same person, and are located within one mile of each other be added together. Commenters recommended eliminating the site criterion because the important criterion is not siting but that facilities use alternate energy resources. The Commission recognizes the difficulty in prescribing site criteria for purposes of calculation of the size of the facility. However, the Commission is obligated under the statute to limit qualifying status for small power production facilities to those facilities which have "a power production capacity which, together with any other facilities located at the same site (as determined by the Commission), is not greater than 80 megawatts." [13]

In subparagraph (2)(i), the Commission defines "facilities located at the same site" as facilities located within one mile of the facility for which qualification is sought. Hydroelectric facilities (within this distance) are considered to be located at the same site only if the facilities use water from the same impoundment for power generation. The Commission views this additional provision for hydroelectric facilities as necessary because use of the one-mile rule alone might discourage the development of facilities on separate waterways which are within one mile of each other or of closely-spaced impoundments on an individual stream.

The Commission also notes that in some instances hydropower resources may be developed without an impoundment. In this case, the one-mile rule would be the only factor in determining the size of a facility.

In response to comments, the Commission has added subparagraph (2)(ii) which requires, for purposes of determining the distance between facilities, that any measurement shall be made from the electrical generating equipment of a facility. The comments noted that some facilities may include equipment for gathering energy to be used in the facility which may extend up to a number of miles from the generating facility. The Commission believes that the one-mile limit should be measured from the generating facilities.

[13] Section 3(17)(A)(i) of the Federal Power Act.

The proposed rule enabled an applicant to rebut the presumption that facilities located within one mile of the facility for which qualification is sought, using the same energy resource and owned by the same person, should be considered to be located at the same site. The Commission believes that the requirement to rebut the presumption was burdensome and confusing. Therefore, the final rule has been revised to enable a small power producer or cogenerator to apply to the Commission for a waiver for good cause.

The proposed rule also contained a minimum size limit of 10 kW for qualification of small power production facilities. This proposal was based on the Commission's view that facilities smaller than 10 kW were unlikely to be economically viable, and that the administrative burden of arranging interconnected operation with them would be greater than the benefits they would provide to the system at this time. This proposal attracted considerable comment, both at the public hearings and in written recommendations. The majority of the comments objected to the minimum size provision and indicated that a number of facilities smaller than 10 kW are being built and that some units are presently commercially available. Commenters also stated that these facilities can be equipped with electrical protective equipment which permits safe interconnected operation.

Several utilities, on the other hand, suggested raising the minimum size limit, arguing that small facilities are not cost-effective. The Commission notes that the rules implementing section 210 of PURPA (Subpart C of this part) require that standard rates be provided for facilities up to 100 kW. Those rules together with the self-qualification provisions of these rules greatly ease the administrative burdens on all parties. The Commission also notes that the rules implementing section 210 of PURPA require that a qualifying facility is obligated to pay any interconnection costs assessed against it by the State regulatory authority or nonregulated electric utility. Since under these rules the utility is not obligated to incur any additional costs by reason of interconnected operation with these facilities, the minimum size limitation

effect of imposing energy efficiency requirements which are not appropriate for some technologies. Commenters stated that a much simpler test than the proposed standards would be adequate for the task. Two commenters suggested a simple test regarding the portion of energy developed in the form of useful heat or steam. One potential qualifying facility [14] suggested that:

> for geothermal energy cogeneration facilities, the energy utilization by the non-electric processes must average on an annual basis at least 5 percent of the energy consumption of the heat engine.

Another commenter suggested "a minimum of 10% of the total steam generation must be used as steam send-out." [15]

Generally, commenters did not oppose a requirement for distinguishing a *bona fide* cogeneration facility from essentially single purpose facilities, even while taking exception to the form and substance of the proposed efficiency standards. One commenter [16] stated:

> A significant portion of the steam, heat or energy available from the cogeneration unit should be used in an industrial, commercial, heating or cooling applications. The concept of an operator of a large thermal generating station applying condensing techniques taking a tiny side stream out to heat a tool shed so that cogeneration could be claimed should be prohibited.

The Department of Energy [17] recommended the inclusion of a requirement that some minimal fractions of useful heat and power be produced.

Consequently, the Commission has decided that a simple means of identifying *bona fide* cogeneration facilities is appropriate. The *bona fide* test has been modified to specify only that a minimum proportion of the useful energy output be useful thermal energy output without regard to the energy input. The standard requires that at least 5 percent of a qualifying cogeneration facility's total energy output be in the form of useful thermal energy output. Compliance with this standard is to be based on estimated annual energy output.

Further, this basic *bona fide* test is applicable only to topping-cycle facilities. "Tokenism" is of concern for bottoming-cycle facilities chiefly with regard to the opportunity for qualifying facilities to obtain exemption from incremental pricing under the Natural Gas Policy Act. Natural gas used by bottoming-cycle facilities (other than in supplementary firing), will, as a general matter, be exempt from incremental pricing only to the extent that reject heat is utilized in power production. In view of these provisions, no separate *bona fide* test is necessary.

§ 292.205(a)(2)(i) Efficiency standards for topping-cycle facilities.

The proposed rules set forth efficiency standards for oil- and gas-fired topping-cycle cogeneration facilities. The efficiency standards were composed of three separate criteria. The first criterion required, in effect, that no less than 20 percent of the energy input to the facility be converted to mechanical or electrical power. The second criterion specified that 45 percent of the heat rejected from the heat engine (a term used in the proposed rule to describe the power production process) be put to use in a thermal process. The final criterion required at least 60 percent of the energy input to the facility be used either as power or useful heat.

Comments on the proposed efficiency standards criticized both their form and substance. Many commenters stated that the 20 percent efficiency criterion for heat engines was overly restrictive. These commenters pointed out that most steam turbines would not be able to meet the standard with conventional steam inlet and exhaust pressures. Many such steam turbine cogeneration systems would represent energy efficient systems when compared to the standard practice of separate steam and electricity production.

Fewer comments were directed toward the efficiency tests concerning heat recovery and overall efficiency. The comments that were made, however, indicated a need for revision. One commenter indicated that the heat recovery standard would exclude diesel-powered cogeneration facilities even though many such facilities would be highly energy efficient. Comments on the overall efficiency standards were mixed. One commenter suggested that the standard was too lenient. Another commenter recommended that the proposed 60 percent test be reduced to 50 percent, although this commenter appeared to be principally concerned with the application of efficiency standards to the use of renewable resources and not to the use of scarce fuels.

Five commenters addressed the question of efficiency standards for oil- and natural gas-fired cogeneration in a comprehensive manner by proposing a complete set of alternative standards. Four of these five commenters advanced proposals based on energy balance criteria, similar in theory to the proposed standards. A proposal by the New York State Energy Office closely resembled the proposed rule. Under this plan, individual tests for heat engine efficiency, heat recovery, and overall efficiency would still be required. The overall efficiency test would remain at 60 percent, but the heat engine and heat recovery tests would be reduced to 10 percent. This was the only comment in favor of maintaining separate efficiency standards for power production and heat recovery. The criticism of that scheme has caused the Commission to adopt an alternative efficiency standard which better takes into account the variety of technologies which qualify under this rule. The essential issue concerns the proper level of the overall efficiency standard which should be applied in individual cases.

Three commenters proposed efficiency standards relating solely to overall efficiency. A utility [18] recommended a single standard of 50 percent overall efficiency, which was the most lenient standard suggested. This proposal, furthermore, would be related to design efficiency and not actual or estimated operating efficiency. Another commenter [19] recommended a single standard of 65 percent overall efficiency. This standard would be slightly stricter than the first proposal discussed for all facilities except those producing predominantly either electricity or heat. Finally, the Commonwealth of Massachusetts Office of Energy Resources proposed a standard which would weigh thermal energy with only half the value of electricity.

The latter two comments are both supported by well-reasoned examples of cogeneration engineering practice. The Massachusetts proposal is relatively more stringent for facilities producing more heat than electricity, and more lenient for facilities producing much of their output as electricity. The basis for this proposal is a comparison of cogeneration systems based on steam turbine, combustion turbine, and diesel engine prime movers with oil-burning non-cogeneration technology. Essentially, it is argued that any cogeneration facility meeting the proposed efficiency standard will be more efficient than any combination of separately generated electricity and steam using efficient, state-of-the-art technology. By requiring that the sum of useful power output and one-half the

[14] Republic Geothermal, Inc.

[15] Raytheon Corporation

[16] This commenter, Potlatch Corporation, proposed as a test that at least 25 percent of the steam, or useful energy, available be applied on an annual basis in industrial, commercial, heating or cooling uses.

[17] The Economic Regulatory Administration

[18] Brooklyn Union Gas Company.

[19] Mechanical Technology Incorporated.

has been eliminated to allow individual decisions to govern whether or not to install these very small facilities.

§ 292.204(b) Fuel Use.

Paragraph (b) sets forth fuel use requirements for qualifying small power production facilities. In the proposed rule, the term "primary energy source" was not defined. Several commenters noted this fact and asked that the final rules specify a definition for the term. Subparagraph (1) provides that the primary energy source of the facility must be biomass, waste, renewable resources, or any combination thereof, and more than 50 percent of the total energy input must be from these sources. The Commission notes that this requirement is not intended to force small power producers to continually monitor the energy input, but rather that reasonable estimates based on sampling methods are sufficient.

Qualifying small power production facilities using biomass as a primary energy source are treated differently than are facilities using other resources for purposes of exemption from the Public Utility Holding Company Act and certain State law and regulation under section 210(e) of PURPA and under § 292.602 of the Commission's regulations. A further concern in determining a facility's primary energy source is the treatment of mixtures of biomass and waste or renewable resources. Therefore, in subparagraph (1), the Commission specifies that any primary energy source which, on the basis of its energy content, is more than 50 percent biomass shall be considered biomass. In other words, a qualifying facility may be considered biomass-fired if, on an estimated annual basis, at least half the energy input, exclusive of fossil fuel use, is biomass.

The Commission expects that this rule will extend the benefits of the biomass exemption provisions to a broad range of facilities. For example, evidence presented in this rulemaking indicated that much more than half of the energy content in municipal solid waste is due to "organic material not derived from fossil fuels," or "biomass" under the Commission's definitions. Thus, a small power production facility fired with municipal solid waste may be considered a biomass facility. The same treatment applies to facilities fired with forest-industry residues, sewage sludge, or peat.

Another aspect of what constitutes "primary energy source" is a specification of what fuels may be used in addition to the primary energy source for purposes of ignition, startup, testing, flame stabilization and control, and during equipment outages and emergencies.

Section 3(17)(B) of the Federal Power Act, as amended by section 201 of PURPA, provides that:

> "'Primary energy source' means the fuel or fuels used for the generation of electric energy except that such term does not include, as determined under rules prescribed by the Commission, in consultation with the Secretary of Energy—
> "(i) The minimum amounts of fuel required for ignition, startup, testing, flame stabilization, and control uses, and
> "(ii) The minimum amounts of fuel required to alleviate or prevent—
> "(I) Unanticipated equipment outages, and
> "(II) Emergencies, directly affecting the public health, safety, or welfare, which would result from electric power outages."

The proposed rule set forth limits for the allowable use of fossil fuels. Three separate standards were proposed: One for ignition, startup and testing; another for flame stabilization and control; and a third for fuel use during outages of the primary energy supply system. All of the proposed standards were set in terms of barrels of oil per year per megawatt of rated capacity.

The comments filed on this section generally favored less restrictive fossil fuel limitations. Several commenters noted that standards written in terms of barrels of oil were imprecise, since the energy content of a barrel of oil is not constant. Other commenters argued that separate standards for startup, flame stabilization and outages were unnecessarily burdensome. Commenters claimed that some small power production technologies would be severely constrained by one of the standards, while requiring little or no fossil fuel for other purposes. Additionally, to the extent oil and natural gas remain more expensive than other energy sources available to small power producers, there is an economic disincentive to use oil and natural gas. Thus it was argued that a single standard for allowable fossil fuel use would be more equitable and workable when dealing with a number of types of facilities. The Commission has decided to adopt this recommendation.

Many other commenters recommended that the Commission adopt alternative amounts of fossil fuel for use during outages and for other purposes. For the purpose of specifying the minimum amounts of fuel under clauses (i) and (ii) of section 3(17)(B) of the Federal Power Act, the Commission adopts in this rulemaking the standard, recommended by several commenters, that no more than 25 percent of the total energy input during any calendar year may consist of fossil fuels—namely oil, natural gas, and coal.

With this simple rule, a qualifying facility can use up to the allowed quantity of fossil fuel for purposes specified in the statute. No question remains concerning what sort of primary fuel system supply outages are within the scope of the rule. The standard does require that a small power producer be able to estimate the energy content of the primary energy source. The Commission recognizes that for some energy sources, municipal solid waste in particular, energy content is not constant. As has been stated earlier, the Commission believes that reasonable estimates will suffice for purposes of this rule. Finally, it should be noted that the fossil fuel limitation applies only to small power production facilities. Some commenters apparently regarded the limitations as equally applicable to cogeneration facilities. This is not the case.

Another issue raised by the proposed rule was the limitation of renewable resources to water used at existing dams. Commenters urged the Commission to expand the definition of renewable resources to include water used at new hydroelectric facilities. The Commission has reviewed the Conference Report and has determined that the conferees did not intend to restrict the term renewable resources to water used only at existing dams. The Commission believes that such an interpretation conflicts with the conventional use of the term "renewable resources" as including all hydroelectric sources, not just those using existing dams. Therefore, the Commission intends that the term renewable resources applies to water used at existing and new hydroelectric facilities of less than 80 megawatts.

§ 292.205 Criteria for qualifying cogeneration facilities.

§ 292.205(a)(1) Operating standards for topping-cycle cogeneration facilities.

In its Notice of Proposed Rulemaking, the Commission recognized the problem of distinguishing cogeneration facilities which achieve meaningful energy conservation from those which are merely "token" facilities, producing trivial amounts of either useful heat or power. In the proposed rules, the *bona fide* character of a facility was to be determined by minimum amounts of useful heat and power output.

The need for operating standards as a means of identifying *bona fide* cogeneration facilities drew considerable comment. Some comments indicated that this formulation had the

useful thermal output be greater than 45 percent of the facility's energy consumption, this proposal would ensure that qualifying facilities produce heat and power more efficiently than a 8500 Btu/kWh combined cycle generating station and a 90 percent efficient process steam boiler.

Moreover, this proposal appears to impact the various cogeneration technologies more equitably than the other proposed standards. The other proposals for required overall efficiency, by simply summing heat and power on an equal basis, make qualification relatively easy for steam turbine systems which produce little electricity. Cogeneration systems which produce high ratios of electricity to heat would be penalized with difficult heat recovery requirements. Yet the systems with high electricity to heat ratios have the highest "second law" energy efficiencies. Futhermore, a standard which is relatively lenient towards oil- and natural gas-fired steam cogeneration would encourage boiler fuel use of distillate oil and natural gas.

The proposal of another commenter, although considered in detail, would impact different cogeneration technologies differently and would not give assurance of energy conservation.[20]

In light of the foregoing considerations, the Commission has decided to adopt a standard in paragraph (a)(2)(i) similar to that proposed by the Massachusetts Office of Energy Resources as its standard for efficiency of new oil- and natural gas-fired topping-cycle cogeneration systems. This standard requires that for any topping-cycle cogeneration facility for which any of the energy input is natural gas or oil and the installation of which began on or after March 13, 1980,[21] the useful power output plus one-half the useful thermal energy output of the facility must be, during any calendar year, no less than 42.5 percent of the energy input of natural gas and oil to the facility. The Commission adopted a value of 42.5 percent, rather than the 45 percent recommended by the Massachusetts comments because, in the Commission's view, the 45 percent requirement appears overly restrictive for steam turbine cogeneration facilities in that very high boiler efficiencies would have been required. However, if the useful thermal energy output of any such facility is less than 15 percent of its total energy output, the useful power output plus one-half the useful thermal energy output of the facility must be no less than 45 percent of the total energy input of natural gas and oil to the facility.

Existing Versus New Cogeneration Facilities

Although the Commission has found a compelling reason to impose efficiency standards on new oil and gas burning cogeneration facilities, the situation with respect to existing facilities is different. Existing facilities are those for which the installation of the cogeneration equipment began before the Commission actions encouraging cogeneration under this program were finalized. Presumably, such facilities would continue to be installed or operated using whatever fuels they are equipped to burn, with or without the incentives of PURPA.

Allowing existing facilities to qualify will provide for more flexible operation of the facilities. Optimum efficiency of a cogeneration facility may be more easily approached through interconnected operation with an electric utility. Because of the foregoing considerations, denial of qualifying status would serve no useful purpose.

Existing cogeneration facilities burning oil or natural gas were, in large measure, installed in an environment of lower fuel prices. Such facilities may not be able to meet the higher standards now reasonable for use of scarce fuels. Yet failure to meet standards intended for new facilities should not preclude entitlement to sell power to the utility and to receive the other rate benefits, as provided under Subpart C of these rules. In addition, the denial of exemption from regulation as an electric utility may discourage cogeneration at existing facilities.

The Commission has decided against imposing any efficiency standards on existing facilities, regardless of energy source. There is no assurance that imposing standards would result in fuel savings. The opposite result is more likely, if operating cogeneration facilities are denied the benefits of interconnected operation with an electric utility. Therefore, for any cogeneration facility, the installation of which began before the date the Commission's final rules in this docket were issued, March 13, 1980, no efficiency standards are required for qualification, regardless of energy source or whether it is a topping or bottoming-cycle facility.

Efficiency To Be Based Upon Projected Annual Operation

Several commenters raised the issue of whether efficiency calculations should be based on rated performance characteristics or on expected performance over a period of time. Only half of the commenters that mentioned the issue took a position in favor of one means of computation or another. The balance of the commenters merely asked for clarification.

The Commission is persuaded that the efficiency of a cogeneration facility operating at peak production of power and heat may not necessarily correlate with the efficiency which can be practically realized. A cogeneration facility which serves a highly variable heating load may seldom be operated at peak efficiency. The efficiency standards required for new oil or natural gas cogeneration facilities are intended to assure efficient use of these premium fuels. Use of optimum or design basis circumstances for determining efficiency would not satisfy the Commission's concern. A computation based upon projected or estimated annual operations will more closely reflect the facility's actual energy conservation potential.

The Commission realizes that estimates will be required in order to determine the efficiency of a facility not yet constructed. The Commission believes, however, that such estimates would routinely be performed prior to any decision to invest in cogeneration equipment. No significant burden is therefore expected in determining a cogeneration facility's qualifying status.

Why the Efficiency Standard Based on "Effective Heat Rates" Was Not Adopted

Evaluating the performance of a cogeneration facility in terms of the quantity of additional fuel used per kilowatt hour of electricity generated, above that needed for heating purposes alone, results in a standard known as

[20] The efficiency standard proposed by this commenter, the American Paper Institute, differed from all others fundamentally in that an effective heat rate test was required. A qualifying cogeneration facility was defined as:

A cogeneration facility that for the electric energy produced incrementally to steam or useful energy production:

1 Uses less that 9,000 BTU of additional fuel per kilowatt hour and

2 Produces more electric energy than it consumes

And that at least twenty-five percent of the steam, or useful energy, available is applied on an annual basis in industrial, commercial, heating or cooling uses.

[21] The preamble discusses new versus existing facilities. This is expressed in the regulations as "facilities, the installation of which began on or after March 13, 1980," or before that date. The Commission views the beginning of installation as the beginning of physical modification of the site or of pre-existing facilities. Of course, any sharp line will create its own inequities and raise its own questions. The waiver provision of § 292.205(d) is available to redress those inequities, and the optional procedure for qualification under § 292.207(b) is available to answer those questions.

the "effective heat rate".[22] This form of efficiency evaluation has been widely used to compare cogeneration of electricity to conventional utility generation. For a typical backpressure steam turbine cogeneration facility the effective heat rate of electricity generation may be as low as 4500 BTU/kWh—twice the efficiency of central station utility generation.

The effective heat rate test has some serious drawbacks, however. The test looks only to the efficiency of electricity generation and ignores the balance of the cogeneration facility. While the effective heat rate of a topping turbine may be high, if only a small fraction of the energy produced is in the form of electricity, the overall system is essentially a boiler facility, and the aggregate energy conserved is minimal. Indeed, effective heat rates are most favorable for systems which produce little electricity and a large amount of steam. The effective heat rate is lower for combustion turbine and internal combustion cogeneration, as compared to steam, but such systems produce more electricity per unit of fuel used. When the efficiency of the entire system is computed in such a manner as to credit the quality as well as quantity of energy produced,[23] combustion turbine or internal combustion cogeneration systems consistently score higher than steam systems. Thus the effective heat rate test does not truly measure overall system efficiency, and is not an adequate measure of whether, in the aggregate, energy is conserved through cogeneration.

§ 292.205(a)(2)(ii) Topping-cycle facilities using energy sources other than oil or natural gas.

In the final rule, the Commission has decided not to impose efficiency standards for qualification of topping-cycle cogeneration facilities using energy sources other than oil or natural gas. The proposed rules contained standards for topping-cycle cogeneration facilities using energy sources other than coal or coal-derived fuels. The efficiency standards were proposed in response to two concerns. First, some energy sources may be viewed as limited in access. Use of such resources by one cogenerator deprives another, possibly more efficient cogeneration facility, of the opportunity to use the resource. Efficiency standards were proposed in order to ensure that the first cogenerator, to gain access to the resource, would build an efficient facility in the absence of an effective market for the resource.

The second concern dealt with a means of distinguishing a *bona fide* cogeneration facility from a small power production facility with incidental recovery and use of steam or heat. The Commission believed that some means was necessary to prevent small power production facilities from evading the statutory size limits. A standard setting forth minimum production of power and minimum recovery of heat was seen as a means of avoiding the qualification of "token" cogeneration facilities.

Neither concern is, however, relevant to the use of coal as a primary fuel. Coal is not characterized by limited access and it cannot be used as a primary fuel by small power production facilities. Therefore, the proposed rule contained no efficiency standards for facilities fueled by coal.

Most commenters addressing this question stated that the proposed standards were impossible to meet in many instances. More importantly, commenters questioned the basic rationale of applying efficiency standards. The limited access concept is complex, and some commenters missed the point, arguing that such resources are renewable or available in large quantity.

EPA pointed out that the degree to which limited access may affect the sort of facility constructed is unknown. The effects of limited access, if any, are likely to be site specific, and will vary with time. Even if these effects could be spelled out with certainty, the specification of appropriate efficiency criteria would be a difficult task at best. If a standard of thermal efficiency were set without detailed knowledge of both the technologies and patterns of resource development, the probable effect would simply be to stifle development of the resource.

The Commission concludes that the proposed cure is far worse than the suspected ailment. In addition, as was stated in the discussion addressing the operating standards, the 5 percent minimum amount of useful thermal output standard will assure that these facilities are *bona fide* cogenerators under these rules.

§ 292.205(b) Efficiency standards for bottoming-cycle facilities.

The proposed rule contained a two-part efficiency standard for bottoming-cycle cogeneration facilities. All facilities, except those using coal or coal-derived fuels, would have been required to meet the standards. The first part of the efficiency standard dealt with the heat engine. In order to qualify, a facility had to either convert 15 percent of the reject heat from the thermal process to mechanical energy, or in the alternative, achieve 40 percent of the ideal Carnot efficiency with the working fluid temperatures experienced. The second part of the standard simply required an overall energy efficiency of 60 percent for the entire facility.

Numerous commenters were critical of the proposed standards. Although a number of issues were addressed, a common concern was the counter-productive nature of efficiency standards for bottoming-cycle cogeneration facilities relying on reject heat. It was argued that because the heat would otherwise be wasted, efficiency standards would serve no fuel conservation purpose. The only effect of efficiency standards would be a limitation on the number of bottoming-cycle facilities which would be constructed.

Moreover, many commenters noted that the overall energy efficiency standard of 60 percent was overly restrictive, and in fact meaningless in many instances. The overall energy efficiency, as defined in the proposed rule, would be determined by the efficiency of the bottoming-cycle heat engine and the efficiency of the industrial thermal process. Typically the latter efficiency is predetermined by the nature of the process and the design of the industrial plant. When bottoming-cycle cogeneration equipment is added to an existing plant, the efficiency of that plant's energy utilization is irrelevant to the effectiveness of the bottoming cycle. Furthermore, the measurement of overall energy efficiency required under the proposed rules would be difficult, since such efficiency measurements are not a conventional practice.

The Commission recognizes the validity of these comments, and has therefore eliminated efficiency standards for most bottoming-cycle cogeneration facilities. The final rule contains an efficiency standard for only those facilities with oil or natural gas

[22] To compute a cogeneration facility's effective heat rate, an assumption is made that the thermal output of the facility would have to be supplied in any event. A certain quantity of fuel would be needed to satisfy the thermal load in the absence of cogeneration. For example, if a steam turbine topping-cycle cogeneration facility were not installed, a conventional steam boiler would raise the steam. With the topping-cycle system, slightly more fuel is burned to raise steam at a higher pressure than is needed for the thermal process. The steam is expanded in a turbine, generating electricity and exhausting steam at the proper pressure for the thermal process. Effective heat rate is computed by dividing the extra energy supplied to the facility by the electricity generated.

[23] A Btu of electricity, for example, is worth more than a Btu of low pressure steam. The steam may be used for heat, but it is not useful for lighting or operating a television set. The "Second Law Efficiency" concept accurately reflects the usefulness of various forms of energy.

supplementary firing. The need for standards in this case was acknowledged by several commenters.

When supplementary firing is used in a bottoming-cycle cogeneration facility, more than reject heat is used to generate electricity. Scarce fossil fuels can be introduced without the inherent efficiency advantages of sequential use. In order to restrict the potential for abuse, the Commission has adopted a simple efficiency test similar to that suggested by one of the commenters. The standard relates only to facilities installation [24] of which began on or after March 13, 1980, and for which any of the energy input as supplementary firing is oil or natural gas. Paragraph (b)(1) specifies that the useful power output of the bottoming cycle must, during any calendar year, be no less than 45 percent of the energy input of natural gas and oil for supplementary firing. The Commission notes that the fuels used in the thermal process "upstream" from the bottoming-cycle facility's power production system are not considered in this efficiency test. The use of the lower heating value, consistent with the proposed rules, is advantageous to cogenerators in that the latent heat of combustion water cannot be effectively recovered by any practical bottoming-cycle technology currently foreseeable.

§ 292.205(c) Exemption from incremental pricing.

One of the incentives for cogeneration is found not in PURPA but in the Natural Gas Policy Act of 1978 (NGPA). In section 206(c), the Commission is given the discretion to exempt qualifying cogeneration facilities from its incremental pricing program developed under Title II of the NGPA.

On September 28, 1979, the Commission issued final rules implementing the incremental pricing provisions of the Natural Gas Policy Act of 1978.[25] These rules provide, among other things, that natural gas used by "a qualifying cogeneration facility" shall be exempt from the incremental pricing provisions of the NGPA.[26] A qualifying cogeneration facility is defined in the regulations as a cogeneration facility which meets the requirements prescribed by the Commission pursuant to section 201 of the Public Utility Regulatory Policies Act of 1978 (PURPA).[27]

In this paragraph, the Commission has set forth the requirements for exemption from incremental pricing. Paragraph (c)(1) allows that any topping-cycle cogeneration facility which is a qualifying facility under § 292.203(b), and, if not already required to do so, meets the operating and efficiency standards under paragraphs (a)(1) and (2)(i) of this section, or is a qualifying facility under Subpart E of this part, may obtain an exemption from incremental pricing for its natural gas use.

Paragraph (c)(2) enables natural gas used in bottoming-cycle cogeneration facilities and which is not exempt from incremental pricing under Subpart E of this part to obtain exemption under this subpart to the extent that reject heat emerging from the useful thermal energy process is made available for use for power production. The Commission feels that these requirements adequately reflect the goal of PURPA to encourage the efficient use of energy by cogeneration facilities. To the extent that a facility makes available its reject thermal energy to produce power, the Commission believes it should obtain the benefit of exemption from incremental pricing.

The Commission does not intend for this subpart to interfere with any exemptions provided under Subpart E. Therefore, paragraph (c)(3) provides that any person who obtained an exemption under Subpart E is not affected by this provision.

Paragraph (c)(4) provides that natural gas used for supplementary firing in any cogeneration facility is not eligible for exemption from incremental pricing under this subpart. However, natural gas used for supplementary firing of a bottoming-cycle facility would be exempted under the Commission's Order No. 49-A, to the extent that the facility generates electricity which is sold to a utility.[28]

When the final regulations under Phase II of incremental pricing take effect and the Commission can then better assess their implications, the Commission may wish to revise the exemptions from incremental pricing to cogeneration facilities, including the exemption provided in the Interim Rule under Subpart E.

§ 292.205(d) Waiver.

This paragraph provides that the Commission will consider waiving any of the standards described above upon a showing that the facility will produce significant energy savings.

§ 292.206 Ownership criteria.

Section 292.206 is designed to implement the statutory requirement that a qualifying small power production facility or cogeneration facility must be owned by a person not primarily engaged in the generation or sale of electric power (other than electric power solely from cogeneration facilities or small power production facilities). Regarding this provision, the Commission notes that the Conference Report states that:

> [e]lectric utilities may participate in an entity which owns such [qualifying small power production or cogeneration] facilities with other persons, and such entity could qualify under these definitions.
>
> The test of this case is whether the entity which owns the facility is primarily engaged in the generation or sale of electric power other than in connection with its ownership of the cogeneration facilities or small power production facilities.[29]

Thus, either directly or through a subsidiary company, an electric utility could participate in the ownership of a qualifying cogeneration or small power production facility.

Several commenters noted that under a literal interpretation of the Conference Report's statement, several electric utilities could form a subsidiary which owned small power production or cogeneration facilities. Such a subsidiary would constitute an entity which is not primarily engaged in the generation or sale of electric power other than in connection with its ownership of cogeneration or small power production facilities. Under such an interpretation, the subject facilities would be eligible to receive qualifying status.

The Commission believes, however, that the thrust of section 201 of PURPA is to limit the advantages of qualifying status to cogeneration and small power production facilities which are not owned primarily by electric utilities or their subsidiaries. The proposed rule provided that if, based on the proportion of ownership by electric utilities, public utility holding companies, or subsidiaries of either, more than 50 percent of the entity which owns the cogeneration or small power production facility is comprised of these electric utility interests, then the facilities are not qualifying facilities. This language has been incorporated into these final rules; the comments on this section provided no sufficient reasons in the Commission's judgment for changing the percentage.

[24] In the case of bottoming-cycle cogeneration in which electric generating equipment is retrofitted to existing sources of industrial reject heat, the date at which installation begins is the date on which the retrofit is begun.

[25] 18 CFR Part 282, 44 FR 57226 (Oct. 5, 1979).

[26] 18 CFR 282.201(a).

[27] 18 CFR 282.202(e).

[28] See Order No. 49-A, issued December 27, 1979, in Docket No. RM79-14, 45 FR 21 (Jan. 2, 1980).

[29] Conference Report on H.R. 4018, Public Utility Regulatory Policies Act of 1978, H. Rep. No. 1750, 95th Cong., 2d Sess. (1978).

The Commission emphasizes the fact that nothing in this program limits the extent of utility ownership or operation of cogeneration or small power production facilities. The Commission notes the statement in the Conference Report that:

> . . . It is also the intention of the conferees that the definition of "qualifying cogeneration facility" and "qualifying small power production facility" will not be construed as prohibiting or discouraging electric utilities from cogenerating.[39]

Utilities may not, however, qualify for the benefits under this program if their ownership interests exceed the limits set forth in this rule.

Both the provisions in section 3(17)(C)(ii) and 3(18)(B)(ii) of the Federal Power Act, as amended by section 201 of PURPA, use the term person in describing who may own a qualifying cogeneration facility and qualifying small power production facility. The Commission has incorporated the ownership criteria under this section of the regulations and has used the term—person—found in the statute.

A few commenters questioned whether a municipality (or any other agency or instrumentality of State or Federal government) falls within the definition of the term "person" as used in definitions (17) and (18) in section 3 of the Federal Power Act. It is the Commission's view that the term "person," for purposes of qualifying under this program, does include municipalities (or any other agency or instrumentality of State or Federal government). This view is supported by case law in which the courts have treated municipalities and other units of State and Federal government as persons under other sections of the Federal Power Act. *See, e.g., United States v. Public Utilities Commission of California*, 345 U.S. 295 (1953); and *New England Power Co. v. FPC*, 340 F.2d 258 (1st Cir. 1965). The cases touching on the issue of these agencies as persons are very expansive (see the *California Public Utility Commission* decision cited above which was decided by the Supreme Court in 1953). Therefore, under past practice, the Commission and the courts have not interpreted "person" to exclude a municipality or other unit of State and Federal government from the benefits of any action of the Federal Power Act.

In addition, in that there is no indication that the Congress meant to deny qualification to these agencies or instrumentalities, the Commission finds no policy grounds for denying these agencies or instrumentalities qualifying status. Therefore, both as a matter of law and as a matter of policy, the term "person" as used in section 3(17)(C)(ii) and 3(18)(B)(ii) includes these agencies or instrumentalities. The effect of this is to allow these agencies or instrumentalities the opportunity to participate in this program if they otherwise meet the standards for qualification set out in this subpart.

§ 292.207 Procedures for obtaining qualifying status.

This section sets forth the procedures for obtaining qualifying status. Paragraph (a)(1) provides that a small power production facility which meets the criteria for qualification set forth in § 292.203 is a qualifying facility. As discussed above, the Commission has eliminated the mandatory case-by-case qualification procedure contained in the proposed rule.

Paragraph (a)(2) requires any owner or operator of a facility qualifying under paragraph (a)(1) to furnish notice to the Commission. The contents of the notice shall contain the information required of an applicant for qualifying status in paragraph (b)(2)(i) through (b)(2)(iv) described below. The Commission is requiring such notice for purposes of monitoring the market penetration of qualifying facilities, in compliance with its responsibilities under the National Environmental Policy Act of 1969, as previously discussed in this preamble.

Paragraph (b) provides an optional procedure whereby the owner or operator of a small power production facility may, should it prove desirable, file an application with this Commission for certification that the facility or cogeneration facility is a qualifying facility. The application must contain enough information to enable the Commission to make an accurate finding that the facility should or should not be certified.

Specifically, paragraph (b)(i) through (v) provides that each application must contain the name and address of the applicant and the location of the facility, a brief description of the facility including a statement indicating whether such facility is a small power production facility or a cogeneration facility, the primary energy source used or to be used by the facility, the rated power production capacity of the facility, and the percentage of ownership by electric utilities, or public utility holding companies, or by any person owned by either.

Applications by owners or operators of small power production facilities must also contain the location of the facility in relation to any other small power production facilities within one mile of the facility owned by the applicant which use the same energy resources, and information identifying any planned usage of natural gas, oil or coal.

An application by a cogenerator must contain the date installation facility commenced, a description of the cogeneration of the facility, including whether the facility is a topping or bottoming cycle, and sufficient information to determine that any applicable efficiency or operating requirements have been met.

Paragraph (b)(5) sets forth the procedures to be used by the Commission to determine whether a facility is to be granted qualifying status. It provides that, within 90 days of the filing of a complete application, the Commission shall issue an order granting or denying the application, extending the time for issuance of an order, or setting the matter for hearing. If no order is issued within 90 days of the filing of the application, it shall be deemed to have been granted.

The Commission will rely on its existing procedures for any person to file a petition for reconsideration of any Commission action instead of employing the protest procedure contained in the proposed rule.

Several commenters, while offering support for the elimination of filing and notice requirements for smaller facilities, acknowledged the useful purpose that would be served by a requirement that a larger facility give notice to the affected utility of its qualifying status and its intention that such utility purchase its power. Accordingly, the Commission has provided a requirement in paragraph (c) that an electric utility is not required to purchase electric energy from a facility with a design capacity of 500 kilowatts or more until 90 days after the facility notifies the utility that it is a qualifying facility, or 90 days after the facility has applied to the Commission under paragraph (b).

Paragraph (d)(1) provides that the Commission may revoke the qualifying status of a facility if it ceases to comply with any of the statements contained in its application for Commission certification. The Commission may do so on its own motion, or upon a motion to reconsider any certification previously granted. In either case, the Commission will act only after providing an opportunity for a hearing. Paragraph (d)(2) provides that, prior to undertaking any substantial alteration of a qualifying facility, a small power producer or cogenerator may, should it prove

[39] Conference Report on H.R. 4018, Public Utility Regulatory Policies Act of 1978, H. Rep. No. 1750, 95-96, 95th Cong., 2d Sess. (1978).

desirable, apply to the Commission for a determination that the facility, as modified, will retain its qualifying status.

IV. Effective Date

The Conference Report indicates that rules respecting criteria for qualifying facilities be prescribed "as soon as practicable" in order that persons may ascertain in advance of construction or operation of any facility whether or not such facility will meet the criteria established. The Commission believes, therefore, that good cause exists under 5 U.S.C. 553(d) to make the rules promulgated in this order effective immediately.

These rules have been promulgated under the Federal Power Act, as amended by PURPA, and, therefore, a right to rehearing exists under section 313 of the Federal Power Act.

(Public Utility Regulatory Policies Act of 1978, 16 U.S.C. 2601, *et seq.*, Energy Supply and Environmental Coordination Act, (15 U.S.C. 791 *et seq.*), Federal Power Act, as amended, 16 U.S.C. 792 *et seq.*, Department of Energy Organization Act, (42 U.S.C. 7101 *et seq.*), E.O. 12009, 42 FR 46267, Natural Gas Policy Act of 1978, (15 U.S.C. 3301, *et seq.*))

In consideration of the foregoing, the Commission amends Part 292 of Chapter I, Title 18, Code of Federal Regulations, as set forth below, effective immediately.

By the Commission.

Kenneth F. Plumb,

Secretary.

APPENDIX H

REGULATIONS IMPLEMENTING SECTION 210

That portion of the preamble to the final rules on small power production and cogeneration facilities that pertains to "Regulations Implementing Section 210" of the Public Utility Regulatory Policies Act of 1978 (Docket No. RM 79-55, 45 Fed. Reg. 12214 (February 25, 1980)) follows.

Monday, February 25, 1980

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

18 CFR Part 292

[Docket No. RM79-55, Order No. 69]

Small Power Production and Cogeneration Facilities; Regulations Implementing Section 210 of the Public Utility Regulatory Policies Act of 1978

AGENCY: Federal Energy Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Federal Energy Regulatory Commission hereby adopts regulations that implement section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA). The rules require electric utilities to purchase electric power from and sell electric power to qualifying cogeneration and small power production facilities, and provide for the exemption of qualifying facilities from certain federal and State regulation. Implementation of these rules is reserved to State regulatory authorities and nonregulated electric utilities.

EFFECTIVE DATE: March 20, 1980.

FOR FURTHER INFORMATION CONTACT:
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Bernard Chew, Office of Electric Power Regulation, Federal Energy Regulatory Commission, 825 North Capitol Street, N.E., Washington, D.C. 20426, 202-376-9294.

SUPPLEMENTARY INFORMATION:

Issued February 19, 1980.

Section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA) requires the Federal Energy Regulatory Commission (Commission) to prescribe rules as the Commission determines necessary to encourage cogeneration and small power production, including rules requiring electric utilities to purchase electric power from and sell electric power to cogeneration and small power production facilities. Additionally, section 210 of PURPA authorizes the Commission to exempt qualifying facilities from certain Federal and State law and regulation.

Under section 201 of PURPA, cogeneration facilities and small power production facilities which meet certain standards and which are not owned by persons primarily engaged in the generation or sale of electric power can become qualifying facilities, and thus become eligible for the rates and exemptions set forth under section 210 of PURPA.

Cogeneration facilities simultaneously produce two forms of useful energy, such as electric power and steam. Cogeneration facilities use significantly less fuel to produce electricity and steam (or other forms of energy) than would be needed to produce the two separately. Thus, by using fuels more efficiently, cogeneration facilities can make a significant contribution to the Nation's effort to conserve its energy resources.

Small power production facilities use biomass, waste, or renewable resources, including wind, solar and water, to produce electric power. Reliance on these sources of energy can reduce the need to consume traditional fossil fuels to generate electric power.

Prior to the enactment of PURPA, a cogenerator or small power producer seeking to establish interconnected operation with a utility faced three major obstacles. First, a utility was not generally required to purchase the electric output, at an appropriate rate. Secondly, some utilities charged discriminatorily high rates for back-up service to cogenerators and small power producers. Thirdly, a cogenerator or small power producer which provided electricity to a utility's grid ran the risk of being considered an electric utility and thus being subjected to State and Federal regulation as an electric utility.

Sections 201 and 210 of PURPA are designed to remove these obstacles. Each electric utility is required under section 210 to offer to purchase available electric energy from cogeneration and small power production facilities which obtain qualifying status under section 201 of PURPA. For such purchases, electric utilities are required to pay rates which are just and reasonable to the ratepayers of the utility, in the public interest, and which do not discriminate against cogenerators or small power producers. Section 210 also requires electric utilities to provide electric service to qualifying facilities at rates which are just and reasonable, in the public interest, and which do not discriminate against cogenerators and small power producers. Section 210(e) of PURPA provides that the Commission can exempt qualifying facilities from State regulation regarding utility rates and financial organization, from Federal regulation under the Federal Power Act (other than licensing under Part I), and from the Public Utility Holding Company Act.

I. Procedural History

On June 26, 1979, in Docket No. RM79-54,[1] the Commission issued proposed rules to determine which cogeneration and small power production facilities may become "qualifying" cogeneration or small power production facilities under section 201 PURPA. Such qualifying facilities are entitled to avail themselves of the rate and exemption provisions under section 210 of PURPA; and qualifying cogeneration facilities are eligible for exemption from incremental pricing under Title II of the Natural Gas Policy Act of 1978.[2] The Commission will soon issue a final rule in Docket No. RM79-54.

As part of the rulemaking process in this docket, the Commission issued a Staff Discussion Paper[3] on June 27, 1979, addressing issues arising under section 210 of PURPA.

Public hearings on RM79-54 and the Staff Discussion Paper (RM79-55) were held in San Francisco on July 23, 1979, Chicago on July 27, 1979, and Washington, D.C. on July 30, 1979. Written comments were also received.

On October 18, 1979, the Commission issued a Notice of Proposed Rulemaking under Section 210 of PURPA in Docket No. RM79-55.[4] On October 19, 1979, the Commission made available its preliminary Environmental Assessment (EA) of the proposed rules in Docket Nos. RM79-54 and RM79-55. In a Request for Further Comments,[5] the Commission requested further public comment on both proposed rules, and on the findings set forth in the preliminary EA. In order to obtain the data, views, and arguments of interested parties, the Commission Staff held public hearings in Seattle on November 16, 1979, in New York on November 28, 1979, in Denver on November 30, 1979, and in Washington, D.C. on December 4 and 5, 1979. The Commission also received written comment.

After consideration of the comments, the Commission Staff made available a final draft rule on January 29, 1980. State public utility commissioners were invited to comment on the draft at a public meeting held on February 5, 1980. Representatives of electric utilities were invited to comment at a public meeting held on February 8, 1980. The Commission Staff also made itself available to any other interested parties who wished to comment. All of the comments were considered in the formulation of this final rule.

In the Staff Discussion Paper and the Request for Further Comments, it was stated that any environmental effects attributable to this program would result from the combined effect of these two rulemaking proceedings. As noted previously, the Commission intends to issue final rules in Docket No. RM79-54 in the near future. At that time, the Commission will also make available its final Environmental Assessment.

II. Summary

These rules provide that electric utilities must purchase electric energy and capacity made available by qualifying cogenerators and small power producers at a rate reflecting the cost that the purchasing utility can avoid as a result of obtaining energy and capacity from these sources, rather than generating an equivalent amount of energy itself or purchasing the energy or capacity from other suppliers. To enable potential cogenerators and small power producers to be able to estimate these avoided costs, the rules require electric utilities to furnish data concerning present and future costs of energy and capacity on their systems.

These rules also provide that electric utilities must furnish electric energy to qualifying facilities on a nondiscriminatory basis, and at a rate that is just and reasonable and in the public interest; and that they must provide certain types of service which may be requested by qualifying facilities to supplement or back up those facilities' own generation.

[1] 44 FR 36973, July 3, 1979.
[2] 44 FR 56744, November 15, 1979.
[3] 44 FR 36983, July 3, 1979.
[4] 44 FR 61190, October 24, 1979.
[5] 44 FR 61977, October 29, 1979.

The rule exempts all qualifying cogeneration facilities and certain qualifying small power production facilities from certain provisions of the Federal Power Act, from all of the provisions of the Public Utility Holding Company Act of 1935 related to electric utilities, and from State laws regulating electric utility rates and financial organization.

The implementation of these rules is reserved to the State regulatory authorities and nonregulated electric utilities. Within one year of the issuance of the Commission's rules, each State regulatory authority or nonregulated utility must implement these rules. That implementation may be accomplished by the issuance of regulations, on a case-by-case basis, or by any other means reasonably designed to give effect to the Commission's rules.

III. Section-by-Section Analysis

Subpart A—General Provisions

§ 292.101 Definitions.

This section contains definitions applicable to this part of the Commission's rules. Paragraph (a) provides that terms defined in PURPA have the same meaning as they have in PURPA, unless further defined in this part of the Commission's regulations. The definitions in PURPA are found in section 3 of that Act.

Subparagraph (1) defines a qualifying facility as a cogeneration or small power production facility which is a qualifying facility under Subpart B of the Commission's regulations. Those regulations implement section 201 of PURPA, and are the subject of Docket No. RM79-54.

Subparagraph (2) defines "purchase" as the purchase of electric energy or capacity or both from a qualifying facility by an electric utility.

Subparagraph (3) defines "sale" as the sale of electric energy or capacity or both by an electric utility to a qualifying facility.

In the proposed rule, subparagraph (4) defined "system emergency" as a condition on a utility's system "which is likely to result in disruption of service to a significant number of customers or is likely to endanger life or property." In response to comments noting the difficulty in determining what constitutes a "significant number" of customers, the Commission has amended the definition to "a condition on an electric utility's system which is likely to result in imminent significant disruption of service to customers, or is imminently likely to endanger life or property." The emphasis is placed on the significance of the disruption of service, rather than on the number of customers affected.

Subparagraph (5) defines "rate" as any price, rate, charge, or classification made, demanded, observed or received with respect to the sale or purchase of electric energy or capacity, or any rule, regulation, or practice respecting any such rate, charge, or classification, and any contract pertaining to the sale or purchase of electric energy or capacity.

In the proposed rule, subparagraph (6) defined "avoided costs" as the costs to an electric utility of energy or capacity or both which, but for the purchase from a qualifying facility, the electric utility would generate or construct itself or purchase from another source. This definition is derived from the concept of "the incremental cost to the electric utility of alternative electric energy" set forth in section 210(d) of PURPA. It includes both the fixed and the running costs on an electric utility system which can be avoided by obtaining energy or capacity from qualifying facilities.

The costs which an electric utility can avoid by making such purchases generally can be classified as "energy" costs or "capacity" costs. Energy costs are the variable costs associated with the production of electric energy (kilowatt-hours). They represent the cost of fuel, and some operating and maintenance expenses. Capacity costs are the costs associated with providing the capability to deliver energy; they consist primarily of the capital costs of facilities.

If, by purchasing electric energy from a qualifying facility, a utility can reduce its energy costs or can avoid purchasing energy from another utility, the rate for a purchase from a qualifying facility is to be based on those energy costs which the utility can thereby avoid. If a qualifying facility offers energy of sufficient reliability and with sufficient legally enforceable guarantees of deliverability to permit the purchasing electric utility to avoid the need to construct a generating unit, to build a smaller, less expensive plant, or to reduce firm power purchases from another utility, then the rates for such a purchase will be based on the avoided capacity and energy costs.

The Commission has added the term "incremental" to modify the costs which an electric utility would avoid as a result of making a purchase from a qualifying facility. Under the principles of economic dispatch, utilities generally turn on last and turn off first their generating units with the highest running cost. At any given time, an economically dispatched utility can avoid operating its highest-cost units as a result of making a purchase from a qualifying facility. The utility's avoided incremental costs (and not average system costs) should be used to calculate avoided costs. With regard to capacity, if a purchase from a qualifying facility permits the utility to avoid the addition of new capacity, then the avoided cost of the new capacity and not the average embedded system cost of capacity should be used.

Many comments noted that the definition of "avoided cost" in the proposed rule failed to link the capacity costs which a utility might avoid as a result of purchasing electric energy or capacity or both from a qualifying facility with the energy costs associated with the new capacity. If the Commission required electric utilities to base their rates for purchases from a qualifying facility on the high capital or capacity cost of a base load unit and, in addition, provided that the rate for the avoided energy should be based on the high energy cost associated with a peaking unit, the electric utilities' purchased power expenses would exceed the incremental cost of alternative electric energy, contrary to the limitation set forth in the last sentence of section 210(b).

One way of determining the avoided cost is to calculate the total (capacity and energy) costs that would be incurred by a utility to meet a specified demand in comparison to the cost that the utility would incur if it purchased energy or capacity or both from a qualifying facility to meet part of its demand, and supplied its remaining needs from its own facilities. The difference between these two figures would represent the utility's net avoided cost. In this case, the avoided costs are the excess of the total capacity and energy cost of the system developed in accordance with the utility's optimal capacity expansion plan,[6] *excluding* the qualifying facility, over the total capacity and energy cost of the system (before payment to the qualifying facility) developed in accordance with the utility's optimal capacity expansion plan *including* the qualifying facility.[7]

Subparagraph (7) defines "interconnection costs" as the reasonable costs of connection, switching, metering, transmission, distribution, safety provisions and

[6] An optimal capacity expansion plan is the schedule for the addition of new generating and transmission facilities which, based on an examination of capital, fuel, operating and maintenance costs, will meet a utility's projected load requirements at the lowest total cost.

[7] Throughout the rule and preamble, the phrase "energy or capacity" is used. This phrase is intended to include the capacity and energy costs associated with the capacity, if the purchase involves both energy or capacity.

administrative costs incurred by the electric utility directly related to the installation and maintenance of the physical facilities necessary to permit interconnected operations with a qualifying facility, to the extent such costs are in excess of the corresponding costs which the electric utility would have incurred if it had not engaged in interconnected operations, but instead generated an equivalent amount of energy itself or purchased an equivalent amount of electric energy or capacity from other sources. Interconnection costs do not include any costs included in the calculation of avoided costs.

The Commission has clarified this definition to include distribution and administrative costs associated with the interconnected operation, in response to comments indicating that the proposed rule was vague in these respects. This definition is designed to provide the State regulatory authorities and nonregulated electric utilities with the flexibility to ensure that all costs which are shown to be reasonably incurred by the electric utility as a result of interconnection with the qualifying facility will be considered as part of the obligation of the qualifying facility under § 292.306. These costs may include, but are not limited to, operating and maintenance expenses, the costs of installation of equipment elsewhere on the utility's system necessitated by the interconnection, and reasonable insurance expenses. However, the Commission does not expect that litigation expenses incurred by the utility involving this section will be considered a legitimate interconnection cost to be borne by the qualifying facility.

Certain interconnection costs may be incurred as a result of sales from a utility to a qualifying facility. The Commission notes that the Joint Explanatory Statement of the Committee of Conference (Conference Report) prohibits the use of "unreasonable rate structure impediments, such as unreasonable hook up charges or other discriminatory practices . . ." [8] This prohibition is reflected in § 292.306(a) of these rules, which provides that interconnection costs must be assessed on a nondiscriminatory basis with respect to other customers with similar load characteristics.

A qualifying facility which is already interconnected with an electric utility for purposes of sales may seek to establish interconnection for the purpose of utility purchases from the qualifying facility. In this case, the qualifying facility may have compensated the utility for its interconnection costs with respect to sales to the qualifying facility, either as part of the utility's demand or energy charges, or through a separate customer charge. If this is the case, the interconnection costs associated with the purchase include only those additional interconnection expenses incurred by the electric utility as a result of the purchase, and do not include any portion of the interconnection costs for which the qualifying facility has already paid through its retail rates.

One comment recommended that the definition be revised to cover "all identifiable costs, including but not limited to, the costs of interconnection . . . resulting from interconnected operation". The Commission rejects this suggestion in order to maintain consistency with its initial determination to separate the utility's avoided costs with regard to purchases from qualifying facilities, from the costs incurred as a result of interconnection with a qualifying facility. Accordingly, legitimate costs not recovered pursuant to this section can be netted out in the calculation of avoided costs.

This definition also incorporates the concept from the proposed rule, as clarified in an erratum notice,[9] that these costs are limited to the net increased interconnection costs imposed on an electric utility compared to those interconnection costs it would have incurred had it generated the energy itself or purchased an equivalent amount of energy or capacity from another source.

This section of the rule contains definitions of "supplementary power", "back-up power", "interruptible power", and "maintenance power" which did not appear in the proposed rule.

Subparagraph (8) defines "supplementary power" as electric energy or capacity, supplied by an electric utility, regularly used by a qualifying facility in addition to that which the facility generates itself.

Subparagraph (9) defines "back-up power" as electric energy or capacity supplied by an electric utility to replace energy ordinarily generated by a facility's own generation equipment during an unscheduled outage of the facility.

Subparagraph (10) defines "interruptible power" as electric energy or capacity supplied by an electric utility subject to interruption by the electric utility under specified conditions.

Subparagraph (11) defines "maintenance power" as electric energy or capacity supplied by an electric utility during scheduled outages of the qualifying facility.

Subpart C—Arrangements Between Electric Utilities and Qualifying Cogeneration and Small Power Production Facilities Under Section 210 of the Public Utility Regulatory Policies Act of 1978

§ 292.301 Scope.

Section 292.301(a) describes the scope of Subpart C of Part 292 of the Commission's rules. Subpart C applies to sales and purchases of electric energy or capacity between qualifying cogeneration or small power production facilities and electric utilities, and actions related to such sales and purchases. Section 292.301(b)(1) provides that this subpart does not preclude negotiated agreements between qualifying cogenerators or small power producers and electric utilities which differ from rates, or terms or conditions which would otherwise be required under the subpart. Paragraph (b)(2) states that this subpart does not affect the validity of any contract entered into between a qualifying facility and an electric utility for any purchase.[10]

Paragraph (b)(1) reflects the Commission's view that the rate provisions of section 210 of PURPA apply only if a qualifying cogenerator or small power production facility chooses to avail itself of that section. Agreements between an electric utility and a qualifying cogenerator or small power producer for purchases at rates different than rates required by these rules, or under terms or conditions different from those set forth in these rules, do not violate the Commission's rules under section 210 of PURPA. The Commission recognizes that the ability of a qualifying cogenerator or small power producer to negotiate with an electric utility is buttressed by the existence of the rights and protections of these rules.

Some comments stated that paragraph (b)(2) would unfairly penalize cogenerators and small power producers who, prior to the promulgation of these regulations, entered into binding contracts with electric utilities under less favorable terms than might be obtainable under these rules. The Commission interprets its mandate under section 210(a) to prescribe "such rules as it determines necessary to encourage cogeneration and small

[8] Conference Rept. on H.R. 4018, Public Utility Regulatory Policies Act of 1978, H. Rep. No. 1750 95th Cong. 2d Sess. (1978).

[9] 44 FR 64214, November 7, 1979.

[10] The term "purchase" is defined in § 292.101(b)(

power production * * *" to mean that the total costs to the utility and the rates to its other customers should not be greater than they would have been had the utility not made the purchase from the qualifying facility or qualifying facilities. That a cogeneration or small power production facility entered into a binding contractual arrangement with an electric utility indicates that it is likely that sufficient incentive existed, and that the further encouragement provided by these rules was not necessary. As a result, the Commission has not revised this provision.

§ 292.302 Availability of electric utility system cost data.

As the Commission observed in the Notice of Proposed Rulemaking, in order to be able to evaluate the financial feasibility of a cogeneration or small power production facility, an investor needs to be able to estimate, with reasonable certainty, the expected return on a potential investment before construction of a facility. This return will be determined in part by the price at which the qualifying facility can sell its electric output. Under § 292.304 of these rules, the rate at which a utility must purchase that output is based on the utility's avoided costs, taking into account the factors set forth in paragraph (e) of that section. Section 292.302 of these rules is intended by the Commission to assist those needing data from which avoided costs can be derived. It requires electric utilities to make available to cogenerators and small power producers data concerning the present and anticipated future costs of energy and capacity on the utility's system.

In the preamble to the proposed rule, the Commission stated that most electric utilities will have prepared data containing some of this information in compliance with the Commission's rules implementing section 133 of PURPA. Several commenters observed that the marginal cost data required to be provided pursuant to section 133 cannot be directly translated into a rate for purchases. The Commission has clarified paragraph (b) to emphasize that these data are not intended to represent a rate for purchases from qualifying facilities. Rather, these data are to be considered the first step in the determination of such a rate.

The Commission has also revised this section so that the rates for purchases can be more readily calculated from the data produced. The Commission has changed paragraph (b)(3) to provide that a utility shall submit the associated energy cost of each planned unit expressed in kilowatt-hours (kWh) along with the estimated capacity cost of planned capacity additions. This change is intended to ensure that the calculation of avoided costs includes the lower energy costs that might be associated with the new capacity. The Commission points out that the determination of a rate for purchases from a qualifying facility which enables a utility to defer or avoid the addition of a new unit must also reflect the hours of expected use of the deferred or avoided capacity addition.

The coverage under paragraph (a) of this section is the same as that provided pursuant to section 133 of PURPA and the Commission's rules implementing that section.[11] As noted in the Notice of Proposed Rulemaking, section 133 of PURPA applies to each electric utility whose total sales of electric energy for purposes other than resale exceeded 500 million kWh during any calendar year beginning after December 31, 1975, and before the immediately preceding calendar year.

Paragraph (b) provides that each regulated electric utility meeting the requirements of paragraph (a) must furnish to its State regulatory authority, and maintain for public inspection, data related to the costs of energy and capacity on the electric utility's system. Each nonregulated electric utility also must maintain such data for public inspection.

In response to comments received, the Commission has extended the date by which these data must be first provided to November 1, 1980, and changed the second date to May 31, 1982, to conform to the dates required by the Commission's regulations implementing section 133 of PURPA. The Commission has added paragraph (d) to allow a State regulatory authority or nonregulated utility to use a different approach than that provided in paragraph (b). As part of that substitute program, a State regulatory authority or nonregulated electric utility could provide that cost data be updated more frequently than every two years.

Subparagraph (1) of paragraph (b) requires each electric utility to provide the estimated avoided cost of energy on its system for various levels of purchases from qualifying facilities. The levels of purchases are to be stated in blocks of not more than 100 megawatts for systems with peak demand of 1000 megawatts or more, and in blocks equivalent to not more than ten percent of system peak demand for systems less than 1000 megawatts. This information is to be stated on a cents per kilowatt-hour basis, for daily and seasonal peak and off-peak periods, for the current calendar year and for each of the next five years.

Subparagraph (2) of paragraph (b) requires each electric utility to provide its schedule for the addition of capacity, planned purchases of firm energy and capacity, and planned capacity retirements for each of the next ten years.

Subparagraph (3) of paragraph (b) has been revised, as discussed previously, so that the costs of planned capacity additions include the associated energy costs.

The Commission received comment noting that some States have implemented or are planning to implement alternative methods by which electric utilities' system cost data would be made available. In order to prevent the preparation of duplicative data where the alternative method substantially deviates from the Commission approach, the Commission has added paragraph (d). This paragraph provides that any State regulatory authority or nonregulated electric utility may, after providing public notice in the area served by the utility and after opportunity for public comment, require data different than that which are otherwise required by this section if it determines that avoided costs can be derived from such data. Any State regulatory authority or nonregulated utility shall notify the Commission within 30 days of any determination to sustitute data requirements.

If a qualifying facility finds that the alternative requirements do not provide sufficient data from which avoided costs may be derived, the qualifying facility may seek court review of the matter as it can with regard to any other aspect of the State's implementation of this program.

A qualifying facility may wish to sell energy or capacity to an electric utility which is not subject to the reporting requirements of paragraph (b). In that event, paragraph (c) provides that, upon request of a qualifying facility, an electric utility not otherwise covered by paragraph (b) must provide data sufficient to enable the cogenerator or small power producer to estimate the utility's avoided costs. If such utility does not supply the requested data, the qualifying facility may apply to the State regulatory authority which has ratemaking authority over the utility or to this Commission for an order requiring that the information be supplied. The consideration of such applications should take into account the burden imposed on the small utilities.

[11] 44 FR 53687, October 11, 1979.

An electric utility which is legally obligated to obtain all of its requirements for electric energy and capacity from another utility may provide the data provided by its supplying utility and the rates at which it currently purchases such energy and capacity for any period during which this obligation will continue. The wholesale rates may require adjustment in order to reflect properly the avoided costs. This is discussed later in this preamble under § 292.303. In the case of small, non-generating utilities, the requirements of this section will be considered to have been satisfied if these cost data are readily available from the supplying utility.

Numerous comments mentioned that the proposed rule did not address the issue of validation of the data to be provided pursuant to this section. As a result, the Commission has added paragraph (e) which provides that any data submitted by an electric utility under this section shall be subject to review by its State regulatory authority. Paragraph (e)(2) places the burden of providing support for the data on the utility supplying the data.

§ 292.303 Electric utility obligations under this subpart.

Section 210(a) of PURPA provides that the Commission prescribe rules requiring electric utilities to offer to purchase electric energy from qualifying facilities. The Commission interprets this provision to impose on electric utilities an obligation to purchase all electric energy and capacity made available from qualifying facilities with which the electric utility is directly or indirectly interconnected, except during periods described in § 292.304(f) or during system emergencies.

A qualifying facility may seek to have a utility purchase more energy or capacity than the utility requires to meet its total system load. In such a case, while the utility is legally obligated to purchase any energy or capacity provided by a qualifying facility, the purchase rate should only include payment for energy or capacity which the utility can use to meet its total system load. These rules impose no requirement on the purchasing utility to deliver unusable energy or capacity to another utility for subsequent sale.

§ 292.303(a) Obligation to purchase from qualifying facilities.

§ 292.303(d) Transmission to other electric utilities. All-Requirement Contracts.

Several commenters noted that the obligation to purchase from qualifying facilities under this section might conflict with contractual commitments into which they had entered requiring them to purchase all of their requirements from a wholesale supplier. One commenter noted that, with regard to all-requirements rural electric cooperatives, any impairment of the obligation to obtain all of a cooperative's requirements from a generation and transmission cooperative might affect the financing ability of the generation and transmission cooperative. The Commission observes that, in general, if it permitted such contractual provisions to override the obligation to purchase from qualifying facilities, these contractual devices might be used to hinder the development of cogeneration and small power production. The Commission believes that the mandate of PURPA to encourage cogeneration and small power production requires that obligations to purchase under this provision supersede contractual restrictions on a utility's ability to obtain energy or capacity from a qualifying facility.

The Commission has, however, provided an alternate means by which any electric utility can meet this obligation. Under paragraph (d), if the qualifying facility consents, an all-requirements utility which would otherwise be obligated to purchase energy or capacity from the qualifying facility would be permitted to transmit the energy or capacity to its supplying utility. In most instances, this transaction would actually take the form of the displacement of energy or capacity that would have been provided under the all-requirements obligation. In this case, the supplying utility is deemed to have made the purchase and, as a result the all-requirements obligation is not affected.

In addition, if compliance with the purchase obligation would impose a special hardship on an all-requirements customer, the Commission may consider waiving such purchase obligation pursuant to the procedures set forth in § 292.403.

Transmission to Other Facilities

There are several circumstances in which a qualifying facility might desire that the electric utility with which it is interconnected not be the purchaser of the qualifying facility's energy and capacity, but would prefer instead that an electric utility with which the purchasing utility is interconnected make such a purchase. If, for example, the purchasing utility is a non-generating utility, its avoided costs will be the price of bulk purchased power ordinarily based on the average embedded cost of capacity and average energy cost on its supplying utility's system. As a result, the rate to the qualifying facility would be based on those average costs. If, however, the qualifying facility's output were purchased by the supplying utility, its output ordinarily will replace the highest cost energy on the supplying utility's system at that time, and its capacity might enable the supplying utility to avoid the addition of new capacity. Thus, the avoided costs of the supplying utility may be higher than the avoided cost of the non-generating utility.

This would not appear to be the case if the qualifying facility offers to supply capacity and energy in a situation in which the supplying utility is in an excess capacity situation. Since the supplying utility has excess capacity, its avoided costs would include only energy costs. On the other hand, if the avoided cost were based on the wholesale rate to the all-requirements utility, the avoided cost would include the demand charge included in the wholesale rate, which would usually reflect an allocation of a portion of the fixed charges associated with excess capacity.

Use of the unadjusted wholesale rate fails to take into account the effect of reduced revenue to the supplying utility, as a result of the substitute of the qualifying facility's output for energy previously supplied by the supplying utility. As the level of purchase by the all-requirements utility decreases, the supplying utility's fixed costs will have to be allocated over a smaller number of units of output. In effect, the loss in revenue to the supplying utility will cause the demand charges to the supplying utility's customers (including the all-requirements customers interconnected with the qualifying facility) to increase. Under the definition of "avoided costs" in this section, the purchasing utility must be in the same financial position it would have been had it not purchased the qualifying facility's output. As a result, rather than allocating its loss in revenue among all of its customers, in this situation the supplying utility should assign all of these losses to the all-requirements utility. That utility should, in turn, deduct these losses from its previously calculated avoided costs, and pay the qualifying facility accordingly.

Under these rules, certain small electric utilities are not required to provide system cost data, except upon request of a qualifying facility. If, with the consent of the qualifying facility, a small electric utility chooses to transmit energy from the qualifying facility to a second electric utility, the small utility

can avoid the otherwise applicable requirements that it provide the system cost data for the qualifying facility and that it purchase the energy itself. However, the ability to transmit a purchase to another utility is not limited to these smaller systems; it applies to any utility.

Accordingly, paragraph (d) provides that a utility which receives energy or capacity from a qualifying facility may, with the consent of the qualifying facility, transmit such energy to another electric utility. However, if the first facility does not agree to transmit the purchased energy or capacity, it retains the purchase obligation. In addition, if the qualifying facility does not consent to transmission to another utility, the first utility retains the purchase obligation. Any electric utility to which such energy or capacity is delivered must purchase this energy under the obligations set forth in these rules as if the purchase were made directly from the qualifying facility.

One commenter stated that this provision could result in energy being transmitted to a utility which has little or no information regarding the reliability of the qualifying facility. The Commission believes that, prior to these transactions occurring, it will be in the interest of the qualifying facility to inform any utility to which energy or capacity is delivered, of the nature of those deliveries, so that such energy or capacity can be usefully integrated into that utility's power supply.

Several other commenters believed that this provision went beyond the authority of section 210 of PURPA—namely, that the Commission cannot require the first utility to wheel the power nor the second utility to buy the power. First, the Commission notes that this transmission can only occur with the consent of the utility to which energy or capacity from the qualifying facility is made available. Thus, no utility is forced to wheel. Secondly, section 210 does not limit the obligation to purchase to any particular utility; rather, it is a generally applicable requirement.

Paragraph (d) provides that charges for transmission are not a part of the rate which an electric utility to which energy is transmitted is obligated to pay the qualifying facility. In the case of electric utilities not subject to the jurisdiction of this Commission, these charges should be determined under applicable State law or regulation which may permit agreement between the qualifying facility and any electric utility which transmits energy or capacity with the consent of the qualifying facility. For utilities subject to the Commission's jurisdiction under Part II of the Federal Power Act, these charges will be determined pursuant to Part II.

The electric utility to which the electric energy is transmitted has the obligation to purchase the energy at a rate which reflects the costs that it can avoid as a result of making such a purchase. In cases in which electricity actually travels across the transmitting utility's system, the amount of energy delivered will be less than that transmitted, due to line losses. When this occurs, the rate for purchase can reflect these losses. In other cases, the energy supplied by the qualifying facility will displace energy that would have been supplied by the purchasing utility to the transmitting utility. In those cases, a unit of energy supplied from the qualifying facility may replace a greater amount of energy from the purchasing utility. In that case, the rate for purchase should be increased to reflect the net gain. These provisions are also set forth in paragraph (d).

§ 292.303(b) Obligation to sell to qualifying facilities.

Paragraph (b) sets forth the statutory requirement of section 210(a) of PURPA that each electric utility offer to sell electric energy to qualifying facilities. The Commission observed in the Notice of Proposed Rulemaking that State law ordinarily sets out the obligation of an electric utility to provide service to customers located within its service area. In most instances, therefore, this rule will not impose additional obligations on electric utilities.

It is possible that a qualifying facility located outside the service area of an electric utility might require back-up, maintenance, or other types of power. The Commission believes that the instructions of section 210(a) of PURPA that it issue rules "as it determines necessary to encourage cogeneration and small power production * * *" mandate that it assure that such facilities are able to fulfill their needs for service.

However, the Commission also recognizes that State and local law limits the authority of some electric utilities to construct lines outside of their service area. Accordingly, the Commission requires electric utilities to serve any qualifying facility, and, subject to the restriction contained therein, to interconnect with any such facility as required in paragraph (c). However, an electric utility is only required to construct lines or other facilities to the extent authorized or required by State or local law. As a result, a qualifying facility outside the service area of a utility may be required to build its line into the service area of the utility.

§ 292.303(c) Obligation to interconnect

In the Notice of Proposed Rulemaking, the Commission used the interpretation set forth in the Staff Discussion Paper, that the obligation to interconnect with a qualifying facility is subsumed within the requirement of section 210(a) that electric utilities offer to sell electric energy to and purchase electric energy from qualifying facilities. The Commission observed that to hold otherwise would mean that Congress intended to require that qualifying facilities go through the complex procedures simply to gain interconnection, contrary to the mandate of section 210 of PURPA to encourage cogeneration and small power production.

During the comment period, this question was further explored, and it was suggested that the Commission has ample authority under the general mandate of section 210(a) of PURPA—namely, that it prescribe rules necessary to encourage cogeneration and small power production—to require interconnection.

While these interpretations received substantial support in the comments submitted, they were at the same time criticized on the theory that section 210(e)(3) of PURPA does not provide that a qualifying facility may be exempted from section 210 of the Federal Power Act (added by section 202 of PURPA and providing certain interconnection authority) and that this interconnection section specifically includes qualifying cogenerators and small power producers in its applicability. These commenters contended that since section 210 of the Federal Power Act deals explicitly with the subject of interconnections between qualifying facilities and electric utilities, no other section of that Act can be interpreted as also granting authority on that subject, as such an interpretation would render the express provision "surplusage".

With regard to these criticisms, the Commission observes that this argument might be tenable in the situation in which the section of the legislation which deals explicitly with the subject does not contain an express provision that it is *not* to be considered the exclusive authority on the subject. The Commission notes that section 212 of the Federal Power Act (as added by section 204 of PURPA) sets forth certain determinations that the Commission must make before it can issue an order under either section 210 or 211 of the Federal Power Act.

Section 212(e) states that no provision of section 210 of the Federal Power Act shall be treated "(1) as requiring any person to utilize the authority of such section 210 or 211 in lieu of any other authority of law, or (2) as limiting, impairing, or otherwise affecting any other authority of the Commission under any other provision of law." Thus, the Federal Power Act, as amended, expressly provides that the existence of authority under section 210 of the Federal Power Act to require interconnection is not to be interpreted as excluding any other interconnection authority available under any other law. The Commission emphasizes that the limitation is not restricted to the Federal Power Act, but rather extends to include other authority of law, such as the authority contained in the Public Utility Regulatory Policies Act of 1978, of which section 210 is a part. Clearly, the existence of this provision refutes the contention that section 210 of the Federal Power Act represents the exclusive method by which interconnection can be obtained. As a result, the comment that the direction contained in section 210(e)(3) of PURPA that no qualifying facility can be exempted from section 210 or 212 of the Federal Power Act is not persuasive.

The Commission finds that to require qualifying facilities to go through the complex procedures set forth in section 210 of the Federal Power Act to gain interconnection would, in most circumstances, significantly frustrate the achievement of the benefits of this program. The Commission does not feel that the legal interpretation set forth in the Staff Discussion Paper and the Notice of Proposed Rulemaking is the exclusive theory by which it may require interconnections under this program without resort to sections 210 and 212 of the Federal Power Act. The interpretation brought out during the comment period—that section 210(a) of PURPA provides a general mandate for the Commission to prescribe rules necessary to encourage cogeneration and small power production—provides, in the Commission's view, sufficient authority to require interconnection. The Commission believes that a basic purpose of section 210 of PURPA is to provide a market for the electricity generated by small power producers and cogenerators. The Commission believes that accomplishment of this purpose would be greatly hindered if it were to require qualifying facilities to utilize section 210 of the Federal Power Act as the exclusive means of obtaining interconnection. It therefore concludes that such a restrictive interpretation of the law is not supportable.

Paragraph (c)(1) thus provides that an electric utility must make any interconnections with a qualifying facility which may be necessary to permit purchases from or sales to the qualifying facility. A State regulatory authority or nonregulated electric utility must enforce this requirement as part of its implementation of the Commission's rules.

In addition, several commenters contended that, if the obligation to interconnect is required under section 210(a) PURPA, the limitation provided in section 212 of the Federal Power Act would not be available. That limitation provides that an electric utility which complies with an interconnection order under section 210 of the Federal Power Act would not be subject to the jurisdiction of the Federal Energy Regulatory Commission for any purposes other than those specified in the interconnection order.

After consideration of this concern, the Commission has added paragraph (c)(2) to provide that no electric utility is required to interconnect with any qualifying facility, if, solely by reason of purchases or sales over the interconnection, the electric utility would become subject to regulation as a public utility under Part II of the Federal Power Act. This exception is provided because the Commission notes that, in balance, the encouragement of cogeneration and small power production would not be furthered if, by virtue of interconnection with a qualifying facility, a previously nonjurisdictional utility were reluctantly to become subject to federal utility regulation.

§ 292.303(e) Parallel operation.

In the Notice of Proposed Rulemaking, the Commission provided that each electric utility must offer to operate in parallel with a qualifying facility, provided that the qualifying facility complies with standards established by the State regulatory authority or nonregulated electric utility with regard to the protection of system reliability pursuant to § 292.308. By operating in parallel, qualifying facilities are enabled to export automatically any electric energy which is not consumed by its own load. The comments submitted have not set forth any convincing reasons for changing the proposed rule. Paragraph (e) thus continues to require each electric utility to offer to operate in parallel with a qualifying facility.

§ 292.304 Rates for purchases.

Section 210(b) of PURPA provides that in requiring any electric utility to purchase electric energy from a qualifying facility, the Commission must ensure that the rates for the purchase be just and reasonable to the electric consumers of the purchasing utility, in the public interest, and nondiscriminatory to qualifying facilities, but that they not exceed the incremental costs of alternative electric energy (the costs of energy to the utility, which, but for the purchase, the utility would generate itself or purchase from another source).

Relation to State Programs

The Commission has become aware that several States have enacted legislation requiring electric utilities in that State to purchase the electrical output of facilities which may be qualifying facilities under the Commission's rules at rates which may differ from the rates required under the Commission's rules implementing section 210 of PURPA.

This Commission has set the rate for purchases at a level which it believes appropriate to encourage cogeneration and small power production, as required by section 210 of PURPA. While the rules prescribed under section 210 of PURPA are subject to the statutory parameters, the States are free, under their own authority, to enact laws or regulations providing for rates which would result in even greater encouragement of these technologies. However, State laws or regulations which would provide rates lower than the federal standards would fail to provide the requisite encouragement of these technologies, and must yield to federal law.

If a State program were to provide that electric utilities must purchase power from certain types of facilities, among which are included "qualifying facilities," at a rate higher than that provided by these rules, a qualifying facility might seek to obtain the benefits of that State program. In such a case, however, the higher rates would be based on State authority to establish such rates, and not on the Commission's rules.

A facility which provides energy or capacity to a utility under State authority may nevertheless seek to obtain exemption from the Federal Power Act, the Public Utility Holding Company Act, and State regulation of electric utilities as available under section 210(e) of PURPA. The Commission notes that the States lack the authority to exempt a facility from

the Federal Power Act or Public Utility Holding Company Act. The Commission finds no inconsistency in a facility's taking advantage of section 210 in order to obtain one of its benefits, while relying on other authority under which to buy from or sell to a utility.

§ 292.304(a) Rates for purchases.

Paragraph (a) sets forth the statutory requirement that rates for purchases be just and reasonable to the electric consumers of the electric utility and in the public interest, and not discriminate against qualifying cogeneration and small power production facilities.

In the proposed rule, the Commission stated that there is a rebuttable presumption that the rate for purchases is acceptable if it reflects the avoided cost resulting from a purchase on the basis of system cost data set forth pursuant to § 292.302 (b) or (c). Many of the comments received stated that this section was ambiguous.[10] The Commission has therefore provided that the rate for purchases meets the statutory requirements if it equals avoided costs, and has eliminated the reference to the "rebuttable presumption".

Some comments recommended that, as a matter of policy, this section be revised to provide that a State regulatory authority or nonregulated utility has discretion to establish the relationship between the avoided cost and the rate for purchases. Other commenters contended that the Commission should specify that the rate for purchase must equal the avoided cost resulting from such a purchase. In addition, several suggested that the Commission adopt a "split-the-savings" approach.

It is possible that developers of technologies which may be included as qualifying facilities may produce and make available power to electric facilities even though their cost of producing this power is greater than the utility's avoided costs. In most instances, however, purchases of energy or capacity from qualifying facilities will only occur when the cost to the qualifying cogenerator or small power producer of producing the energy or capacity is lower than the utility's avoided costs. Only if this is the case will payment by the utility of its avoided costs provide economic benefit for the cogenerator or small power producer.

When one electric utility can provide energy more cheaply than could another electric utility, the two utilities will often exchange power on a "split-the-savings" basis. In that type of transaction, the two utilities split the difference between the incremental costs incurred and the incremental costs that the purchasing utility would have incurred had it generated the power itself. Several commenters argued that rates for purchases from qualifying facilities should be based upon this same general principle. The effect of such a pricing mechanism would be to transfer to the utility's ratepayers a portion of the savings represented by the cost differential between the qualifying facility and the purchasing electric utility. Several utilities contend that by so allocating these savings, the Commission would provide an incentive for the electric utility to enter into purchase transactions with qualifying cogeneration and small power production facilities.

These commenters also noted that they had previously engaged in purchases from facilities which might become qualifying facilities under the Commission's rules, and they had paid prices for these purchases based on a "split-the-savings" methodology. These commenters observed that if the Commission's rules now require the payment of full avoided cost for these types of purchases, the purchased power expenses of the electric utility would increase.

Moreover, several utilities commented that, for the foreseeable future, they are inextricably tied to the use of oil to produce electricity. They contend that unless they are permitted to purchase energy and capacity from qualifying facilities at a rate somewhere between the qualifying facilities' costs and their own costs, they and their ratepayers will be subject to the continually increasing world price of oil.

Commenters opposing this allocation of savings to parties other than the qualifying facility noted that this section of PURPA is intended to encourage the development of cogeneration and small power production. They noted that in providing for this encouragement, the Commission may not set rates for purchases at a level which exceeds the incremental cost of alternative energy. Therefore, they observed that, under the full avoided cost standard, the utilities' customers are kept whole, and pay the same rates as they would have paid had the utility not purchased energy and capacity from the qualifying facility.

Although use of the full avoided cost standard will not produce any rate savings to the utility's customers, several commenters stated that these ratepayers and the nation as a whole will benefit from the decreased reliance of scarce fossil fuels, such as oil and gas, and the more efficient use of energy.

The Commission notes that, in most instances, if part of the savings from cogeneration and small power production were allocated among the utilities' ratepayers, any rate reductions will be insignificant for any individual customer. On the other hand, if these savings are allocated to the relatively small class of qualifying cogenerators and small power producers, they may provide a significant incentive for a higher growth rate of these technologies.

Another concern with the use of a split-the-savings rate for purchases is that it would require a determination of the costs of production of the qualifying facility. A major portion of this legislation is intended to exempt qualifying facilities from the cost-of-service regulation by which electric utilities traditionally have been regulated. The Conference Report noted that:

> It is not the intention of the Conferees that cogenerators and small power producers become subject . . . to the type of examination that is traditionally given to electric utility rate applications to determine what is the just and reasonable rate that they should receive for their electric power.[11]

Thus, section 210(e) of PURPA provides that the Commission shall exempt qualifying facilities from the Public Utility Holding Company Act, from the Federal Power Act and from State law and regulation respecting utility rates or financial organization, to the extent that the Commission determines that such exemption is necessary to encourage cogeneration or small power production.

Several commenters have contended that a determination of the qualifying facility's costs can be made without the detail required by cost-of-service regulation. However, the Commission believes that the basis for the determination of rates for purchases should be the utility's avoided costs and should not vary on the basis of the costs of the particular qualifying facility.

Several commenters recommended that rather than using a split-the-savings approach, the Commission should set rates for purchases at a fixed percentage of avoided costs. The Commission notes that, in most situations, a qualifying cogenerator or small power producer will only produce energy if its marginal cost of production is less than the price he receives for its output. If some fixed percentage is used, a qualifying facility

[10] The relationship between the utility system cost data and the rate for purchases is discussed under § 292.302 and § 292.304(b).

[11] Conference Report on H.R. 4018, Public Utility Regulatory Policies Act of 1978, H. Rep. No. 1750, 95th Cong., 2d. Sess. (1978).

may cease to produce additional units of energy when its costs exceed the price to be paid by the utility. If this occurs, the utility will be forced to operate generating units which either are less efficient than those which would have been used by the qualifying facility, or which consume fossil fuel rather than the alternative fuel which would have been consumed by the qualifying facility had the price been set at full avoided costs.

§ 292.304(b) Relationship to avoided costs.

"New Capacity"

The proposed rule differentiated between "old" and "new" production in connection with simultaneous purchases and sales. The proposed rule required an electric utility to purchase at its avoided cost the total output of a facility, construction of which was commenced after the date of issuance of these rules, even if the utility simultaneously sells energy to the facility at its retail rate. The effect of this proposed rule was to separate the production aspect of a qualifying facility from its consumption function. Under this approach, the electrical output of a facility is viewed independently of its electrical needs. Thus, if a cogeneration facility produces five megawatts, and consumes three megawatts, it is treated the same as another qualifying facility that produces five megawatts, and that is located next to a factory that uses three megawatts.

The Commission continues to believe that permitting simultaneous purchase and sale is necessary and appropriate to encourage cogeneration and small power production. The limitation contained in the proposed rule was intended to prevent a cogenerator or small power producer, which had found it economical to produce power for its own consumption prior to the issuance of these rules, from receiving the economic rent that might result from the purchase of its entire output at a utility's full avoided cost after that date without new investment on the part of the qualifying facility.

The same reasoning applies to any facility which was in existence prior to the enactment of PURPA, whether or not it seeks to purchase and sell simultaneously. That construction of the facility was commenced prior to that date may indicate that appropriate economic returns were available without the further incentives provided by section 210.

The Commission is aware that in some instances, if a previously existing qualifying facility were not permitted to receive full avoided costs for its entire output, it would no longer have sufficient incentive to continue to produce electric power. The cost of production may have risen so as to render the previous rate insufficient to cover the costs of production, or permit an appropriate return.

Thus, with regard to facilities, construction of which commenced on or after the date of enactment of PURPA (November 9, 1978), the Commission has determined it appropriate to provide that rates for purchases shall equal full avoided costs. For facilities, construction of which commenced before the enactment of PURPA, the Commission will permit the State regulatory authorities and nonregulated electric utilities to establish rates for purchases at full avoided costs, or at a lower rate, if the State regulatory authority or nonregulated electric utility determines that the lower rate will provide sufficient encouragement of cogeneration and small power production. Thus, if a previously existing facility shows that it requires rates for purchases based on full avoided costs to remain viable, or to increase its output, the State regulatory authority or nonregulated electric utility is required to establish such rates. This distinction is intended to reflect the need for further incentives and the reasonable expectations of persons investing in cogeneration or small power production facilities prior to or subsequent to the enactment of this law.

Paragraph (b)(1) defines "new capacity" as any purchase of capacity from a qualifying facility, construction of which was commenced on or after November 9, 1978. Subparagraph (2) provides that for new capacity, utilities must pay a rate which equals their avoided cost.

A utility must therefore purchase all of the output from a qualifying facility. However, as explained above, for any portion of that output which is not "new capacity," the State regulatory authority or nonregulated electric utility, as provided in paragraph (b)(3), may provide for a lower rate, if it determines that the lower rate will provide sufficient incentive for cogeneration.

Paragraph (b)(4) requires electric utilities to pay full avoided costs for purchases from new capacity made available from a qualifying facility, regardless of whether the electric utility is simultaneously making sales to the qualifying facility.

§ 292.304(c) Standard rates for purchases.

The Notice of Proposed Rulemaking required electric utilities on request of a qualifying facility to establish a tariff or other method for establishing rates for purchase from qualifying facilities of 10 kw or less. Upon consideration of the comments received, the Commission has determined that the concept of requiring a standard rate for purchases should be retained. Several comments stated that this requirement could similarly be applied to facilities of up to 100 kw or less.

The Commission is aware that the supply characteristics of a particular facility may vary from the average rates set forth in the utility's standard rate required by this paragraph. If the Commission were to require individualized rates, however, the transaction costs associated with administration of the program would likely render the program uneconomic for this size of qualifying facility. As a result, the Commission will require that standardized tariffs be implemented for facilities of 100 kw or less.

In addition, some commenters pointed out that standard tariffs can be used on a technology specific basis, to reflect the supply characteristics of the particular technology. Some commenters also observed that the proposed rule did not require that standard rates for purchases from these small facilities be based on the purchasing utility's avoided cost. This omission might have permitted a utility to pay less than that rate for purchases.

The Commission has accordingly revised paragraph (c) to require each State regulatory authority or nonregulated electric utility to cause to be put into effect standard rates for purchases from qualifying facilities with a design capacity of 100 kilowatts or less. The revised rule requires that standard rates for purchases equal the purchasing utility's avoided cost pursuant to paragraphs (a), (b), and (e).

Several commenters noted that standard rates for purchases can also be usefully applied to larger facilities. The Commission believes that the establishment of standard rates for purchases can significantly encourage cogeneration and small power production, provided that these standard rates accurately reflect the costs that the utility can avoid as a result of such purchases. Accordingly, the Commission has added subparagraph (2) which permits, but does not require, State regulatory authorities and nonregulated electric utilities to put into effect a standard rate for purchases from qualifying facilities with a design capacity greater than 100 kilowatts. These rates must equal avoided cost pursuant to paragraphs (a), (b), and (e).

Many commenters at the Commission's public hearings and in written comments recommended that the Commission should require the establishment of "net energy billing" for small qualifying facilities. Under this billing method, the output from a qualifying facility reverses the electric meter used to measure sales from the electric utility to the qualifying facility. The Commission believes that this billing method may be an appropriate way of approximating avoided cost in some circumstances, but does not believe that this is the only practical or appropriate method to establish rates for small qualifying facilities. The Commission observes that net energy billing is likely to be appropriate when the retail rates are marginal cost-based, time-of-day rates. Accordingly, the Commission will leave to the State regulatory authorities and the nonregulated electric utilities the determination as to whether to institute net energy billing.

Paragraph (c)(3)(i) provides that standard rates for purchase should take into account the factors set forth in paragraph (e). These factors relate to the quality of power from the qualifying facility, and its ability to fit into the purchasing utility's generating mix.

Paragraph (e)(vi) is of particular significance for facilities of 100 kW or less. This paragraph provides that rates for purchase shall take into account "the individual and aggregate value of energy and capacity from qualifying facilities on the electric utility's system . . .". Several commenters presented persuasive evidence showing that an effective amount of capacity may be provided by dispersed small systems, even in the case where delivery of energy from any particular facility is stochastic. Similarly, qualifying facilities may be able to enter into operating agreements with each other by which they are able to increase the assured availability of capacity to the utility by coordinating scheduled maintenance and providing mutual back-up service. To the extent that this aggregate capacity value can be reasonably estimated, it must be reflected in standard rates for purchases.

Several commenters observed that the patterns of availability of particular energy sources can and should be reflected in standard rates. An example of this phenomenon is the availability of wind and photovoltaic energy on a summer peaking system. If it can be shown that system peak occurs when there is bright sun and no wind, rates for purchase could provide a higher capacity payment for photovoltaic cells than for wind energy conversion systems. For systems peaking on dark windy days, the reverse might be true. Subparagraph (3)(ii) thus provides that standard rates for purchases may differentiate among qualifying facilities on the basis of the supply characteristics of the particular technology.

§§ 292.304 (b)(5) and (d) Legally enforceable obligations.

Paragraphs (b)(5) and (d) are intended to reconcile the requirement that the rates for purchases equal the utilities' avoided cost with the need for qualifying facilities to be able to enter into contractual commitments based, by necessity, on estimates of future avoided costs. Some of the comments received regarding this section stated that, if the avoided cost of energy at the time it is supplied is less than the price provided in the contract or obligation, the purchasing utility would be required to pay a rate for purchases that would subsidize the qualifying facility at the expense of the utility's other ratepayers. The Commission recognizes this possibility, but is cognizant that in other cases, the required rate will turn out to be lower than the avoided cost at the time of purchase. The Commission does not believe that the reference in the statute to the incremental cost of alternative energy was intended to require a minute-by-minute evaluation of costs which would be checked against rates established in long term contracts between qualifying facilities and electric utilities.

Many commenters have stressed the need for certainty with regard to return on investment in new technologies. The Commission agrees with these latter arguments, and believes that, in the long run, "overestimations" and "underestimations" of avoided costs will balance out.

Paragraph (b)(5) addresses the situation in which a qualifying facility has entered into a contract with an electric utility, or where the qualifying facility has agreed to obligate itself to deliver at a future date energy and capacity to the electric utility. The import of this section is to ensure that a qualifying facility which has obtained the certainty of an arrangement is not deprived of the benefits of its commitment as a result of changed circumstances. This provision can also work to preserve the bargain entered into by the electric utility; should the actual avoided cost be higher than those contracted for, the electric utility is nevertheless entitled to retain the benefit of its contracted for, or otherwise legally enforceable, lower price for purchases from the qualifying facility. This subparagraph will thus ensure the certainty of rates for purchases from a qualifying facility which enters into a commitment to deliver energy or capacity to a utility.

Paragraph (d)(1) provides that a qualifying facility may provide energy or capacity on an "as available" basis, i.e., without legal obligation. The proposed rule provided that rates for such purchases should be based on "actual" avoided costs. Many comments noted that basing rates for purchases in such cases on the utility's "actual avoided costs" is misleading and could require retroactive ratemaking. In light of these comments, the Commission has revised the rule to provide that the rates for purchases are to be based on the purchasing utility's avoided costs estimated at the time of delivery.[14]

Paragraph (d)(2) permits a qualifying facility to enter into a contract or other legally enforceable obligation to provide energy or capacity over a specified term. Use of the term "legally enforceable obligation" is intended to prevent a utility from circumventing the requirement that provides capacity credit for an eligible qualifying facility merely by refusing to enter into a contract with the qualifying facility.

Many commenters noted the same problems for establishing rates for purchases under subparagraph (2) as in subparagraph (1). The Commission intends that rates for purchases be based, at the option of the qualifying facility, on either the avoided costs at the time of delivery or the avoided costs calculated at the time the obligation is incurred. This change enables a qualifying facility to establish a fixed contract price for its energy and capacity at the outset of its obligation or to receive the avoided costs determined at the time of delivery.

A facility which enters into a long term contract to provide energy or capacity to a utility may wish to receive a greater percentage of the total purchase price during the beginning of the obligation. For example, a level payment schedule from the utility to the qualifying facility may be used to match more closely the schedule of debt service of the facility. So long as the total payment over the duration of the contract term does not exceed the estimated avoided costs, nothing in these rules would prohibit a State regulatory authority or non-regulated electric utility from approving such an arrangement.

[14] In addition to the avoided costs of energy, these costs must include the prorated share of the aggregate capacity value of such facilities.

§ 292.304(c) Factors affecting rates for purchases.

Capacity Value

An issue basic to this paragraph is the question of recognition of the capacity value of qualifying facilities.

In the proposed rule, the Commission adopted the argument set forth in the Staff Discussion Paper that the proper interpretation of section 210(b) of PURPA requires that the rates for purchases include recognition of the capacity value provided by qualifying cogeneration and small power production facilities. The Commission noted that language used in section 210 of PURPA and the Conference Report as well as in the Federal Power Act supports this proposition.

In the proposed rule, the Commission cited the final paragraph of the Conference Report with regard to section 210 of PURPA:

> The conferees expect that the Commission, in judging whether the electric power supplied by the cogenerator or small power producer will replace future power which the utility would otherwise have to generate itself either through existing capacity or additions to capacity or purchase from other sources, will take into account the reliability of the power supplied by the cogenerator or small power producer by reason of any legally enforceable obligation of such cogenerator or small power producer to supply firm power to the utility.[14]

In addition to that citation, the Commission notes that the Conference Report states that:

> In interpreting the term "incremental costs of alternative energy", the conferees expect that the Commission and the States may look beyond the costs of alternative sources which are instantaneously available to the utility.[15]

Several commenters contended that, since section 210(a)(2) of PURPA provides that electric utilities must "purchase electric energy" from qualifying facilities, the rate for such purchases should not include payments for capacity. The Commission observes that the statutory language used in the Federal Power Act uses the term "electric energy" to describe the rates for sales for resale in interstate commerce. Demand or capacity payments are a traditional part of such rates. The term "electric energy" is used throughout the Act to refer both to electric energy and capacity. The Commission does not find any evidence that the term "electric energy" in section 210 of PURPA was intended to refer only to fuel and operating and maintenance expenses, instead of all of the costs associated with the provision of electric service.

In addition, the Commission notes that to interpret this phrase to include only energy would lead to the conclusion that the rates for sales *to* qualifying facilities could only include the energy component of the rate since section 210 also refers to "electric energy" with regard to such sales. It is the Commission's belief that this was not the intended result. This provides an additional reason to interpret the phrase "electric energy" to include both energy and capacity.

In implementing this statutory standard, it is helpful to review industry practice respecting sales between utilities. Sales of electric power are ordinarily classified as either firm sales, where the seller provides power at the customer's request, or non-firm power sales, where the seller and not the buyer makes the decision whether or not power is to be available. Rates for firm power purchases include payments for the cost of fuel and operating expenses, and also for the fixed costs associated with the construction of generating units needed to provide power at the purchaser's discretion. The degree of certainty of deliverability required to constitute "firm power" can ordinarily be obtained only if a utility has several generating units and adequate reserve capacity. The capacity payment, or demand charge, will reflect the cost of the utility's generating units.

In contrast, the ability to provide electric power at the selling utility's discretion imposes no requirement that the seller construct or reserve capacity. In order to provide power to customers at the seller's discretion, the selling utility need only charge for the cost of operating its generating units and administration. These costs, called "energy" costs, ordinarily are the ones associated with non-firm sales of power.

Purchases of power from qualifying facilities will fall somewhere on the continuum between these two types of electric service. Thus, for example, wind machines that furnish power only when wind velocity exceeds twelve miles per hour may be so uncertain in availability of output that they would only permit a utility to avoid generating an equivalent amount of energy. In that situation, the utility must continue to provide capacity that is available to meet the needs of its customers. Since there are no avoided capacity costs, rates for such sporadic purchases should thus be based on the utility system's avoided incremental cost of energy. On the other hand, testimony at the Commission's public hearings indicated that effective amounts of firm capacity exist for dispersed wind systems, even though each machine, considered separately, could not provide capacity value. The aggregate capacity value of such facilities must be considered in the calculation of rates for purchases, and the payment distributed to the class providing the capacity.

Some technologies, such as photovoltaic cells, although subject to some uncertainty in power output, have the general advantage of providing their maximum power coincident with the system peak when used on a summer peaking system. The value of such power is greater to the utility than power delivered during off-peak periods. Since the need for capacity is based, in part, on system peaks, the qualifying facility's coincidence with the system peak should be reflected in the allowance of some capacity value and an energy component that reflects the avoided energy costs at the time of the peak.

A facility burning municipal waste or biomass may be able to operate more predictably and reliably than solar or wind systems. It can schedule its outages during times when demand on the utility's system is low. If such a unit demonstrates a degree of reliability that would permit the utility to defer or avoid construction of a generating unit or the purchase of firm power from another utility, then the rate for such a purchase should be based on the avoidance of both energy and capacity costs.

In order to defer or cancel the construction of new generating units, a utility must obtain a commitment from a qualifying facility that provides contractual or other legally enforceable assurances that capacity from alternative sources will be available sufficiently ahead of the date on which the utility would otherwise have to commit itself to the construction or purchase of new capacity. If a qualifying facility provides such assurances, it is entitled to receive rates based on the capacity costs that the utility can avoid as a result of its obtaining capacity from the qualifying facility.

Other comments with regard to the requirement to include capacity payments in avoided costs generally track those set forth in the Staff Discussion Paper and the proposed rule. The thrust of these comments is that, in order to receive credit for capacity and to comply with the requirement that rates for purchases not exceed the incremental cost of alternative energy, capacity payments can only be required when the availability of capacity from a qualifying facility or facilities actually permits the purchasing utility to reduce

[14] Conference Report on H.R. 4018, Public Utility Regulatory Policies Act of 1978, H. Rep. No. 1750, 95th Cong., 2d. Sess. (1978).

[15] *Id.*, pp. 98–9.

its need to provide capacity by deferring the construction of new plant or commitments to firm power purchase contracts. In the proposed rule, the Commission stated that if a qualifying facility offers energy of sufficient reliability and with sufficient legally enforceable guarantees of deliverability to permit the purchasing electric utility to avoid the need to construct a generating plant, to enable it to build a smaller, less expensive plant, or to purchase less firm power from another utility than it would otherwise have purchased, then the rates for purchases from the qualifying facility must include the avoided capacity and energy costs. As indicated by the preceding discussion, the Commission continues to believe that these principles are valid and appropriate, and that they properly fulfill the mandate of the statute.

The Commission also continues to believe, as stated in the proposed rule, that this rulemaking represents an effort to evolve concepts in a newly developing area within certain statutory constraints. The Commission recognizes that the translation of the principle of avoided capacity costs from theory into practice is an extremely difficult exercise, and is one which, by definition, is based on estimation and forecasting of future occurrences. Accordingly, the Commission supports the recommendation made in the Staff Discussion Paper that it should leave to the States and nonregulated utilities "flexibility for experimentation and accommodation of special circumstances" with regard to implementation of rates for purchases. Therefore, to the extent that a method of calculating the value of capacity from qualifying facilities reasonably accounts for the utility's avoided costs, and does not fail to provide the required encouragement of cogeneration and small power production, it will be considered as satisfactorily implementing the Commission's rules.

§ 292.304(e) Factors affecting rates for purchases.

As noted previously, several commenters observed that the utility system cost data required under § 292.302 cannot be directly applied to rates for purchase. The Commission acknowledges this point and, as discussed previously, has provided that these data are to be used as a starting point for the calculation of an appropriate rate for purchases equal to the utility's avoided cost. Accordingly, the Commission has removed the reference to the utility system cost data from the definition of rates for purchases, and has inserted the reference to these data in paragraph (e), as one factor to be considered in calculating rates for purchases. Subparagraph (1) states that these data shall, to the extent practicable, be taken into account in the calculation of a rate for purchases.

Subparagraph (2) deals with the availability of capacity from a qualifying facility during system daily and seasonal peak periods. If a qualifying facility can provide energy to a utility during peak periods when the electric utility is running its most expensive generating units, this energy has a higher value to the utility than energy supplied during off-peak periods, during which only units with lower running costs are operating.

The preamble to the proposed rule provided that, to the extent that metering equipment is available, the State regulatory authority or nonregulated electric utility should take into account the time or season in which the purchase from the qualifying facility occurs. Several commenters interpreted this statement as implying that, by refusing to install metering equipment, an electric utility could avoid the obligation to consider the time at which purchases occur. This is not the intent of this provision. Clearly, the more precisely the time of purchase is recorded the more exact the calculation of the avoided costs, and thus the rate for purchases, can be. Rather than specifying that exact time-of-day or seasonal rates for purchases are required, however, the Commission believes that the selection of a methodology is best left to the State regulatory authorities and nonregulated electric utilities charged with the implementation of these provisions.

Clauses (i) through (v) concern various aspects of the reliability of a qualifying facility. When an electric utility provides power from its own generating units or from those of another electric utility, it normally controls the production of such power from a central location. The ability to so control power production enhances a utility's ability to respond to changes in demand, and thereby enhances the value of that power to the utility. A qualifying facility may be able to enter into an arrangement with the utility which gives the utility the advantage of dispatching the facility. By so doing, it increases its value to the utility. Conversely, if a utility cannot dispatch a qualifying facility, that facility may be of less value to the utility.

Clause (ii) refers to the expected or demonstrated reliability of a qualifying facility. A utility cannot avoid the construction or purchase of capacity if it is likely that the qualifying facility which would claim to replace such capacity may go out of service during the period when the utility needs its power to meet system demand. Based on the estimated or demonstrated reliability of a qualifying facility, the rate for purchases from a qualifying facility should be adjusted to reflect its value to the utility.

Clause (iii) refers to the length of time during which the qualifying facility has contractually or otherwise guaranteed that it will supply energy or capacity to the electric utility. A utility-owned generating unit normally will supply power for the life of the plant, or until it is replaced by more efficient capacity. In contrast, a cogeneration or small power production unit might cease to produce power as a result of changes in the industry or in the industrial processes utilized. Accordingly, the value of the service from the qualifying facility to the electric utility may be affected by the degree to which the qualifying facility ensures by contract or other legally enforceable obligation that it will continue to provide power. Included in this determination, among other factors, are the term of the commitment, the requirement for notice prior to termination of the commitment, and any penalty provisions for breach of the obligation.

In order to provide capacity value to an electric utility a qualifying facility need not necessarily agree to provide power for the life of the plant. A utility's generation expansion plans often include purchases of firm power from other utilities in years immediately preceding the addition of a major generation unit. If a qualifying facility contracts to deliver power, for example, for a one year period, it may enable the purchasing utility to avoid entering into a bulk power purchase arrangement with another utility. The rate for such a purchase should thus be based on the price at which such power is purchased, or can be expected to be purchased, based upon bona fide offers from another utility.

Clause (iv) addresses periods during which a qualifying facility is unable to provide power. Electric utilities schedule maintenance outages for their own generating units during periods when demand is low. If a qualifying facility can similarly schedule its maintenance outages during periods of low demand, or during periods in which a utility's own capacity will be adequate to handle existing demand, it will enable the utility to avoid the expenses associated with providing an equivalent amount of

capacity. These savings should be reflected in the rate for purchases.

Clause (v) refers to a qualifying facility's ability and willingness to provide capacity and energy during system emergencies. Section 292.307 of these regulations concerns the provision of electric service during system emergencies. It provides that, to the extent that a qualifying facility is willing to forego its own use of energy during system emergencies and provide power to a utility's system, the rate for purchases from the qualifying facility should reflect the value of that service. Small power production and cogeneration facilities could provide significant back-up capability to electric systems during emergencies. One benefit of the encouragement of interconnected cogeneration and small power production may be to increase overall system reliability during such emergency conditions. Any such benefit should be reflected in the rate for purchases from such qualifying facilities.

Another related factor which affects the capacity value of a qualifying facility is its ability to separate its load from its generation during system emergencies. During such emergencies an electric utility may institute load shedding procedures which may, among other things, require that industrial customers or other large loads stop receiving power. As a result, to provide optimal benefit to a utility in an emergency situation, a qualifying facility might be required to continue operation as a generating plant, while simultaneously ceasing operation as a load on the utility's system. To the extent that a facility is unable to separate its load from its generation, its value to the purchasing utility decreases during system emergencies. To reflect such a possibility, clause (v) provides that the purchasing utility may consider the qualifying facility's ability to separate its load from its generation during system emergencies in determining the value of the qualifying facility to the electric utility.

Clause (vi) refers to the aggregate capability of capacity from qualifying facilities to displace planned utility capacity. In some instances, the small amounts of capacity provided from qualifying facilities taken individually might not enable a purchasing utility to defer or avoid scheduled capacity additions. The aggregate capability of such purchases may, however, be sufficient to permit the deferral or avoidance of a capacity addition. Moreover, while an individual qualifying facility may not provide the equivalent of firm power to the electric utility, the diversity of these facilities may collectively comprise the equivalent of capacity.

Clause (vii) refers to the fact that the lead time associated with the addition of capacity from qualifying facilities may be less than the lead time that would have been required if the purchasing utility had constructed its own generating unit. Such reduced lead time might produce savings in the utility's total power production costs, by permitting utilities to avoid the "lumpiness," and temporary excess capacity associated therewith, which normally occur when utilities bring on line large generating units. In addition, reduced lead time provides the utility with greater flexibility with which it can accommodate changes in forecasts of peak demand.

Subparagraph (3) concerns the relationship of energy or capacity from a qualifying facility to the purchasing electric utility's need for such energy or capacity. If an electric utility has sufficient capacity to meet its demand, and is not planning to add any new capacity to its system, then the availability of capacity from qualifying facilities will not immediately enable the utility to avoid any capacity costs. However, an electric utility system with excess capacity may nevertheless plan to add new, more efficient capacity to its system. If purchases from qualifying facilities enable a utility to defer or avoid these new planned capacity additions, the rate for such purchases should reflect the avoided costs of these additions. However, as noted by several commenters, the deferral or avoidance of such a unit will also prevent the substitution of the lower energy costs that would have accompanied the new capacity. As a result, the price for the purchase of energy and capacity should reflect these lower avoided energy costs that the utility would have incurred had the new capacity been added.

This is not to say that electric utilities which have excess capacity need not make purchases from qualifying facilities; qualifying facilities may obtain payment based on the avoided energy costs on a purchasing utility's system. Many utility systems with excess capacity have intermediate or peaking units which use high-cost fossil fuel. As a result, during peak hours, the energy costs on the systems are high, and thus the rate to a qualifying utility from which the electric utility purchases energy should similarly be high.

Subparagraph (4) addresses the costs or savings resulting from line losses. An appropriate rate for purchases from a qualifying facility should reflect the cost savings actually accruing to the electric utility. If energy produced from a qualifying facility undergoes line losses such that the delivered power is not equivalent to the power that would have been delivered from the source of power it replaces, then the qualifying facility should not be reimbursed for the difference in losses. If the load served by the qualifying facility is closer to the qualifying facility than it is to the utility, it is possible that there may be net savings resulting from reduced line losses. In such cases, the rates should be adjusted upwards.

§ 292.303(f) Periods during which purchase are not required.

The proposed rule provided that an electric utility will not be required to purchase energy and capacity from qualifying facilities during periods in which such purchases will result in net increased operating costs to the electric utility. This section was intended to deal with a certain condition which can occur during light loading periods. If a utility operating only base load units during these periods were forced to cut back output from the units in order to accommodate purchases from qualifying facilities, these base load units might not be able to increase their output level rapidly when the system demand later increased. As a result, the utility would be required to utilize less efficient, higher cost units with faster start-up to meet the demand that would have been supplied by the less expensive base load unit had it been permitted to operate at a constant output.

The result of such a transaction would be that rather than avoiding costs as a result of the purchase from a qualifying facility, the purchasing electric utility would incur greater costs than it would have had it not purchased energy or capacity from the qualifying facility. A strict application of the avoided cost principle set forth in this section would assess these additional costs as negative avoided costs which must be reimbursed by the qualifying facility. In order to avoid the anomalous result of forcing a qualifying utility to pay an electric utility for purchasing its output, the Commission proposed that an electric utility be required to identify periods during which this situation would occur, so that the qualifying facility could cease delivery of electricity during those periods.

Many of the comments received reflected a suspicion that electric utilities would abuse this paragraph to circumvent their obligation to purchase from qualifying facilities. In order to minimize that possibility, the Commission has revised this paragraph

to provide that any electric utility which seeks to cease purchasing from qualifying facilities must notify each affected qualifying facility prior to the occurrence of such a period, in time for the qualifying facility to cease delivery of energy or capacity to the electric utility. This notification can be accomplished in any reasonable manner determined by the State regulatory authority. Any claim by an electric utility that such a light loading period will occur or has occurred is subject to such verification by its State regulatory authority as the State authority determines necessary or appropriate either before or after its occurrence. Moreover, any electric utility which fails to provide adequate notice or which incorrectly identifies such a period will be required to reimburse the qualifying facility for energy or capacity supplied as if such a light loading period had not occurred.

The section has also been modified to clarify that such periods must be due to operational circumstances.

The Commission does not intend that this paragraph override contractual or other legally enforceable obligations incurred by the electric utility to purchase from a qualifying facility. In such arrangements, the established rate is based on the recognition that the value of the purchase will vary with the changes in the utility's operating costs. These variations ordinarily are taken into account, and the resulting rate represents the average value of the purchase over the duration of the obligation. The occurrence of such periods may similarly be taken into account in determining rates for purchases.

Tax Issues

The Conference Report states that:

> • • • the examination of the level of rates which should apply to the purchase by the utility of the cogenerator's or the small power producer's power should not be burdened by the same examination as are utility rate applications to determine what is the just and reasonable rate that they should receive for their electric power.[17]

The Commission notes that section 301(b)(2) of the Energy Tax Act of 1978 [18] makes certain energy property eligible for increased business investment tax credit. Some of this property is commonly used in cogeneration and small power production. However, section 301(b)(2)(B) excludes from such eligibility property "which is public utility property (within the meaning of section 46(f)(5) of the Internal Revenue Code of 1954)." [19] As a result, if the property of a qualifying facility which was otherwise eligible for the credit were to be classified as public utility property under section 46(f)(5) of the Internal Revenue Code, it would not be eligible for the increased investment tax credit.

The Commission notes that the Treasury Department's regulations provide that the definition of "public utility property" does not include property used in the business of the furnishing or sale of electric energy if the rates are not subject to regulation that fixes a rate of return on investment.[20] On this basis, the Commission believes that property of a qualifying facility that would otherwise be eligible for the energy tax credit would not be excluded from that eligibility under the public utility property exclusion.

First, this Commission is exempting property of qualifying facilities from regulation under Part II of the Federal Power Act, and from similar State and local laws and regulatory programs. Secondly, the Commission observes that the rates a qualifying facility will receive for sales of power to utilities are *not* based on a regulatory scheme which fixes a rate of return on investment of the qualifying facility.

As a result, the Commission believes that energy property of qualifying facilities should not be barred from eligibility for the tax credit by reason of the public utility property exclusion. The Commission wishes to express its opinion on this matter in an effort to further encourage cogeneration and small power production by means of this rulemaking process.

§ 292.305 Rates for sales.

Section 210(c) of PURPA provides that the rules requiring utilities to sell electric energy to qualifying facilities shall ensure that the rates for such sales are just and reasonable, in the public interest, and nondiscriminatory with respect to qualifying cogenerators or small power producers. This section contemplates formulation of rates on the basis of traditional ratemaking (*i.e.*, cost-of-service) concepts.

Paragraph (a) expresses the statutory requirement that such rates be just and reasonable and in the public interest. Paragraph (a) also provides that rates for sales from electric utilities to qualifying facilities not be discriminatory against such facilities in comparison to rates to other customers served by the electric utility.

A qualifying facility is entitled to purchase back-up or standby power at a nondiscriminatory rate which reflects the probability that the qualifying facility will or will not contribute to the need for and the use of utility capacity. Thus, where the utility must reserve capacity to provide service to a qualifying facility, the costs associated with that reservation are properly recoverable from the qualifying facility, if the utility would similarly assess these costs to non-generating customers.

In the proposed rule, paragraph (b) required electric utilities to provide energy and capacity and other services to any qualifying facility at a rate at least as favorable as would be provided to a customer who does not have his own generation. The comments received concerning this paragraph noted that this provision might be interpreted as requiring an electric utility to provide service to a qualifying facility at its most favorable rate, even if the qualifying facility would not be eligible for such a rate if it did not have its own generation. It is not the Commission's intention that, for example, an industrial cogenerator receive service at a rate applicable to residential customers; rather, such a customer should be charged at a rate applicable to a non-generating industrial customer unless the electric utility shows that a different rate is justified on the basis of sufficient load or other cost-related data. Accordingly, this section now provides that for qualifying facilities which do not simultaneously sell and purchase from the electric utility, the rate for sales shall be the rate that would be charged to the class to which the qualifying facility would be assigned if it did not have its own generation.

Subparagraph (2) provides that if, on the basis of accurate data and consistent system-wide costing principles, the utility demonstrates that the rate that would be charged to a comparable customer without its own generation is not appropriate, the utility may base its rates for sales upon those data and principles. The utility may only charge such rates on a nondiscriminatory basis, however, so that a cogenerator will not be singled out to lose any interclass or intraclass subsidies to which it might have been entitled had it not generated part of its electric energy needs itself.

In situations where a qualifying facility simultaneously sells its output to an electric utility and purchases its requirements from that electric utility, as a bookkeeping matter, the facility's

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[17] Conference Report on H.R. 4018, Public Utility Regulatory Policies Act of 1978, H. Rep. No. 1750, 95th Cong., 2d Sess. (1978).

[18] Pub. L. No. 95-618, 26 U.S.C. §§ 48, 48, November 9, 1978.

[19] 26 U.S.C. § 48(e)(3)(b).

[20] Treasury Reg. § 1.48-3(g)(2), T.D. 7602 (March 23, 1979).

electrical output will not serve its own load, but rather will be supplied to the grid. As a result, the facility's electric load is likely to have the same characteristics as the load of other non-generating customers of the utility. If the utility does not provide data showing otherwise, the appropriate rate for sales to such a facility is the rate that would be charged to a comparable customer without its own generation.

Paragraph (b)(2) of the rule sets forth certain types of service which electric utilities are required to provide qualifying facilities upon request of the facility. These types of service are supplementary power, back-up power, interruptible power and maintenance power. In response to comments, these terms are defined in the text of the rules, as well as in this preamble.

Back-up or maintenance service provided by an electric utility replaces energy or capacity which a qualifying facility ordinarily supplies to itself. These rules authorize certain facilities to purchase and sell simultaneously. The amount of energy or capacity provided by an electric utility to meet the load of a facility which simultaneously purchases and sells will vary only in accordance with changes in the facility's load; interruptions in the facility's generation will be manifested as variations in purchases from the facility. In such a case, sales to the qualifying facility will not be back-up or maintenance service, but will be similar to the full-requirements service that would be provided if the facility were a non-generating customer.

Supplementary power is electric energy or capacity used by a facility in addition to that which it ordinarily generates on its own. Thus, a cogeneration facility with a capacity of ten megawatts might require five more megawatts from a utility on a continuing basis to meet its electric load of fifteen megawatts. The five megawatts supplied by the electric utility would normally be provided as supplementary power.

Back-up power is electric energy or capacity available to replace energy generated by a facility's own generation equipment during an unscheduled outage. In the example provided above, a cogeneration facility might contract with an electric utility for the utility to have available ten megawatts, should the cogenerator's units experience an outage.

Maintenance power is electric energy or capacity supplied during scheduled outages of the qualifying facility. By pre-arrangement, a utility can agree to provide such energy during periods when the utility's other load is low, thereby avoiding the imposition of large demands on the utility during peak periods.

Interruptible power is electric energy or capacity supplied to a qualifying facility subject to interruption by the electric utility under specified conditions. Many utilities have utilized interruptible service to avoid expensive investment in new capacity that would otherwise be necessary to assure adequate reserves at time of peak demand. Under this approach utilities assure the adequacy of reserves by arranging to reduce peak demand, rather than by adding capacity. Interruptible service is therefore normally provided at a lower rate than non-interruptible service.

During the Commission's public hearings on this rulemaking, one commenter stated that utilities which have excess capacity do not save any costs by providing interruptible service. The commenter contended that the Commission should not require a utility with excess capacity to offer interruptible service. If a utility is not adding capacity (whether by construction or purchase) to meet anticipated increases in peak demand, the rates charged for interruptible service might appropriately be the same as for non-interruptible services.

The Commission believes that these matters involving the provision of interruptible rates are best handled through the pricing mechanism. However, if as discussed above, interruptible customers provide no savings to the electric utility, the rate for interruptible service need not be lower than the rate for firm service. In such a case, the Commission would consider granting a waiver from this paragraph, under the provisions of § 292.403.

Some comments noted that certain electric utilities do not have any generating capacity, and to require the services listed in subparagraph (1) might place an undue burden on the electric utility. In light of these comments, the State regulatory authorities or the Commission, as the case may be, will allow a waiver of these requirements upon a finding after a showing by the utility to the State regulatory authority or Commission, as the case may be, that provision of these services will impair the utility's ability to render adequate service to its customers or place an undue burden on the electric utility. Notice must be given in the area served by the electric utility, opportunity for public comment must be provided, and an application must be submitted to the State regulatory authority with respect to any electric utility over which it has ratemaking authority or the Commission with respect to any nonregulated electric utility.

Paragraph (c)(1) provides that rates for sales of back-up or maintenance power shall not be based, without factual data, on the assumption that forced outages or other reductions in output by each qualifying facility on an electric utility's system will occur either simultaneously or during the system peak. Like other customers, qualifying facilities may well have intraclass diversity. In addition, because of the variations in size and load requirements among various types of qualifying facilities, such facilities may well have interclass diversity.

The effect of such diversity is that an electric utility supplying back-up or maintenance power to qualifying facilities will not have to plan for reserve capacity to serve such facilities on the assumption that every facility will use power at the same moment. The Commission believes that probabilistic analyses of the demand of qualifying facilities will show that a utility will probably not need to reserve capacity on a one-to-one basis to meet back-up requirements. Paragraph (c)(1) prohibits utilities from basing rates on the assumption that qualifying facilities will impose demands simultaneously and at system peak unless supported by factual data.

The rule provides that utilities may refute these assumptions on the basis of factual data. These data need not be in the form of empirical load data. It might be the case that within certain geographic areas, weather data and performance data would constitute a sufficient basis to refute the assumption relating to the coincidence of the demands imposed, for example, by windmills or photovoltaics, with respect to their need for back-up power.

Paragraph (c)(2) provides that rates for sales shall take into account the extent to which a qualifying facility can usefully coordinate periods of scheduled maintenance with an electric utility. If a qualifying facility stays on line when the utility will need its capacity, and schedules maintenance when the utility's other units are operative, the qualifying facility is more valuable to the utility, as it can reduce its capacity requirements.

§ 292.306 Interconnection costs.

Paragraph (a) states that each qualifying facility must reimburse any electric utility which purchases capacity or energy from the qualifying facility for any interconnection costs, on a nondiscriminatory basis with respect to other customers with similar load characteristics. The Commission finds

merit in those comments which suggested that the basis of comparison for nondiscriminatory practices in the proposed rule to "any other customer" was too broad, and that the correct reference for nondiscrimination is the practice of the utility in relation to customers in the same class who do not generate electricity. As noted previously, the interconnection costs of a facility which is already interconnected with the utility for purposes of sales are limited to any additional expenses incurred by the utility to permit purchases.

Several commenters expressed their concern that some protection should be provided to qualifying facilities from potential harassment by utilities in the form of requiring unnecessary safety equipment. As discussed above, the State regulatory authorities (with respect to electric utilities over which they have ratemaking authority) and nonregulated electric utilities have the responsibility and authority to ensure that the interconnection requirements are reasonable, and that associated costs are legitimately incurred.

For qualifying facilities with a design capacity of 100 kW or less, the Commission noted that interconnection costs could be assessed on a class basis, and the standard rates for purchases established for classes of facilities of this size pursuant to § 292.304(c)(1) might incorporate these costs. State regulatory authorities (with respect to electric utilities over which they have ratemaking authority) or nonregulated electric utilities may also determine interconnection costs for qualifying facilities with a design capacity of more than 100 kW on either a class average or individual basis.

Numerous comments raised the point that the proposed rule did not address the manner in which electric utilities would be reimbursed. Potential owners and developers of qualifying facilities recommended that the costs be amortized on a reasonable basis, because paying a large lump sum payment would be a considerable obstacle to the program. Electric utilities generally preferred payment up front, although several commenters indicated that amortization might be acceptable for credit-worthy facilities. The Commission believes that the manner of reimbursements (which may include amortization over a reasonable period of time) is best left to the State regulatory authorities and nonregulated utilities. In the determination of any standard rates for purchases established pursuant to § 292.304(c)(i), if the State approves some manner of amortization, it might consider assignment of uncollected interconnection costs to the class for which the rate is established.

§ 292.307 System emergencies.

Paragraph (a) provides that, except as provided under section 202(c) of the Federal Power Act, no qualifying facility shall be compelled to provide energy or capacity to the electric utility during an emergency beyond the extent provided by agreement between the qualifying facility and the utility.

The Commission finds that a qualifying facility should not be required to make available all of its generation to the utility during a system emergency. Such a requirement might interrupt industrial processes with resulting damage to equipment and manufactured goods. Many industries install their own generating equipment in order to ensure that even during a system emergency, their supply of power is not interrupted. To put in jeopardy the availability of power to a qualifying facility during a system emergency because of the facility's ability to provide power to the system during non-emergency periods would result in the discouragement of interconnected operation and a resultant discouragement of cogeneration and small power production. The Commission therefore provides that the qualifying facility's obligation to provide energy and capacity in emergencies be established through contract.

In order to receive full credit for capacity, a qualifying facility must offer energy and capacity during system emergencies to the same extent that it has agreed to provide energy and capacity during non-emergency situations. For example, a 30 megawatt cogenerator may require 20 megawatts for its own industrial purposes, and thus may contract to provide 10 megawatts of capacity to the purchasing utility. During an emergency, the cogenerator must provide the 10 megawatts contracted for to the utility; it need not disrupt its industrial processes by supplying its full capability of 30 megawatts. Of course, if it should so desire, a cogenerator could contractually agree to supply the full 30 megawatts during system emergencies. The availability of such additional backup capacity should increase utility system reliability, and should be accounted for in the utility's rates for purchases from the cogenerator.

Paragraph (b) provides that an electric utility may discontinue purchases from a qualifying facility during a system emergency if such purchases would contribute to the emergency. In addition, during system emergencies, a qualifying facility must be treated on a nondiscriminatory basis in any load shedding program—*i.e.*, on the same basis that other customers of a similar class with similar load characteristics are treated with regard to interruption of service.

Credit for capacity (as noted in § 292.304(e)(2)(v)) will also take into account the ability of the qualifying facility to separate its load and generation during system emergencies. However, the qualifying facility may well be eligible for some capacity credit even if it cannot separate its load and generation.

§ 292.308 Standards for operating reliability.

Section 210(a) of PURPA states that the rules requiring electric utilities to buy from and sell to qualifying facilities shall include provisions respecting minimum reliability of qualifying facilities (including reliability of such facilities during emergencies) and rules respecting reliability of electric utilities during emergencies. The Commission believes that the reliability of qualifying facilities can be accounted for through price; namely, the less reliable a qualifying facility might be, the less it should be entitled to receive for purchases from it by the utility.

As a result, the Commission has not included specific standards relating to the reliability in the sense of the ability of qualifying facilities to provide energy or capacity.

The Commission has determined that safety equipment exists which can ensure that qualifying facilities do not energize utility lines during utility outages. This section accordingly provides that each State regulatory authority or nonregulated electric utility may establish standards for interconnected operation between electric utilities and qualifying facilities. These standards may be recommended by any utility, any qualifying facility, or any other person. These standards must be accompanied by a statement showing the need for the standard on the basis of system safety and operating requirements.

Subpart D—Implementation

Summary of this Subpart

Rules in this subpart are intended to carry out the responsibility of the Commission to encourage cogeneration and small power production by clarifying the nature of the obligation to implement the Commission's rules under section 210.

These rules afford the State regulatory authorities and nonregulated electric utilities great latitude in determining the manner of implementation of the

Commission's rules, provided that the manner chosen is reasonably designed to implement the requirements of Subpart C. The Commission recognizes that many States and individual nonregulated electric utilities have ongoing programs to encourage small power production and cogeneration. The Commission also recognizes that economic and regulatory circumstances vary from State to State and utility to utility. It is within this context—in recognition of the work already begun and of the variety of local conditions—that the Commission promulgates its regulations requiring implementation of rules issued under section 210.

Because of the Commission's desire not to create unnecessary burdens at the State level, these rules provide a procedure whereby a State regulatory authority or nonregulated electric utility may apply to the Commission for a waiver if it can demonstrate that compliance with certain requirements of Subpart C is not necessary to encourage cogeneration or small power production and is not otherwise required under section 210.

Several commenters expressed their concern that State regulatory authorities would not be able adequately to implement the Commission's rules, and therefore, recommended that the Commission issue specific rules which the State regulatory authorities would adopt without change. The Commission does not find this proposal to be appropriate at this time, and believes that providing an opportunity for experimentation by the States is more conducive to development of these difficult rate principles.

Implementation

Section 210(f) of PURPA requires that within one year after the date that this Commission prescribes its rules under subsection (a), and within one year of the date any of these rules is revised, each State regulatory authority and each nonregulated electric utility, after notice and opportunity for hearing, must implement the rules or revisions thereof, as the case may be.

The obligation to implement section 210 rules is a continuing obligation which begins within one year after promulgation of such rules. The requirement to implement may be fulfilled either (1) through the enactment of laws or regulations at the State level, (2) by application on a case-by-case basis by the State regulatory authority, or nonregulated utility, of the rules adopted by the Commission, or (3) by any other action reasonably designed to implement the Commission's rules.

Review and Enforcement

Section 210(g) of PURPA provides one of the means of obtaining judicial review of a proceeding conducted by a State regulatory authority or nonregulated utility for purposes of implementing the Commission's rules under section 210. Under subsection (g), review may be obtained pursuant to procedures set forth in section 123 of PURPA. Section 123(c)(1) contains provisions concerning judicial review and enforcement of determinations made by State regulatory authorities and nonregulated utilities under Subtitle A, B, or C of Title I in the appropriate State court. These provisions also apply to review of any action taken to implement the rules under section 210. This means that persons can bring an action in State court to require the State regulatory authorities or nonregulated utilities to implement these regulations.

Section 123(c)(2) of PURPA provides that persons seeking review of any determination made by a Federal agency may bring an action in the appropriate Federal court. This distinction between Federal agencies and non-Federal agencies also applies to review of enforcement of the implementation of the rules under section 210.

Finally, the Commission believes that review and enforcement of implementation under section 210 of PURPA can consist not only of review and enforcement as to whether the State regulatory authority or nonregulated electric utility has conducted the initial implementation properly—namely, put into effect regulations implementing section 210 rules or procedures for that implementation, after notice and an opportunity for a hearing. It can also consist of review and enforcement of the application by a State regulatory authority or nonregulated electric utility, on a case-by-case basis, of its regulations or of any other provision it may have adopted to implement the Commission's rules under section 210.

Section 210(h)(2)(A) of PURPA states that the Commission may enforce the implementation of regulations under section 210(f). The Congress has provided not only for private causes of action in State courts to obtain judicial review and enforcement of the implementation of the Commission's rules under section 210, but also provided that the Commission may serve as a forum for review and enforcement of the implementation of this program.

§ 292.401 Implementation by state regulatory authorities and nonregulated electric utilities

Paragraph (a) of § 292.401 sets forth the obligation of each State regulatory authority to commence implementation of Subpart C within one year of the date these rules take effect. In complying with this paragraph the State regulatory authorities are required to provide for notice of and opportunity for public hearing. As described in the summary of this subpart, such implementation may consist of the adoption of the Commission's rules, an undertaking to resolve disputes between qualifying facilities and electric utilities arising under Subpart C, or any other action reasonably designed to implement Subpart C.

This section does not cover one provision of Subpart C which is not required to be implemented by the State regulatory authority or nonregulated electric utility. This provision is § 292.302 (Availability of electric utility system cost data), the implementation of which is subject to § 292.402, discussed below.

Subsection (b) sets forth the obligaton of each nonregulated electric utility to commence, after notice and opportunity for public hearing, implementation of Subpart C. The nonregulated electric utilities, being both the regulator and the utility subject to the regulation, may satisfy the obligation to commence implementation of Subpart C through issuance of regulations, an undertaking to comply with Subpart C, or any other action reasonably designed to implement that subpart.

Paragraph (c) sets forth a reporting requirement under which each State regulatory authority and nonregulated electric utility is to file with the Commission, not later than one year after these rules take effect, a report describing the manner in which it is proceeding to implement Subpart C.

Comments received regarding this section indicated a concern that the obligation of a State regulatory authority or nonregulated utility "to commence implementation * * * within one year * * *" did not provide any guidance as to when the process must be completed. The Commission notes that the intention of this section is that the State regulatory authorities and nonregulated utilities have one year in which to establish procedures and that at the end of that year each State must be prepared to entertain applications. The phrase "commence implementation" is intended by the Commission to connote that implementation of these rules is a

continuing process and that oversight will be ongoing.

§ 292.402 Implementation of reporting objectives.

The obligation to comply with § 292.302 is imposed directly on electric utilities. This is different from the rest of Subpart C where the obligation to act is imposed on the State regulatory authority or the nonregulated electric utility in its role as regulator. The Commission is exercising its authority under section 133 of PURPA and other laws within the Commission's authority to require this reporting.

Any electric utility which fails to comply with the requirements of § 292.302(b) is subject to the same penalties as it might receive as a result of a failure to comply with the requirements of the Commission's regulations issued under section 133 of PURPA. As stated earlier in this preamble, the data required by § 292.302 will form the basis from which the rates for purchases will be derived; § 292.302 is thus a critical element in this program. The Commission believes that, with regard to utilities subject to section 133 of PURPA, the Commission may exercise its authority under section 133 to require the data required by § 292.302(b) on the basis that the Commission finds such information necessary to allow determination of the costs associated with providing electric services. With regard to utilities not subject to section 133, if they fail to provide the data called for in § 292.302(c), the Commission may compel its production under the Federal Power Act and other statutes which provide the Commission with authority to require reporting of such data.

§ 292.403 Waivers.

Paragraph (a) provides for a procedure by which any State regulatory authority or nonregulated electric utility may apply for a waiver from the application of any of the requirements of Subpart C other than § 292.302. (Section 292.302(d) has been revised to permit a State regulatory authority or nonregulated utility to adopt a substitute method for the provision of system cost data without prior Commission approval.)

Paragraph (b) provides that the Commission will grant such a waiver only if the applicant can show that compliance with any of the requirements is not necessary to encourage cogeneration or small power production and is not otherwise required under section 210 of PURPA.

This section is included in recognition of the need for the Commission to afford flexibility to the States and nonregulated utilities to implement the Commission's rules under section 210.

Several comments suggested that the Commission set forth procedures for considering applications for waivers which would allow formal participation by qualifying facilities in a public hearing. The Commission notes that interested parties would be given an opportunity to be heard in any proceeding it conducts to determine whether or not a waiver should be granted.

Subpart F—Exemption of Qualifying Small Power Production and Cogeneration Facilities From Certain Federal and State Laws and Regulations

§ 292.601 Exemption of qualifying facilities from the Federal Power Act.

Section 210(e) of PURPA states that the Commission shall prescribe rules under which qualifying facilities are exempt, in part, from the Federal Power Act, from the Public Utility Holding Company Act of 1935, from the State laws and regulations respecting the rates, or respecting the financial or organization regulation, of electric utilities, or from any combination of the foregoing, if the Commission determines such exemption is necessary to encourage cogeneration and small power production. As noted in the Staff Discussion Paper, the Congress intended the Commission to make liberal use of its exemption authority in order to remove the disincentive of utility-type regulation. The Commission believes that broad exemption is appropriate.

Section 210(e)(2) of PURPA provides that the Commission is not authorized to exempt small power production facilities of 30 to 80 megawatt capacity from these laws. An exception is made for small power production facilities using biomass as a primary energy source. Such facilities between 30 and 80 megawatts may be exempted from the Public Utility Holding Company Act of 1935 and from State laws and regulations but may not be exempted from the Federal Power Act. The Commission will establish procedures for the determination of rates for these facilities in a separate proceeding.

Paragraph (a) sets forth those facilities which are eligible for exemption. Paragraph (b) provides that facilities described in paragraph (a) shall be exempted from all but certain specified sections of the Federal Power Act.

Section 210(e)(3)(C) of PURPA provides that no qualifying facility may be exempted from any license or permit requirement under Part I of the Federal Power Act. Accordingly, no qualifying facilities will be exempt from Part I of the Federal Power Act. The Commission recently issued simplified procedures for obtaining water power licenses for hydroelectric projects of 1.5 megawatts or less, and has issued proposed regulations to expedite licensing of existing facilities.[11]

The Commission believes cogeneration and small power production facilities could be the subject of an order under section 202(c) of the Federal Power Act requiring them to provide energy if the Economic Regulatory Administration determines that an emergency situation exists. Because application of this section is limited to emergency situations and is not affected by the fact that a facility attains qualifying status or engages in interchanges with an electric utility, the Commission notes that qualifying facilities will not be exempted from section 202(c) of the Act.

Furthermore, in response to comment, the Commission has revised this paragraph to provide that qualifying facilities are not exempt from sections 210, 211, and 212 of the Federal Power Act, as required by section 210(e)(3)(B) of PURPA.

Sections 203, 204, 205, 206, 208, 301, 302, and 304 of the Federal Power Act reflect traditional rate regulation or regulation of securities of public utilities. The Commission has determined that qualifying facilities shall be exempted from these sections of the Federal Power Act.

Section 305(c) of the Act imposes certain reporting requirements on interlocking directorates. The Commission believes that any person who otherwise is required to file a report regarding interlocking positions should not be exempted from such requirement because he or she is also a director or officer of a qualifying facility.

Finally, the enforcement provisions of Part III of the Federal Power Act will continue to apply with respect to the sections of the Federal Power Act from which qualifying facilities are not exempt.

§ 292.602 Exemption of qualifying facilities from the Public Utility Holding Company Act and certain State law and regulation.

Under section 210(e) of PURPA the Commission can exempt qualifying facilities from regulation under the

[11] *See* Order No. 11, Simplified Procedures for Certain Water Power Licenses, Docket No. RM79-9, issued September 5, 1979, and Application for License for Major Projects—Existing Dam, Docket No. RM79-38, 44 FR 24093 (April 21, 1979).

Public Utility Holding Company Act of 1935 and State laws and regulations concerning rates or financial organization. Only cogeneration facilities and small power production facilities of 30 megawatts or less may be exempted from both of these laws, with the exception that any qualifying small power production facility (*i.e.*, up to 80 megawatts) using biomass as a primary energy source can be exempted from these laws.

The Commission has determined that where a qualifying facility is subjected to more stringent regulation than other companies solely by reason of the fact that it is engaged in the production of electric energy, these more stringent requirements should be eased through exemption of qualifying facilities. By excluding any qualifying facility from the definition of an "electric utility company" under section 2(a)(3) of the Public Utility Holding Company Act of 1935, such facilities would be removed from Public Utility Holding Company Act regulation which is applied exclusively to electric utility companies. Moreover, by excluding qualifying facilities from this definition, parent companies of qualifying facilities would not be subject to additional regulation as a result of electric production by their subsidiaries. The Commission therefore believes that in order to encourage cogeneration and small power production it is necessary to exempt cogenerators and small power producers from all of the provisions of the Public Utility Holding Company Act of 1935 related to electric utilities.

Accordingly, paragraph (b) states that no qualifying facility shall be considered to be an "electric utility company", as defined in section 2(a)(3) of the Public Utility Holding Company Act of 1935, 15 U.S.C. § 79b(a)(3).

Section 210(e) of PURPA states that qualifying facilities which may be exempted from the Public Utility Holding Company Act may also be exempted from State laws and regulations respecting the rates or financial organization of electric utilities.

The Commission has decided to provide a broad exemption from State laws and regulations which would conflict with the State's implementation of the Commission's rules under section 210.

The Commission believes that such broad exemption is necessary to encourage cogeneration or small power production. Accordingly, subparagraph (c)(1) provides that any qualifying facility shall be exempt from State laws and regulations respecting rates of electric utilities, and from financial and organizational regulation of electric utilities. Several commenters noted that this section might be interpreted as exempting qualifying facilities from state laws or regulations implementing the Commission's rules, under section 210(f) of PURPA. In order to clarify that qualifying facilities are not to be exempt from these rules, the Commission has added subparagraph (c)(2) prohibiting any exemptions from State laws and regulations promulgated pursuant to Subpart C of these rules.

Some commenters indicated that § 292.301(b)(1) might be interpreted as prohibiting a State from reviewing contracts for purchases. These commenters stated that, as a part of a State's regulation of electric utilities, a State regulatory authority needs to be able to review contracts entered into by electric utilities it regulates.

These rules, and the exemptions being provided by these rules, are not intended to divest a State regulatory agency of its authority under State law to review contracts for purchases as part of its regulation of electric utilities. Such authority may continue to be exercised if consistent with the terms, policies and practices under sections 210 and 201 of PURPA and this Commission's implementing regulations. If the authority or its exercise is in conflict with these sections of PURPA or the Commission's regulations thereunder, the State must yield to the Federal requirements. The Commission does not believe it possible or advisable to attempt to establish more precise guidelines than these. Accordingly, States which have questions in this regard should seek an interpretive ruling from the Commission's General Counsel.

Subparagraph (c)(3) provides that, upon request of a State regulatory authority or nonregulated electric utility, the Commission may limit the applicability of the broad exemption from the State laws. This provision is intended to add flexibility to the exemption.

The Commission perceives that there may be instances in which a qualifying facility would wish to have an interpretation of whether or not it is subject to a particular State law in order to remove any uncertainty. Under subparagraph (c)(4), the Commission may determine whether a qualifying facility is exempt from a particular State law or regulation.

(Public Utility Regulatory Policies Act of 1978, 16 U.S.C. § 2601, *et seq.*, Energy Supply and Environmental Coordination Act, 15 U.S.C. § 791 *et seq.*, Federal Power Act, as amended, 16 U.S.C. § 792 *et seq.*, Department of Energy Organization Act, 42 U.S.C. § 7101 *et seq.*, E.O. 12009, 43 Fed. Reg. 46267)

IV. Effective Date

The regulations promulgated in this order are effective March 20, 1980.

In consideration of the foregoing, the Commission amends Part 292 of Chapter I, Title 18, Code of Federal Regulations, as set forth below, effective March 20, 1980. By the Commission.

Kenneth F. Plumb,

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APPENDIX I

AVOIDED COST RATE SCHEDULE

The following pages comprise the avoided cost rate schedule promulgated by the Southern California Edison Company on May 15, 1980.

Southern California Edison Company

P O BOX 800
2244 WALNUT GROVE AVENUE
ROSEMEAD CALIFORNIA 91770

May 15, 1980

Dear Edison Customer:

In compliance with both federal and state guidelines, enclosed is Edison's avoided cost information entitled "Interim Proposed Policy for Cogeneration and Small Power Production". The attached schedules should enable you to estimate the value of energy and capacity that you could make available for sale to the Edison Company. If you do not have any energy and capacity available and are not interested in cogeneration or small power production, please disregard this information.

This schedule will form the basis for an offer to purchase all energy and capacities from cogeneration and small power producers who meet the minimum qualifications shown for Basic Electric Supplier Types (BEST). It is Edison's intention that the attached schedule will be used in conjunction with individual contracts which are subject to approval by the California Public Utilities Commission.

Edison is very interested in developing all feasible cogeneration and small power projects. If you believe you have a potential project, please direct your inquiries to the address below. Even if you cannot meet the minimum qualifications, you are encouraged to contact Edison. On a quarterly basis, Edison will be updating its projected "Avoided Costs". If you desire to receive these updates, please direct your inquiries to the address below.

If you require assistance in utilizing the attached information, Edison will make every effort to assist you. Please direct your inquiries to Southern California Edison Company, Cogeneration Projects, Room 391, 2244 Walnut Grove Avenue, P. O. Box 800, Rosemead, California 91770, or telephone the Cogeneration and Small Power Projects Section (213) 572-1419.

Very truly yours,

M. J. Vogeler

SOUTHERN CALIFORNIA EDISON COMPANY
INTERIM PROPOSED POLICY FOR COGENERATION AND SMALL POWER PRODUCTION

MAY 1980

INTRODUCTION

This outline is intended to inform Edison customers, who are potential energy suppliers, of the Southern California Edison Company's policy in establishing the purchase price for power from Qualifying Cogenerators and Small Power Producers.1/

This outline has been prepared in three sections:

1. The first section quantifies Edison's Avoided Cost of energy and capacity and supplies methods of calculating payments based on those Avoided Costs. The term "Avoided Cost" was adopted during the process of drafting Federal regulations implementing the Public Utility Regulatory Policies Act of 1978. "Avoided Cost" is defined as the savings in total utility power costs attributed to the purchase of power from a Qualifying Facility2/ in lieu of the utility producing the power itself.3/ This savings, or Avoided Cost, is the basis for the valuing of power purchased from a Qualifying Facility by the utility.

   The difficulty in making Avoided Cost calculations centers around defining the load characteristics of the Qualifying Facility. State guidelines suggest, and federal regulations provide for, consideration of dispatchability, length of contract, and reliability, among other factors.4/ The attached Schedule of Avoided Cost is calculated assuming specific capabilities of Qualifying Facilities outlined in the terms attached. A Qualifying Facility with the ability to comply with the terms attached will be referred to as Basic Electric Supplier Type (or BEST) producer.

   The quantification of Avoided Costs is shown in two ways:

   a. Separate payments of energy (kilowatthours) and capacity (kilowatts). See pages 3 and 4.

   b. Combined energy and capacity payments expressed in dollars per kilowatthour. See page 5.

   To use method (a) above, it is necessary to know the applicable capacity factor of the Qualifying Facility. Capacity factor is defined as the ratio of average kW to peak kW. Peak kilowatts should be the same as the contract capacity. The capacity factor cannot exceed 1.0.

1/ See 16 USC 796. (Federal Code of Regulations)
2/ General requirements for Qualifying Facilities are set forth at 18 C.F.R §203.
3/ For a more complete definition of Avoided Cost see 18 C.F.R § 292.101(b)(6).
4/ For a more complete discussion of these factors see 18 C.F.R § 292.304(e).

If the rates developed using the method (b) above are applied, capacity factor calculations will not be necessary. Both methods yield the same results. However, it will still be necessary to estimate the delivery of energy to the utility by Time-Of-Purchase period.

As noted on the Schedule of Avoided Cost, Page 4, the energy component is $0.047 per kWh through the period ending July 31, 1980. A new Energy schedule effective on August 1, 1980 revising the current energy schedule will be mailed to each Edison customer identified as a potential cogenerator or small power producer. These updates will be made every three months in order to reflect the Avoided Cost of generated energy. Also, as explained on Page 4, the capacity value will be updated at least every two years in conjunction with a general rate application.

2. The second section describes the minimum criteria to be addressed in the contract agreement with regards to Emergency Availability, Dispatchability, Availability and Reliability. The qualifying facilities who meet the minimum criteria will receive full capacity payments. If the qualifying facility does not meet the minimum criteria for full payment for capacity, it may still be eligible for a payment proportionate to the value of its capacity to the utility. Depending upon the specific situation, reduction to capacity value may be required. However, the payments for the total output should, in every case, be at least equal to the Avoided Cost of energy.

   Special low capacity factor applications such as wind turbines and run-of-the-stream hydro are not specifically addressed in this filing. It is assumed, for informational purposes, that a 50% reduction to the capacity value of a BEST supplier is a reasonable approximation of the capacity value of these Qualifying Facilities in lieu of a case-by-case determination. Calculations based on this assumption are shown in the examples on Pages 11 and 12.

3. The third section gives examples of payments to Qualifying Cogenerators and Qualifying Small Power Producers.

   NOTE: If you require any assistance in utilizing this information, Edison will make every effort to assist you. Please direct your inquiries to Southern California Edison Company, Conservation Division, 2244 Walnut Grove Avenue, P.O. Box 800, Rosemead, California, 91770, or phone the Cogeneration and Small Power Projects Section, (213) 572-1419.

SECTION ONE

SOUTHERN CALIFORNIA EDISON COMPANY

INTERIM PROPOSAL

SCHEDULE OF AVOIDED COST

In compliance with
Ordering Paragraph No. 2
Commission Resolution E-1872

04/28/80

SOUTHERN CALIFORNIA EDISON COMPANY

CALCULATION OF AVOIDED COST PAYMENTS
(Separated by Energy and Capacity)

Total Monthly Payment = Sum of all Time-Of-Purchase (TOP) Payments

Sum of TOP Payments = On-peak TOP
+ Mid-peak TOP
+ Off-peak TOP

Each TOP Payment = TOP Energy Payment + TOP Capacity Payment

TOP Energy Payment = Avoided Cost of Energy[1/] x TOP kWh Purchased by Edison

TOP Monthly Capacity Payment = Avoided Cost of Capacity[2/] x TOP Capacity Factor x TOP kW x Factor 1

Where:

TOP kW = Contracted kW by TOP

TOP Capacity Factor = $\frac{\text{TOP kWh purchased by Edison}}{\text{TOP kW x TOP No. of hours in the month}}$; cannot exceed 1.

SUMMER:

(May 1 to October 31)	Factor 1[4/]	Average Hours[5/]	Time-Of-Purchase (TOP) (Pacific Standard Time)
On-Peak	.07333	129.00	12:00 Noon to 6:00 p.m.[3/]
Mid-Peak	.01000	172.00	8:00 a.m. to 12:00 Noon and 6:00 p.m. to 10:00 p.m.[3/]
Off-Peak	.00833	435.00	All Otner Hours

WINTER:

(November 1 to April 30)			Time-Of-Purchase (TOP) (Pacific Standard Time)
On-Peak	.05500	104.17	5:00 p.m. to 10:00 p.m.[3/]
Mid-Peak	.01000	187.50	8:00 a.m. to 5:00 p.m.[3/]
Off-Peak	.01000	436.33	All Other Hours

1/ From Energy Schedule on Page 4.
2/ From Capacity Schedule on Page 4.
3/ Weekdays except holidays. Holidays are New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, and Christmas.
4/ Factor 1 reflects the savings to Edison by Time-Of-Purchase and will be updated annually.
5/ Use average hours for TOP capacity factor calculations in evaluating the cost-benefit; capacity factors for actual monthly payments will be calculated more precisely for each month and will vary depending on the billing period.

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SOUTHERN CALIFORNIA EDISON COMPANY

SCHEDULE OF AVOIDED COST
FOR COGENERATORS AND SMALL POWER PRODUCERS
WHO QUALIFY AS BASIC ELECTRIC SUPPLIER TYPES
(See attached list of Contract Terms which must be satisfied.)

ENERGY SCHEDULE

(For Service through 07/31/80; to be updated quarterly, based on recorded fuel purchase costs.)

On-Peak (Weekdays 12:00 Noon to 6:00 p.m.)	=	$0.047/kWh
Mid-Peak (Weekdays 8:00 a.m. to 12:00 Noon and 6:00 p.m. to 10:00 p.m.)	=	$0.047/kWh
Off-Peak (Weekdays 10:00 p.m. to 8:00 a.m. plus all weekend hours and holidays)	=	$0.046/kWh

CAPACITY SCHEDULE

(For firm contracts signed through 1/1/81)

Year of Delivery	$/kW/Yr. (Based on 100% CF) Contract Term Years					
	1	5	10	15	20	30
1980	-	29	54	70	82	102
1981	-	39	64	79	93	114
1982	30	51	75	90	104	127
1983	32	65	87	103	118	143
1984	35	82	102	117	133	159
1985	-	101	118	134	151	180

The Capacity Schedule data is to be updated at least biennially based on the general rate case cost data.

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COMBINED ENERGY AND CAPACITY SCHEDULE

In order to derive a combined energy and capacity formula, the capacity allocation to time periods is based on the following factor:

SUMMER:

(May 1 to October 31)	Factor 2[5/]	Time-Of-Purchase (TOP) (Pacific Standard Time)
On-Peak	.0005685	12:00 Noon to 6:00 p.m.[1/]
Mid-Peak	.0000581	8:00 a.m. to 12:00 Noon and 6:00 p.m. to 10:00 p.m.[1/]
Off-Peak	.0000192	All Other Hours

WINTER:

(November 1 to April 30)		Time-Of-Purchase (TOP) (Pacific Standard Time)
On-Peak	.0005280	5:00 p.m. to 10:00 p.m.[1/]
Mid-Peak	.0000533	8:00 a.m. to 5:00 p.m.[1/]
Off-Peak	.0000229	All Other Hours

Combined Energy and Capacity Formula in $/kWh = (Factor 2) x Avoided Cost of Capacity[2/] + Avoided Cost of Energy[3/]

Example:

The Combined Energy and Capacity price ($/kWh) for a 20-year contract starting delivery in May 1980 (100% CF):

	Winter		Summer	
On-Peak	.0005280 x 82[2/] + .047[3/]	= .0903	.0005685 x 82 + .047[4/]	= .0936
Mid-Peak	.0000533 x 82 + .047	= .0514	.0000581 x 82 + .047	= .0518
Off-Peak	.0000229 x 82 + .046	= .0479	.0000192 x 82 + .046	= .0476

1/ Weekdays except holidays.
2/ From Capacity Schedule on Page 4.
3/ From Energy Schedule on Page 4.
4/ The current price of energy is used for illustrative purpose only.
5/ Factor 2 reflects the savings to Edison by Time-Of-Purchase and will be updated annually; the factors for actual monthly payments will be calculated more precisely for each month and will vary depending on the billing period.

COMPARISON OF AVERAGE MONTHLY AVOIDED COST PAYMENTS TO A BEST CUSTOMER

Comparison of monthly payments to a customer with a 20-year contract, starting delivery in May 1980, and assuming the same capacity factor for all time periods for each example.

Capacity Factor	TOP		Monthly Capacity $/kW/Mo.	Monthly Energy $/kWh 1/ 3/	Combined Energy & Capacity $/kWh 4/	Average Monthly kWh 5/	Average Monthly Payment
80%	Summer:	On-Peak	4.81 2/	0.047	0.0936	103.2	9.66 6/
		Mid-Peak	0.66	0.047	0.0518	137.6	7.13
		Off-Peak	0.55	0.046	0.0476	348.0	16.56
	Winter:	On-Peak	3.61	0.047	0.0903	83.3	7.52
		Mid-Peak	0.66	0.047	0.0514	150.0	7.71
		Off-Peak	0.66	0.046	0.0479	349.1	16.72
75%	Summer:	On-Peak	4.51	0.047	0.0936	96.8	9.06
		Mid-Peak	0.62	0.047	0.0518	129.0	6.68
		Off-Peak	0.51	0.046	0.0476	326.2	15.52
	Winter:	On-Peak	3.38	0.047	0.0903	78.1	7.05
		Mid-Peak	0.62	0.047	0.0514	140.6	7.23
		Off-Peak	0.62	0.046	0.0479	327.3	15.68
70%	Summer:	On-Peak	4.21	0.047	0.0936	90.3	8.45
		Mid-Peak	0.57	0.047	0.0518	120.4	6.23
		Off-Peak	0.48	0.046	0.0476	304.5	14.49
	Winter:	On-Peak	3.16	0.047	0.0903	72.9	6.59
		Mid-Peak	0.57	0.047	0.0514	131.3	6.74
		Off-Peak	0.57	0.046	0.0479	305.4	14.62

1/ Energy payments will be updated quarterly, based on recorded fuel purchase costs. The current price of energy is used for illustrative purposes only.
2/ (Factor 1 x C.F. x Annual Capacity Cost) = (0.07333 x 0.80 x 82) = $4.81/kW/Month.
3/ See Page 4
4/ See Page 5
5/ Number of hours in the month x C.F. (For a 1 kW customer)
6/ a) Monthly capacity $/kW/Mo. + (kWh x Monthly Energy $/kWh) = 4.81 + (103.2 x 0.047) = 9.66 $/kW/Mo.
b) Combined Energy & Capacity $/kWh x Average Monthly kWh = 0.0936 x 103.2 = 9.66 $/kW/Mo.

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SECTION TWO

SOUTHERN CALIFORNIA EDISON COMPANY

INTERIM PROPOSAL

CONTRACT TERMS

In compliance with
Ordering Paragraph No. 2
Commission Resolution E-1872

04/28/80

SOUTHERN CALIFORNIA EDISON COMPANY
INTERIM PROPOSED CONTRACT TERMS
FOR (BEST*) COGENERATORS AND SMALL POWER PRODUCERS

A. EMERGENCY AVAILABILITY

QF[1/] Responsibility To:	Edison Responsibility To:
1. Deliver power at subtransmission voltage or equivalent.	Determine appropriate voltage.
2. Pay for interconnection costs through monthly charges at Edison's added facilities rate for interconnection facilities.	Design and install required interconnection equipment.
3. Increase delivery to full capacity during periods of critical load at Edison's request.	Give more than 30 minutes advanced notice of upcoming critical periods (see B(2) below). A request for full power will be made when the next to last peaker is to be scheduled for operation.
4. Limit downtime during peak hours to unscheduled failure of equipment directly related to electric generation.	Establish whether an outage was due to a forced outage.

B. DISPATCHABILITY

QF[1/] Responsibility To:	Edison Responsibility To:
1. Maintain unit or units outside Edison's peak period (as defined in schedule of avoided cost).	Meet with QF and establish a maintenance schedule. (If customer cannot schedule maintenance outside the peak period, he may not qualify for full firm capacity payment.)
2. Give advanced notice with concurrence of the Company for a major overhaul.	Provide customer annually an updated timetable of expected critical capacity periods.

* Basic Electric Supplier Type.

1/ QF = Qualifying Facility.

C. AVAILABILITY

QF[1/] Responsibility To:	Edison Responsibility To:
1. Attain a minimum availability (on an annual basis) of 65% or greater for qualifying capacity factors as specified below in C(2).	Provide separate metering on a Time-of-Purchase basis for the generator output and the onsite customer's usage, if any.
2. Attain a monthly capacity factor of 51% or greater by time period in order to qualify for full capacity payment for each time period. Below 51% capacity factor, the capacity payment is reduced by 50%.	Give an incentive for performance. The payment will be the value from the schedule x capacity factor. The capacity factor will be determined from the Time-of-Purchase metering.

NOTE: The qualifying capacity factor will be updated annually based on the average of Edison's own thermal resources.

D. RELIABILITY

QF[1/] Responsibility To:	Edison Responsibility To:
1. Demonstrate the reliability of his energy source over the life of the contract equivalent to that of the Company's own resources.	Work with the QF to establish a measurement of reliability based on fuel storage capacity, etc.
2. Demonstrate the reliability of his prime mover to be reasonable with respect to the average reliability for similar equipment.	Base such calculations on the QF's previous year's recorded experience including the capability to supply in emergency periods as specified in A(3) and A(4).

The general terms above will become the basis for a formal contract with each qualifying Basic Electric Supplier Type. In addition to the terms above, the contract will embody standard liability, insurance coverage, and other considerations including termination settlements coverage, etc. The cogenerators and small power producers who do not meet the above minimum criteria will be treated on a case-by-case basis.

1/ Qualifying Facility

SECTION THREE

SOUTHERN CALIFORNIA EDISON COMPANY

ILLUSTRATED EXAMPLES

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SIMULTANEOUS BUY AND SELL SMALL POWER PRODUCTION CUSTOMER
(Based on Summer Month)

The examples below illustrate a monthly payment by Edison for the purchase of all energy generated by a small power producer or a TOU-8 customer under the proposed "Schedule of Avoided Cost":

Example: Combined Energy & Capacity Method

	On-Peak	Mid-Peak	Off-Peak	Total
Generated (kWh)	905,025	1,569,103	3,673,272	
Demand (kW)	9,240	9,240	9,128	
Combined Energy & Capacity Price ($/kWh)1/	0.0936	0.0518	0.0476	
Payment ($)	84,710	81,280	174,848	340,838

Example: Separate Capacity & Energy Method

	On-Peak	Mid-Peak	Off-Peak	Total
Generated (kWh)	905,025	1,569,103	3,673,272	
Demand (kW)	9,240	9,240	9,128	
Capacity Factor2/	0.759	0.99	0.93	
Capacity Payment ($)2/	42,171	7,501	5,799	55,471
Energy Price ($/kWh)3/	0.047	0.047	0.046	
Energy Payment ($)	42,536	73,748	168,971	285,255
Energy & Capacity Payment ($)4/	84,707	81,249	174,770	340,726

1/ See Page 5
2/ See Page 3
3/ See Page 4
4/ Differences are due to rounding

NOTE: For service through 07/31/80 and assuming a 20-year contract starting in 1980.

NET POWER PRODUCER COGENERATION CUSTOMER
(Based on Summer Month)

The examples below illustrate a monthly payment by Edison for the purchase of both Excess Energy and Capacity, and purchase of Energy Only under the proposed "Schedule of Avoided Cost":

Example: Excess Energy & Capacity

Payment by Edison for the purchase of Excess Energy and Capacity for service through 07/31/80 and assuming a 20-year contract starting in 1980. The customer's generator has a contract rating of 1,000 kW.

Combined Energy & Capacity Method

	On-Peak	Mid-Peak	Off-Peak	Total
Excess Energy (kWh)	95,000	152,000	256,000	
Combined Energy & Capacity Price ($/kWh) 1/	0.0936	0.0518	0.0476	
Payment ($)	8,892	7,874	12,186	28,952

Separate Capacity & Energy Method

	On-Peak	Mid-Peak	Off-Peak	Total
Excess Energy (kWh)	95,000	152,000	256,000	503,000
Hours of Operation	95	152	256	
Capacity Factor 2/	0.736	0.89	0.6	
Capacity Payment ($) 2/	4,426	729	410	5,565
Energy Price ($/kWh) 3/	0.047	0.047	0.046	
Energy Payment ($)	4,465	7,144	11,776	23,385
Energy & Capacity Payment ($)	8,891	7,873	12,186	28,950

Example: Excess Energy Only

Payment by Edison for the purchase of Excess Energy Only (no capacity) one-year contract.

	On-Peak	Mid-Peak	Off-Peak	Total
Excess Energy (kWh)	95,000	152,000	256,000	
Current Price ($/kWh) 3/	0.047	0.047	0.046	
Payment ($)	4,465	7,144	11,776	23,385

1/ See Page 5
2/ See Page 3
3/ See Page 4
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SMALL HYDRO PLANT
(Based on a Summer Month)

Operating Schedule: 8 hours/day at 2,400 kW (Contract Capacity)
7 days/week

Payment by Edison for the purchase of Energy and Capacity under the proposed "Schedule of Avoided Cost".

	On-Peak	Mid-Peak	Off-Peak	Total
Potential Energy (kWh)[1/]	309,600	412,800	1,044,000	1,766,400
Metered Energy	309,600	278,400	0	588,000
TOP Capacity Factor[3/]	1.000	0.674	0	
Combined Energy & Capacity Price ($/kWh)[2/]	0.0703	0.0494	0.0468	
Payment ($)[3/]	21,765	13,753	0	35,518

1/ Potential Energy = Hours in TOP period x Contract Capacity

2/ Because* this customer does not meet the minimum Emergency Availability Criteria, it has been assumed that he will be paid at 50% of the full avoided capacity costs:

e.g. On-Peak Combined Energy & Capacity Price ($/kWh)

$$= 0.0005685 \times (0.5 \times 82) + 0.047 = 0.0703$$

3/ Payment ($) = Metered Energy (kWh) x Combined Energy & Capacity Price ($/kWh).

* Some small hydro plants may meet the minimum Emergency Availability Criteria based on their specific situation, such as pondage.

NOTE: For service through 07/31/80 and assuming a 20-year contract starting in 1980.

WIND TURBINE PLANT[1/]
(Based on a Summer Month)

Operating Schedule: 4 hours/day at 3,000 kW (Contract Capacity)
7 days/week

Payment by Edison for the purchase of Energy and Capacity under the proposed "Schedule of Avoided Cost":

	On-Peak	Mid-Peak	Off-Peak	Total
Potential Energy (kWh)[2/]	387,000	516,000	1,305,000	2,208,000
Metered Energy (kWh)	0	25,200	10,800	36,000
TOP Capacity Factor[3/]	0	0.049	0.008	
Combined Energy & Capacity Price ($/kWh)[4/]	0.0586	0.0482	0.0464	
Payment ($)[5/]	0	1,215	501	1,716

1/ Wind Turbine Generator size = 165 ft. diameter
= 21,400 sq. ft. swept area of the blades

2/ Potential Energy = Hours in TOP Period x Contract Capacity

3/ See Page 3

4/ Because this customer does not meet the minimum Emergency Availability Criteria and minimum capacity factor (51%) criteria, it has been assumed that he will be paid at 25% of the full avoided capacity costs:

e.g. Mid-peak Combined Energy & Capacity Price ($/kWh)
= .5 x .5 x 0.0000581 x 82 + 0.047 = 0.0482

5/ Payment ($) = Metered Energy (kWh) x Combined Energy & Capacity Price ($/kWh)

NOTE: For service through 07/31/80 and assuming a 20-year contract starting in 1980.