

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

Monday
August 11, 1980

Part VI

**Department of
Energy**

Economic Regulatory Administration

**Powerplant and Industrial Fuel Use Act
of 1978; Cogeneration Exemption**

DEPARTMENT OF ENERGY**Economic Regulatory Administration
10 CFR Parts 500, 503, 504, 505 and
506**

[Docket No. ERA-R-80-24]

**Powerplant and Industrial Fuel Use Act
of 1978; Cogeneration Exemption**

AGENCY: Economic Regulatory Administration, Department of Energy.
ACTION: Notice of proposed rulemaking and public hearing.

SUMMARY: The Economic Regulatory Administration (ERA) of the Department of Energy is proposing this rule to implement provisions of the Powerplant and Industrial Fuel Use Act of 1978, 42 U.S.C.A. 8301 *et seq.* (FUA or the Act) regarding cogeneration. FUA establishes certain prohibitions on the use of petroleum and natural gas by powerplants and major fuel burning installations (MFBI's). This proposed rule would amend the interim rule published at 10 CFR 503.37, 504.35, 505.27 and 506.35 which implements FUA Sections 212(c) and 312(c) of the Act authorizing permanent exemptions from the prohibitions of FUA for eligible cogeneration facilities. The proposed amendment would establish a statewide energy limit as a means of encouraging cogeneration in those regions of the country where there is a potential for oil and gas savings while insuring that new alternate fuel-fired capacity would not be deferred. This notice also seeks comments on a proposed amendment to the definitions of "electric generating unit" and "cogeneration facility" now contained in ERA regulations (10 CFR 500.2).

Dates: Written comments are due by November 7, 1980.

Hearing dates:

1. September 25, 1980 (and, if required, September 26, 1980), San Francisco, California, 9:30 a.m.
2. October 6, 1980 (and, if required, October 7, 1980), Boston, Massachusetts, 9:30 a.m.
3. October 9, 1980 (and, if required, October 10, 1980), Houston, Texas, 9:30 a.m.

Requests to speak are due by:

1. September 18, 1980, 4:30 p.m., San Francisco.
 2. September 29, 1980, 4:30 p.m., Boston.
 3. October 2, 1980, 4:30 p.m., Houston.
- Hearing locations will be published in the Federal Register.

ADDRESSES: All comments should be addressed to Public Hearing Management, Docket No. ERA-R-80-24, Department of Energy, Room B-210, 2000 M Street, N.W., Washington, D.C. 20461.

FOR FURTHER INFORMATION CONTACT:

William L. Webb (Office of Public Information), Economic Regulatory Administration, Department of Energy, Room B-110, 2000 M Street, N.W., Washington, D.C. 20461, 202-653-4055

Dorothy M. Hamid (Public Hearings Division), Economic Regulatory Administration, Department of Energy, Room B-210, 2000 M Street, N.W., Washington, D.C. 20461, 202-653-3974.

Stephen M. Stern (Regulations and Emergency Planning), Economic Regulatory Administration, Department of Energy, Room 7002, 2000 M Street, N.W., Washington, D.C. 20461, 202-653-3217.

Robert L. Davies (Office of Fuels Conversion), Economic Regulatory Administration, Department of Energy, Room 3002, 2000 M Street, N.W., Washington, D.C. 20461, 202-653-3649.

Alan W. Starr (Office of Utility Systems), Economic Regulatory Administration, Department of Energy, Room 4103D, 2000 M Street, N.W., Washington, D.C. 20461, 202-653-3903.

G. Randolph Comstock (Office of General Counsel), Department of Energy, Room 6-G-087, 1000 Independence Avenue, S.W., Washington, D.C. 20461, 202-252-2967.

SUPPLEMENTARY INFORMATION:**I. Background****II. Comments on Interim Rule****III. Discussion of Proposed Rule****A. Electrical Generating Unit****B. Cogeneration Exemption**

1. Statewide Energy Limit
2. Individual Exemptions Based on Oil/Gas Savings
3. Public Interest Cogeneration Exemptions

IV. Specific Comments Requested**V. Comment Procedures****VI. Proposed Rule****I. Background**

FUA prohibits the use of oil and natural gas in certain new and existing major fuel burning installations consisting of a boiler (MFBI's) and powerplants including cogenerators unless ERA grants an exemption for such use. Sections 212(c) and 312(c) of the Act specifically provide for exemptions for oil and natural gas use in eligible new and existing cogenerators.

ERA has published final rules which (1) define MFBI, electric powerplant, and cogeneration facility; (2) describe the prohibitions applicable to new powerplants and MFBI's as well as exemptions available; and (3) provide administrative procedures for applying for exemptions at 45 FR 38276, *et seq.* (June 6, 1980). ERA has also published interim rules relating to the prohibitions

against oil and gas use in existing facilities and exemptions available at 44 FR 43190 (July 23, 1979) and 44 FR 28594 (May 15, 1979).

Interim rules relating to exemptions for cogeneration facilities were published at 44 FR 28950, 28994, 29014 (May 17, 1979), and 44 FR 43176, 43204, 43219 (July 23, 1979).

After reviewing the comments on the interim rules, ERA determined that before final rule on cogeneration was adopted, it would be appropriate to propose and solicit public comment on other methods of implementing the cogeneration exemption sections of FUA. These proposed rules contain new provisions which may replace or be added to pertinent parts of the interim rule when the final rule is published. Pending the issuance of a final rule, ERA will continue to function under the interim regulations §§ 503.37 (new powerplants), 504.35 (existing powerplants), 505.27 (new MFBI's), and 506.35 (existing MFBI's).

We propose in this rule to combine § 505.27 with § 503.37 so that one section covers both new MFBI and powerplant cogeneration facilities. We also propose combining § 506.35 with § 504.35 so that both existing MFBI and powerplant cogeneration facilities are treated in one section of the regulation.

II. Comments on Interim Rule

Under the interim rule, a petitioner could qualify for a cogeneration exemption by demonstrating that the oil or gas to be consumed by the cogeneration facility would be less than that which would otherwise be consumed in the absence of the cogeneration facility. Generally, the petitioner would have to demonstrate that the industrial facilities which the proposed cogenerators would replace would be eligible for another exemption under FUA. In addition, the interim rules provided for a cogeneration exemption where the petitioner could demonstrate that granting the exemption would be in the public interest because of special circumstances, such as technical innovation or maintaining industry in urban areas.

A number of commenters said that ERA incorrectly interpreted the cogeneration exemption by basing it on a test of oil or gas savings rather than on overall fuel efficiency. ERA disagrees and believes its interpretation is correct. FUA permits the granting of a permanent exemption for cogeneration if the petitioner demonstrates that the economic and other benefits of cogeneration are unobtainable unless petroleum or natural gas, or both, are used in the facility. Under these proposed rules, as in the interim rules, ERA interprets the phrase "economic

and other benefits" in the Act to mean that in granting an exemption, oil or gas will be saved without deferring the development of alternate fuel-fired capacity or that the exemption would be in the public interest.

ERA received many comments regarding the 10-year forecast pertaining to the calculation of oil and gas savings. Some commenters suggested that the 10-year forecast was too far into the future and that five to seven years would be more appropriate. Other commenters suggested that the 10-year forecast was inadequate and that the life of the plant should be used as a basis for this calculation. Further, with regard to the 10-year forecast, some commenters pointed out that the regulations failed to state whether the savings were to be calculated and displayed for the full 10-year period or only for the final year. Finally, commenters noted that the regulation did not indicate the point at which the forecast was to begin. The 10-year calculation has been removed from this proposal.

In place of the 10-year calculation in the interim rules, ERA is proposing regional utility oil/gas consumption estimates based on projections for the year 1988 to aid petitioners in calculating potential oil/gas savings. The year 1988 was chosen as it is the last year for which fuel consumption projections are available from the National Electric Reliability Council (NERC). These estimates based on NERC data reflect ERA's judgment of the additional amount of oil/gas required to generate a kilowatt hour of electricity in each geographic region. They will be updated as new data become available. ERA proposes to use these estimates for purposes of the cogeneration oil/gas savings calculation. However, the petitioner may propose other estimates which may better reflect a specific situation.

One commenter pointed out that in calculating oil savings accruing from cogeneration, ERA should give additional consideration to the types of oil to be saved and recognize the differences between No. 2 oil (middle distillates) and No. 6 oil (residual fuel).

While ERA distinguishes between distillate and residual fuel oil used in the special rule for temporary public interest exemptions to burn natural gas (10 CFR Part 508), the duration of those exemption does not exceed 5 years. Permanent cogeneration exemptions are for the life of the facility. Because ERA does not have the data to predict supplies of various types of petroleum fuels over the long term, the proposed rule does not differentiate between distillate and residual fuel oil savings. However, petitioners who have data or evidence which differentiate among

petroleum products may submit such evidence to support their petition for an exemption.

Another commenter suggested that the calculation of oil or gas savings could be simplified by assuming that the purchased power displaced by the addition of a new cogeneration unit to an existing facility would displace oil consumption at the rate of 10,000 Btu/kWh of purchased power. ERA has rejected this approach as it does not account for whether alternate fuels or oil and gas were used to generate the displaced electricity.

ERA received one comment seeking clarification of the evidentiary requirement contained in §§ 503.37(d)(5), 504.35(d)(5), 505.27(d)(5), and 506.35(d)(5) of the interim rules (concerning new and existing MFBI and powerplant cogenerators) that a petitioner submit all evidence required by the regulations with respect to any applicable exemptions to which the units would be entitled. The units referred to in these sections of the interim rules, and in the corresponding section of the proposed rule, are the units which will be replaced by the cogeneration facility, and not the cogeneration unit itself. ERA has also revised this part of the proposed regulation to clarify this point. (See Section III of this preamble.)

One commenter questioned the necessity for the evidentiary requirement that petitioners submit information identifying all persons and their roles in the proposed cogeneration facility. ERA has reviewed this requirement and agrees that such detailed identification is not necessary. Accordingly, the proposed regulation only requires information identifying owners and operators of the project.

III. Proposed Rule.

ERA is proposing a new approach that encourages cogeneration in those regions of the country where there is a potential for oil and gas savings while insuring that new alternate fuel fired capacity would not be deferred. This approach proposes three methods for qualifying for a cogeneration exemption. Two of these three methods, one of which is based on a showing of oil/gas savings and the other in the public interest, are contained in similar form in the interim rule. The third method is for use by petitioners in states in which oil and gas are likely to be used for the foreseeable future. It is explained in detail below.

In addition, ERA is seeking public comments on a proposal to amend the current definition of electric generating unit to avoid the unintended treatment of certain cogenerating MFBI's as powerplants and, thus, perhaps inhibit cogeneration which would otherwise be economically efficient.

A. Electric generating unit (Section 500.2).

Section 103(a)(7)(A) of FUA defines "powerplant" to mean "any stationary electric generating unit, consisting of a boiler, a gas turbine, or a combined cycle unit, which produces electric power for purposes of sale or exchange * * *". One of the exceptions from the definition of electric generating unit is for any cogeneration facility, less than half of the annual electric power of which is sold or exchanged for resale.

A case may arise where a cogenerator is defined as a powerplant on the basis of the amount of its electrical output which is sold or exchanged. For example, under the current definition contained in the Interim Rule, a cogenerator performing an industrial function would be designated as a powerplant if more than 50% of the electrical output were sold or exchanged, even though the electricity produced constituted a small fraction of the total energy output of the cogenerator.

A new cogeneration facility which is a "powerplant", would be subject to the statutory provisions applicable to new powerplants. These provisions prohibit the use of oil and gas in new boilers, gas turbines, and combined cycle units as well as the construction of a powerplant without the capability of using an alternate fuel as its primary energy source. There is no corresponding statutory prohibition on construction applicable to new MFBI's and the statutory prohibition on oil and gas use by new MFBI's applies only to boilers. While prohibitions by rule on the use of oil and gas in MFBI's which consist of combustion turbines, combined cycle units and internal combustion engines may be issued by ERA, such rules have not been promulgated.

An existing cogenerating facility which is classified as a "powerplant" would be subject to several statutory prohibitions on the use of natural gas. There is no such prohibition applicable to existing MFBI's. The possibility that an existing MFBI might be reclassified as a powerplant should it be used to cogenerate electricity may discourage such cogeneration.

ERA believes that the current definition of "electric generating unit" in the rule may be overly conservative and might result in the designation of most new industrial cogenerators as powerplants and discourage persons planning new facilities from including cogeneration capacity due to the regulatory requirements of obtaining an exemption.

ERA seeks comment on whether a more liberal definition of "electric generating unit" which would treat most

cogenerators as MFBI's is appropriate. However, we realize that such a definition might encourage the use of oil/gas fired cogeneration in cases where oil/gas use might otherwise have been prohibited. The definition proposed below would remove certain restrictions on the development of cogeneration in the industrial sector and could allow use of cogeneration based on economic considerations. Furthermore, combined cycle, gas turbine and diesel cogenerators which would be classified as MFBI's are not presently covered under FUA prohibitions and would not need to petition ERA for an exemption under these proposed rules.

In consideration of these factors, ERA is seeking public comment on a more liberal definition of the term "electric generating unit" to mean "a facility, over half the useful energy output of which is in the form of electricity."

In addition, the following exclusions to the definition of "electric generating unit," specified by the statute, would be retained in this amended definition:

(1) Any electric generating unit subject to the licensing jurisdiction of the Nuclear Regulatory Commission; and

(2) Any cogeneration facility, less than half of the annual electric power generation of which is sold or exchanged for resale.

ERA seeks comment on this proposal and on whether the dividing line between MFBI and powerplant cogenerators should be "half the useful energy output" or some other percentage.

ERA is also proposing an alternative definition of an electric generating unit: "Electric generating unit" does not include: (1) Any "electric generating unit" subject to the licensing jurisdiction of the Nuclear Regulatory Commission; and (2) Any cogeneration facility, less than half of the annual electric power generation of which is sold to or exchanged with an electric utility for resale by the utility to consumers other than the cogenerating supplier.

This definition would only refer to net electrical power sold or exchanged for resale, and does not include amounts sold to the grid but repurchased by the cogenerator firm for its own use. This concept could also be adopted in the primary proposal by adding the word "net" before "annual electrical power generation" in the second exception.

ERA has reservations about whether this definition is permitted under FUA and, as noted above, we are not yet persuaded that it is appropriate, since it could result in a large increase in oil and gas prices which are currently held below market clearing prices. Moreover, it could result in the deferment of

baseload alternate fuel-fired electrical generating capacity. We solicit comments whether either of the alternative definitions are appropriate, as well as the impact they may have with respect to the development of energy efficient cogeneration and on future alternate fuel use for electrical generation.

ERA also solicits other appropriate methods of distinguishing MFBI and powerplant cogenerators and their impact on cogeneration and future oil and gas use.

B. Cogeneration Exemption [Sections 503.37 (new MFBI and powerplant cogenerators) and 504.35 (existing MFBI and powerplant cogenerators)]

FUA provides exemptions from its prohibitions on oil and gas use upon a finding that a petitioner has demonstrated that "economic and other benefits of cogeneration" are unobtainable unless petroleum or natural gas are used in the facility.

A cogeneration facility may be either a new or existing electric powerplant, or an MFBI which produces electric power and any other form of useful energy. Exemption provisions for new and existing MFBI's and powerplants are alike under the proposed rule.

In this proposed rule ERA sets forth eligibility requirements for the cogeneration exemption. ERA proposes to interpret the statutory phrase "economic and other benefits of cogeneration," to mean that oil/gas savings will be achieved by the petitioner without deterring the development of alternate fuel-fired capacity. However, if it can be shown that the exemption would be in the public interest, ERA will not require the above oil/gas savings demonstration.

The oil/gas savings would generally result from the displacement of oil/gas-fired powerplants and industrial boilers by more efficient cogeneration units. Such industrial and powerplant cogeneration units could supply electric power to the grid and produce steam using less oil or gas than would be needed for an ordinary powerplant or industrial boiler to supply the same amounts of electricity and steam.

ERA is proposing this rule based on three primary considerations:

- (1) Inherent efficiency of cogeneration;
- (2) Simplification of the cogeneration exemption petition where oil and gas savings are likely; and
- (3) Avoidance of the deferral of alternate fuel fired electrical generating capacity.

In recognition of the above, ERA has proposed three methods of qualifying for a cogeneration exemption. They are:

- (1) Statewide Energy Limit;
- (2) Individual oil/gas savings; and

(3) Public interest provisions.

The statewide energy limit is the mechanism by which ERA proposes to recognize the potential for cogeneration to realize oil and gas savings in those geographic areas where oil and gas are now, and will continue to be, the primary fuel in the industrial and utility sectors. The exemption provisions based on a showing of either individual oil/gas savings or public interest considerations are similar to provisions of the interim rules.

1. Statewide Energy Limit

This rule proposes to identify those geographic regions in which oil/gas savings would be achieved by cogeneration, insure that new alternate fuel fired capacity would not be deferred and provide an expeditious process to grant exemptions.

A. The Process

Under the proposed rule, ERA would establish an initial "Statewide Energy Limit" in certain states for use by oil/gas fired cogenerators covered by the FUA prohibitions.

This energy limit would be the annual energy input allotted among all of those cogenerators in that state which are seeking exemptions under this provision of the proposed rule. Thus, for example, the energy input to a new oil or gas burning combined cycle cogenerating MFBI would not be counted against this limit because in the absence of a rule or order for such purpose, no prohibitions on oil and gas use under FUA are applicable, and therefore no exemptions necessary. This limit, which is discussed below, would be based upon the amount of oil/gas electric generating capacity which could be displaced in a state before there was a risk of displacing new alternate fuel-fired powerplants.

ERA is proposing a certification process whereby cogeneration capacity is allocated to qualified facilities up to the established statewide limit. ERA is also proposing that in those oil/gas dependent states, where capacity limits have been set, the governor of those states, or the governor's designee, certify to ERA whether petitioners are eligible cogenerators. This certification takes the place of demonstrating oil/gas savings.

ERA is proposing that the states provide this certification in the belief that states are better able than ERA to determine which cogeneration projects would best meet the long term energy needs of the jurisdiction. ERA solicits comments on standards, if any, which a state could use in certifying eligible cogenerators.

ERA proposes that any state could negotiate with ERA to raise the "Statewide Energy Limit." This negotiation would result in an

agreement that ERA would grant additional specified increments to the "Statewide Energy Limit" on a quid-pro-quo basis as certain agreed upon milestones were achieved. These milestones could, for example, be in the form of specified reductions in oil and gas use and/or bringing into service certain specified new alternate fuel-fired electrical generating facilities.

B. Specification of "Statewide Energy Limit"

ERA believes that the greatest potential for oil and gas savings from cogeneration exists in those states where oil and gas currently is and is expected to continue to be a primary energy source for baseload electrical generation. In such States oil and gas savings could be realized by new energy efficient cogenerators displacing the electrical production from existing, less efficient oil and gas fired powerplants.

ERA has identified states in which oil and gas are currently used as a primary energy source in baseload powerplants and will continue to be needed in large amounts for baseload in the immediate future. Those states initially identified by ERA are California, Florida, Louisiana, Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, Texas and New York.

¹ For a full description of the analysis see the *Draft Regulatory Analysis* on file in Room B-110, 2000 M St., N.W., Washington, D.C. 20461.

² For a full description of the analysis of oil/gas displacement by oil/gas-fired cogeneration, see the following document *Potential in States and Regions for Displacing Oil or Gas via Oil- or Gas-Fired*

The process used to identify these states and establish an initial "Statewide Energy Limit" is summarized below: ¹

1. ERA has estimated for each state the potential oil/gas that can be "backed-out" of electrical generation by the use of oil/gas fired cogeneration. These estimates ² provide a potential market for cogeneration based solely on backing out oil/gas fired baseload powerplants in 1988, the last year in which NERC projections are available. These state estimates are shown in Table 1.

Additionally, estimates were made of the potential market development for oil- and gas-fired cogeneration in those oil/gas dependent states. The estimates of the market for oil- and gas-fired cogeneration were prepared by DOE based upon a number of cogeneration studies and included, to the extent feasible, consideration of various technical, economic and institutional constraints, many of which are difficult to assess accurately. The projections assume no FUA restrictions on cogeneration development.³ These two sets of estimated data provide a basis for setting the initial "Cogeneration Electrical Capacity Limit."

Cogeneration, May 1980, on file in Room B-110, 2000 M St., N.W., Washington, D.C. 20461.

³ For a full description of the cogeneration market development estimates see the document *Market Development of Oil- and Gas-Fired Cogeneration Installations in Selected States Between 1980 and 1990, May 1980, on file in Room B-110, 2000 M St., N.W., Washington, D.C. 20461.*

2. ERA proposes to set the initial "Cogeneration Electrical Capacity Limit" for each state at 1/3 of the lesser of the two estimates described in (1) above: (i) the current oil- gas-fired electric generating capacity that cogeneration could ultimately displace, or (ii) the amount of oil- gas-fired cogeneration electric generating capacity that would be expected to be developed in the state during the 1980's if such development were unrestricted by FUA.

The initial limit of 1/3 of the lesser of the two estimates was used because it appears large enough to accommodate exemption petitions likely to be received in the immediate future but should not provide an incentive for the states to defer alternate fuel-fired capacity. We solicit comment on the appropriate level to be set in the final rule.

3. ERA then proposes that this "Cogeneration Electrical Capacity Limit" be converted to total energy input on the basis that the "typical" cogenerator is a topping-cycle cogenerator, meeting the efficiency standards promulgated by the Federal Energy Regulatory Commission (FERC) under the Public Utility Regulatory Policies Act (see 18 CFR 292.205). ERA believes that the topping-cycle cogenerator would be the most prevalent cogenerator and that the FERC efficiency standard provides a reasonably conservative estimate of the relationship of energy input to cogenerator electrical capacity. On this basis every megawatt of cogeneration electrical capacity would be equivalent to 1.5 X 10¹¹ BTU/yr (or 24,700 BBL of oil equivalent per year) of fuel input to cogenerators in that state. ERA requests comment on this proposed procedure for establishing initial Statewide Energy Limits for cogenerators.

Alternative Proposal for States Using Oil and Gas for Baseload Electrical Generation

ERA seeks comment on an alternative proposal for determining eligibility for cogeneration exemptions in those states in which there are a significant number of existing oil/gas fired baseload powerplants.

In this proposal ERA has assigned to each of the oil/gas dependent states an initial "Cogeneration Electric Capacity Limit" ⁴ consisting of a total megawatt output instead of a total energy input as described in the primary proposal. Under this approach, the limit is focused solely on the electrical generation by the cogenerator and does not include the nonelectrical output (e.g., industrial steam, heat, etc.).

⁴ Derivation of Cogeneration Electrical Capacity Limit was discussed previously as part of the primary proposal.

Table 1.—Proposed Statwide Energy Limit

State	(1) Maximum oil/ gas electrical capacity potentially displaced by cogeneration (MW) ^a	(2) Cogeneration capacity likely to be developed in this decade if unrestricted by FUA (MW)	(3) Initial cogeneration electrical capacity (MW) (1/3 of the lesser of column (1) or (2))	(4) Initial statewide energy limit ^b 10 ¹² Btu per year
Alaska.....	462	(^c)	(^d)	(^e)
Texas.....	15,903	1,115	372	55.8
Florida.....	7,143	140	47	7.1
Louisiana.....	4,072	660	220	33
California.....	9,223	1,435	478	71.7
New England ¹	3,126	220	78	11.7
Maine.....			15	2.3
New Hampshire.....			5	0.8
Vermont.....			5	0.8
Massachusetts.....			28	4.2
Connecticut.....			19	2.9
Rhode Island.....			6	0.9
New York.....	5,723	350	117	17.6
Kansas.....	223	(^c)	(^d)	(^e)
Oklahoma.....	191	(^c)	(^d)	(^e)
All others.....	0	(^c)	0	0

¹ Cogeneration potential for New England was apportioned to states based on population and on population density with a minimum of 5 MW for each state.

² One-third of (1) or (2), whichever is lower.

³ Not estimated.

⁴ Due to non-interconnected operation of utilities in Alaska, case-by-case treatment is required.

⁵ Due to the small ultimate potential, case-by-case treatment is proposed.

⁶ These projections make no assumptions on the development of cogeneration project themselves.

⁷ Based upon 1 MW of electric cogeneration capacity equivalent to 1.5 x 10¹¹ Btu/yr.

Under this alternative, the process would be similar to the primary proposal, but the petitioner would be required to submit additional data as part of a petition for an exemption.

The proposed process would be as follows:

- ERA assigns an initial "Cogeneration Electrical Capacity Limit" for all states consisting of a total number of megawatts;
- The governor or the governor's designee would certify to ERA that a proposed cogenerator was within the "Cogeneration Electrical Capacity Limit" for the state;
- Once so certified, a petitioner would be required to submit evidence on additional qualifications for an FUA exemption (discussed below);
- As with the primary approach, ERA and the state could negotiate a higher "Cogeneration Electrical Capacity Limit" (the process for this would be identical to that discussed in the primary proposal).

The state certification in this alternate proposal attests that the electrical output of the cogenerator is within limits established by ERA to preclude displacement of new alternate fuel-fired capacity. However, under this proposal, oil and gas savings would only be demonstrated if the petitioner shows that the industrial unit replaced by the cogenerator would have used oil or gas.

Thus, cogeneration facilities which would qualify under this alternate proposal are those which are certified by the state and will generate steam in place of either (a) a nonjurisdictional unit; (b) an existing unit which is not capable of using an alternate fuel; or (c) a new jurisdictional unit or an existing unit capable of using an alternate fuel for which a reasonable demonstration is made that the facility would be eligible for an exemption.

The primary proposal—State Energy Limit—has three distinct advantages over this alternate proposal.

- Once certified by the state, the petitioner has met the requirement to demonstrate an oil or gas savings with minimal regulatory burden.
- A state may allocate the energy limit according to its needs.
- The State Energy Limit correctly focuses on a primary concern—the total oil/gas energy used by cogenerators.

The alternate proposal, Cogeneration Electrical Capacity Limit, has the advantage of focusing on the capacity of electrical generation which could be displaced by cogeneration.

ERA seeks comment on this alternate proposal and the comparative merits of the primary and alternate proposal.

B. Individual Exemptions Based on Oil/Gas Savings.

There are likely to be situations where

a petitioner who intends to build an oil- or gas-fired cogenerator can demonstrate oil/gas savings but where the State Energy Limit option is not available, such as when:

- (1) The petitioner's unit is located in a state with a zero State Limit, or
- (2) The petitioner's unit is located in a state where a state certification cannot be obtained because the State Limit has been met, or
- (3) The petitioner does not opt to use the State certification process.

In these situations, ERA will accept petitions for exemptions based on a demonstration of oil/gas savings.

The oil or gas savings assessment will generally consist of two parts: a calculation of oil/gas savings and an assessment of the likely impact on the relevant electric utilities' schedules for adding alternate fuel-fired generating facilities. The petitioner would calculate the difference between the amount of oil or gas to be used with and without the exemptions. If the amount of oil or gas used would be less if the cogeneration facility were built and it would not result in deferral of alternate fuel-fired electrical generation capacity, the petitioner would be granted an exemption.

A petitioner would make two sets of computations:

(1) The amount of oil or gas used if petitioner did *not* build the cogenerator, including energy used for industrial purposes and energy used in providing the amount of electricity which would have been generated by the cogenerator; and

(2) The amount of oil and gas used by the proposed cogenerator to produce both energy for industrial purposes and electricity.

If (2) is less than (1), a petitioner could be granted an exemption if it could also be demonstrated that the cogenerator would not result in utilities deferring schedules for adding alternate fuel-fired generating facilities.

ERA has proposed estimates to aid petitioners in computing the amount of existing oil/gas use for production of electricity which would be displaced by electricity generated by the proposed cogeneration. The estimates are calculated for all regions of the United States (see § 503.37(e) and 504.35(e)). These estimates are based on projected regional fuel use for electric generation and are based upon National Electric Reliability Council (NERC) regions, except where lack of system inerties justified further regional subdivision.⁵

In determining the amount of oil or gas used to produce energy for industrial purposes in the absence of a

cogeneration exemption, ERA proposes that oil use be assumed if the industrial unit replaced by the cogenerator would have been:

1. Non-jurisdictional to FUA;
2. An existing facility to be retired early which is not alternate fuel capable;
3. A new facility or an existing alternate fuel capable facility which would reasonably qualify for a permanent exemption under FUA.

ERA will evaluate petitions on a case by case basis. In certain instances ERA recognizes that it would be difficult for a petitioner to demonstrate that the proposed cogenerator would not result in deferral of alternate fuel-fired powerplant capacity expansion plans. However, in such cases, ERA may still grant the exemption if the petitioner agrees to undertake conservation measures, replacement of other existing oil/gas fired units, or other measures designed to reduce oil/gas use which would result in long-term oil/gas savings.

Since exemptions under the proposed approach would be granted on a case by case basis and petitioners would be permitted to provide any additional information to ERA in support of its request, we solicit comments on the methodology proposed in this section and any other criteria which should be included in the rule.

We note that other avenues may be available other than the cogeneration exemption proposed in this Notice. For example, a temporary exemption based on a commitment to the future use of synthetic fuels (see § 503.24) may be utilized. Many cogeneration projects will employ as part of the system combustion turbines that can operate on synthetic liquid and gaseous fuels in addition to petroleum or natural gas. Under the synthetic fuels temporary exemption, a petitioner certifies that it will be able to comply with the applicable prohibition imposed by the Act through use of a synthetic fuel derived from coal or another alternate fuel, but not until the end of the proposed period. Information required in support of such a petition is limited to a description of the synthetic fuel proposed to be used; such synthetic fuel temporary exemptions may be granted on the basis of a certification.

3. Public Interest Cogeneration Exemptions.

Finally, as in the interim rules, a cogeneration exemption is available regardless of cogeneration capacity limits or oil/gas savings if it can be

⁵ A full description of the regions and the projects are documented in *Potential in States and Regions for Displacing Oil or Gas via Oil-or-Gas Fired Cogeneration*, May, 1980, on file in Room B-110, 2000 M Street, N.W., Washington, D.C.

demonstrated that such an exemption would be in the public interest. Such a demonstration of special circumstances might, for example, include a showing that the facility would be technically innovative, or that it would help to maintain employment in an urban area. We solicit comments on specific criteria which might be included in the final rule.

IV. Other Comments Requested.

A. One commenter suggested that ERA should accept certification issued by the Federal Energy Regulatory Commission (FERC), of a "qualified cogenerator" pursuant to rules promulgated under the Public Utility Regulatory Policies Act of 1978 (PURPA) [see 18 CFR 292.203] as adequate qualification for a cogeneration exemption.

The FERC rules set certain operating and efficiency standards and ownership criteria for qualifying cogeneration facilities. ERA has in this rulemaking requested comment on whether FERC operating and efficiency standards should be adopted as terms and conditions of an exemption.

ERA realizes that there are several definitions of cogeneration under various statutes serving various purposes. While ERA does not believe the ownership criteria for qualifying cogeneration facilities under PURPA is applicable to the determination of eligibility for an exemption under FUA, comments are requested on the applicability of the PURPA definition of cogeneration exemption under FUA.

B. In ERA's final FUA rules published June 6, 1980, at 45 FR 38276, "cogeneration facility" was defined as "an electric powerplant" or a major fuel burning installation that produces:

- (1) Electric power; and
- (2) any other form of useful energy . . . electricity generated by the cogeneration facility must constitute more than ten (10) percent and less than ninety (90) percent of the useful energy output of the facility.

ERA seeks comment on this definition and in particular whether the ten (10) percent figure should be increased (perhaps to 20%) to reflect a more realistic commitment to cogeneration. Further, ERA seeks comment on whether it would be more appropriate to make this an eligibility requirement for the cogeneration exemption rather than a part of the definition of "cogeneration facility."

C. ERA is concerned that the regulatory burden imposed by the requirement under FUA to demonstrate the infeasibility of using mixtures and by the data required on the

environmental impacts of the facility may discourage cogeneration. In particular, the burden may be excessive for small users who lack the technical expertise to make these findings. ERA requests comments on mechanisms for alleviating these burdens.

D. Terms and conditions may be imposed upon the recipient of a cogeneration exemption. ERA seeks comment on whether it should delete the general reporting requirement contained in the interim rule relating to conservation and to oil and gas use and impose the following standard terms and conditions on recipients of a cogeneration exemption under the proposals pertaining to the State Energy Limit:

Standard terms and conditions. By petitioning for an exemption under the subsection dealing with states using oil and gas for baseload electrical generation, the petitioner accepts, upon grant of the exemption, the following terms and conditions:

- (i) The quality of any petroleum to be burned in the unit will be the lowest grade available, technically feasible, and capable of being burned consistent with applicable environmental requirements;
- (ii) Petitioner shall report annually the hours of use and the fuel consumption in the previous calendar year for the unit;
- (iii) The petitioner, after due public notice from DOE and an opportunity to comment, agrees to terminate the use of oil and natural gas in the unit receiving the exemption when DOE finds that there is an available supply of synthetic fuel derived from coal or other alternate fuel suitable for use as a primary energy source.

(iv) Operating and efficiency standards developed under PURPA by FERC (see 18 CFR 292.205).

(A) *Topping-cycle facilities.* For any new topping-cycle cogeneration facility for which any of the energy input is natural gas or oil, the useful power output of the facility plus one-half the useful thermal energy output, during any calendar year period, must:

- (1) Subject to subparagraph (2) of this paragraph be no less than 42.5 percent of the total energy input of natural gas and oil to the facility; or
- (2) 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.

For any other topping-cycle cogeneration facility no efficiency standard will be applied as a standard term or condition.

(B) *Bottoming-cycle facilities.* For any new bottoming-cycle facility for which

any of the energy input is supplementary firing using natural gas or oil, 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 used for supplementary firing.

For any other bottoming-cycle cogeneration facility no efficiency standard will be applied as a standard term or condition.

Note: ERA recognizes that term and condition (iii) would promote the manufacture and use of synthetic fuel by providing a readily available market. However, cogenerators are likely to use synthetic fuels when economic, regardless of the term and condition, and in cases where synthetic fuel use is not economic, its required use could impair the financial viability of cogeneration. ERA invites comment on this matter.

V. Comments and Public Hearing Procedures

A. *Written comments.* ERA invites participation in this rulemaking by the submission of data, views or arguments with respect to the issues set forth above and otherwise concerning this Notice. Comments should be submitted to the address indicated in the "ADDRESSES" section of this preamble and should be identified on the outside envelope and on documents submitted with the designation, Docket No. ERA-R-80-24. Submit fifteen copies. All comments received will be available for public inspection in the DOE Reading Room 5B-180, James Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday. ERA will consider all comments received by November 7, 1980.

Identify separately any information or data considered to be confidential and submit them in writing, one copy only. ERA reserves the right to determine the confidential status of the information or data and to treat it according to our determination.

B. *Public hearings:* (1) Request procedure. The time and place for the hearings is indicated in the "DATES" section of this preamble.

You may make a written request for an opportunity to speak at the hearings, providing a phone number where you may be contacted through the day before the hearing.

ERA will notify each person selected to be heard before 4:30 p.m. on the last working day before each hearing date.

In the event that a hearing is cancelled, every effort will be made to publish advance notice in the Federal Register. Moreover, actual notice will be given to all persons scheduled to testify

at the hearing. As it is not possible to give actual notice of cancellation or changes in the date or time of a hearing, persons planning to attend any hearing are advised to contact the public hearings division of the DOE office on the working day immediately preceding the date of the hearing to confirm that it will be held as scheduled.

(2) Conduct of the hearings. ERA reserves the right to select the persons to be heard at the hearings, to schedule their respective presentations, and to establish the procedures governing the conduct of the hearings. We may limit the time allotted each speaker, based on the number of persons who ask to be heard.

A DOE official will preside at the hearings, which will not be judicial or evidentiary in nature. Only those conducting the hearings may ask questions. At the conclusion of all initial oral statements, each speaker will be given an opportunity to make a rebuttal statement. The rebuttal statements will be given in the order in which the initial statements were made and will be subject to time limitations. Questions may be submitted to be asked of any speaker. Such questions should be submitted three days before the hearing or, if necessary, submitted in writing to the presiding officer. We will determine whether the question is relevant, and whether the time limitations permit it to be presented for answer. The presiding officer will announce any further procedural rules needed for the proper conduct of the hearing. We will have a transcript of the hearing made and will retain the entire record of the hearing, including the transcript, and make it available for inspection at the DOE Freedom of Information Office, Room 5B-180, James Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C., between the hours of 8:00 a.m. 4:30 p.m., Monday through Friday. You may purchase a copy of the transcript from the reporter.

The draft regulatory analysis of the proposed regulations, as contemplated by Executive Order No. 12044, is appended to this Notice. DOE is currently reviewing its responsibilities under the National Environmental Policy Act of 1969 for this rulemaking. At this time it is not anticipated that an environmental assessment or impact statement will be required.

(Department of Energy Organization Act, 42 U.S.C.A. 7101 *et seq.*; Powerplant and Industrial Fuel Use Act of 1978, 42 U.S.C.A. 8301 *et seq.*; E. O. 12009, 42 FR 42 4267).

In consideration of the foregoing, § 500.2 of ERA final regulations and §§ 503.37, 504.35, 505.27 and 506.35 of

ERA Interim Regulations, implementing the Powerplant and Industrial Fuel Use Act of 1978, are proposed to be amended as set forth below.

Issued in Washington, D.C., on August 1, 1980.

Hazel R. Rollins,

Economic Regulatory Administration.

PART 500—DEFINITIONS

Section 500.2 is amended by revising the definitions of "cogeneration facility" and "electric generating unit" as follows:

§ 500.2 Definitions.

* * * * *

"Cogeneration facility" means an electric powerplant or a major fuel burning installation which produces:

- (1) Electric power; and
- (2) Any other form of useful energy (such as steam, gas or heat) which is, or will be, used for industrial, commercial or space heating purposes.

* * * * *

"Electric generating unit" means a facility, over half the useful energy output of which is in the form of electricity. The term "electric generating unit" does not include—

- (1) Any electric generating unit subject to the licensing jurisdiction of the Nuclear Regulatory Commission; and
- (2) Any cogeneration facility, less than half of the annual electric power generation of which is sold or exchanged for resale. [See Appendix A for alternative language defining "electric generating unit"].

PART 503—NEW FACILITIES

PART 504—EXISTING ELECTRIC POWERPLANTS

Sections 503.37 and 504.35, *Cogeneration*, are revised to read as follows:

§§ 503.37 and 504.35 Cogeneration.

(a) *Eligibility.* ERA may grant permanent exemption for cogeneration if the petitioner demonstrates that the economic and other benefits of cogeneration are unobtainable unless petroleum or natural gas, or both, are used, by demonstrating to the satisfaction of ERA at least the following criteria:

- (1) The State limit on the total amount of energy to be consumed by cogenerators receiving exemptions under this paragraph, (as listed in paragraph (f) of this section) will not be exceeded by the addition of the facility; or

(2) The oil or gas to be consumed by the cogeneration facility will be less than that which would otherwise be consumed in the absence of the cogeneration facility, where the calculation of savings is in accordance with paragraph (c) of this section; or

(3) It would be in the public interest to grant an exemption to the cogeneration facility because of special circumstances such as technical innovation or maintaining industry in urban areas.

[See Appendix A for alternative eligibility criteria]

(b) *Specifications of the cogeneration facility.* (1) The equipment to produce electric energy and another form of useful energy, which is or will be used for industrial, commercial, or space heating purposes, does so through the sequential use of energy.

(2) Electricity generated by the proposed cogeneration facility must constitute more than 10 [20] percent of the useful energy output of the facility and less than 90 [80] percent of the useful energy output.

(c) *Calculation of oil and gas savings.* There is an oil and gas savings if the oil or gas to be consumed by the cogeneration facility will be less than that which would otherwise be consumed in the absence of the cogeneration facility. The calculation of the oil and gas which would otherwise be consumed must be in accordance with paragraphs (c) (1) and (2) of this section.

(1) Except for the case described in paragraph (c)(2) of this section, the oil or gas which would otherwise be consumed must be calculated as follows:

(i) Include the oil or gas that would be consumed by facilities that are or would be too small to be covered by the FUA regulations. In the case of new small industrial units, demonstrate that it would be reasonable to construct units of that size.

(ii) Include the oil or gas that would be consumed by units in place (existing or exempt) and covered by FUA, if they are less than 40 years old in the case of a field-erected unit or less than 20 years old in the case of a package unit. In the case of existing units, do not include units that have burned an alternate fuel or which are capable of burning an alternate fuel, and, only include units described in this subparagraph if they will be retired or shut down if this exemption is granted.

(iii) Include the oil or gas that would be consumed by units not yet constructed that would be covered by the FUA regulations only if the petition includes a demonstration that each unit would be entitled to an exemption.

(iv) Include the oil or gas that would be consumed by powerplants to generate electricity supplied to the grid to the extent that such electricity will not longer be supplied by the grid. This figure may be based on the guidelines provided in paragraph (g) of this section.

(2) In the case of a cogeneration facility that would consist of an existing unit or an exempted unit and a new unit, calculate the amount of oil or gas that would otherwise be consumed as the sum of:

(i) The five-year annual average oil or gas consumption of the existing or exempted unit; and

(ii) The amount that would be consumed in units described in paragraph (c)(1)(i)-(iv) of this section that would now be satisfied by the new cogeneration facility.

(d) Evidence required in support of a petition. You must include at least the following evidence in order to make the demonstration required by this section:

(1) In the case of paragraph (a)(1) of this section, a certification from the appropriate State agency, as designated by the State Governor, that the State limit on the total amount of energy to be consumed by cogenerators receiving exemptions under this paragraph will not be exceeded by the operation of the facility.

(2) In the case of paragraph (a)(2) of this section:

(i) An engineering description of the cogeneration system, including proposed output and uses thereof, with sufficient detail to ensure that the facility meets the specifications for cogeneration facilities in paragraph (b) of this section.

(ii) A detailed oil and natural gas savings calculation identifying the projected oil or natural gas consumption of the cogeneration facility and the oil or natural gas that would otherwise be used;

(iii) Where a demonstration is required that the units would be entitled to an exemption, submission of reasonable evidence with respect to the applicable exemptions; and

(3) In the case of paragraph (a)(3) of this section an explanation of the public interest factors you believe should be considered by ERA.

(e) General requirements. (1) The following must be included, as applicable:

(i) Use of mixtures is infeasible as required under § 503.9;

(ii) Use of fluidized bed combustion is not feasible as required under § 503.10;

(iii) Conservation measures as required under § 503.13;

(iv) Petroleum and natural gas consumption as required under § 503.14; and

(v) Environmental impact analysis as required under § 503.15.

(f) Designated capacity limits. (1) Subject to the provisions of paragraph (f)(2) of this section, the following initial limits of energy to be consumed by cogenerators for the granting of exemptions for cogeneration units within each of the designated jurisdictions have been established.

Jurisdiction	Initial statewide energy limit (10 ⁶ Btu's/yr.)
Texas.....	55.8
Florida.....	7.1
Louisiana.....	33.0
California.....	71.7
New York.....	17.8
Maine.....	2.3
New Hampshire.....	0.8
Vermont.....	0.9
Massachusetts.....	4.2
Connecticut.....	2.9
Rhode Island.....	0.9
All Others.....	0

(2) The limits established under paragraph (f)(1) of this section may be increased upon petition by States or by ERA on its own motion. In such cases, a plan may be negotiated by ERA and the States with the aim of reducing oil and gas use as well as minimizing the displacement of alternate-fuel capacity with oil or gas fired cogeneration.

(g) Incremental Utility Oil/Gas Consumption Estimates. The following table provides regional estimates of the number of Btu's of oil/gas which may be expected to be saved per kilowatt hour (kWh) of electricity displaced by cogenerated electricity. These estimates may be used by a petitioner in calculating oil/gas savings.

Table—Regional Estimates of Oil Gas Savings Attributable to Electricity Backed Off the Grid by Cogeneration*

Region name	Oil/gas savings Btu/kWh
NPCC.....	New England, New York..... 7200
MAAC.....	Pennsylvania, New Jersey, Maryland, Delaware, D.C. 4700
SERC (except Florida).....	Virginia, N. Carolina, S. Carolina, Georgia, Alabama, Tennessee, Eastern Mississippi, Florida panhandle. 300
Florida.....	Florida (except panhandle)..... 8900
ECAR.....	Ohio, W. Virginia, Kentucky, Indiana, Southern Michigan. 100
MAIN.....	Illinois, Eastern Wisconsin, Eastern Missouri, Northern Michigan. 200

Table—Regional Estimates of Oil Gas Savings Attributable to Electricity Backed Off the Grid by Cogeneration*—Continued

Region name	Oil/gas savings Btu/kWh
SPP.....	Western Mississippi, Arkansas, Northern Louisiana, Southern and Western Missouri, Kansas, Northern and Eastern Texas, Oklahoma, Eastern New Mexico. 7000
ERCOT.....	Texas (except SPP areas)..... 9900
MARCA.....	Eastern Montana, N. Dakota, S. Dakota, Minnesota, Iowa, Nebraska, Western Wisconsin. 800
WSEC/East.....	Southern Idaho, Central Montana, Utah, Wyoming, Colorado, Western New Mexico, Arizona. 1000
WSEC/West.....	California, Oregon, Washington, Nevada, Areas served by Bonneville Power Administration. 7000

* Data are based upon expected utility capacity and oil/gas use in 1988; see the document Preliminary Data on Incremental Utility Oil and Gas Consumption; May, 1980; on file in Room B-110; 2000 M St., N.W., Washington, D.C.

Example: The proposed cogeneration project is located in Eastern Mississippi, and would displace one million kilowatt hours (kWh) from the grid each year. To determine oil/gas savings associated with electricity backed off the grid:

- The above table identifies your region as "SERC (except Florida)."
- The oil/gas savings for your region according to the table are 300 Btu/kWh.
- The annual oil/gas savings attributable to electricity backed off the grid by your cogenerator is:
1,000,000 kWh × 300 Btu/kWh = 300,000,000 Btu.

PART 505—NEW MAJOR FUEL BURNING INSTALLATIONS

PART 506—EXISTING MAJOR FUEL BURNING INSTALLATIONS

§§ 505.27 and 506.35 Cogeneration [Deleted]

§ 505.27 and § 506.35 are deleted, effective 60 days from the date of publication of this rule.

Appendix A—Alternative Regulatory Language

ERA requests comments on the following alternative regulatory language.

- Electric Generating Unit (§ 500.2). "Electric generating unit" does not include: (1) Any electric generating unit subject to the licensing jurisdiction of the Nuclear Regulatory Commission; and (2) Any cogeneration facility, less than half of the annual electric power generation of which is sold to or exchanged with an electric utility for

resale by the utility to consumers other than the cogenerating supplier.

2. Eligibility criteria for cogeneration exemption (§§ 503.37 and 504.35(a)(2)).

(a)(2) The cogeneration capacity limit for the state listed in paragraph (f) of this section, will not be exceeded by the addition of the facility and the facility will be generating steam in place of

(i) A non-jurisdictional unit. In the case of proposed units which would be non-jurisdictional because of size, it must be demonstrated that it is reasonable to construct units of the size proposed; or

(ii) An existing or an exempted unit which is less than 40 years old in the case of a field erected unit or less than 20 years old in the case of a package unit, which will be shut down if this exemption is granted. Units deemed by ERA to be capable of burning alternate fuels may not be included for purposes of this subparagraph; or

(iii) The facility is generating steam which would otherwise require the construction of a new jurisdictional unit or an existing unit capable of burning alternate fuels if a reasonable demonstration is made that the facility would be eligible for a permanent exemption * * *

Draft Regulatory Analysis for Powerplant and Industrial Fuel Use Act Cogeneration Exemption

August 1980.

Table of Contents

I. Introduction

II. Fuel Use Act Cogeneration Alternatives

- A. No Specific Cogeneration Exemption
 - B. Public Interest
 - C. Energy Efficiency
 - D. Inability to Use Alternate Fuel
 - E. Oil and Gas Savings
 - F. Statewide Cogeneration Capacity Limit
 - G. Proposed Approach
 - H. Electric Generating Unit
- III. Impact of Statewide Cogeneration Capacity Limit Alternative**
- A. National and Regional Impact
 - 1. Potential for Displacing Oil or Gas in States
 - 2. Estimated Market Development for Cogeneration
 - 3. Initial Cogeneration Electric Capacity Limits
 - 4. State Energy Limits
 - B. Impact on Individual Industries and Competition
 - C. Impact on Levels of Government
 - D. Impact on Demographic Groups
 - E. Other Costs and Benefits

I. Introduction

ERA believes that cogeneration must be examined in light of the following attributes.

- Cogeneration performs both the functions of an industrial facility and a powerplant.

- Cogeneration offers the potential for efficient energy use.

- Many institutional barriers currently exist to widespread use of cogeneration.

To take advantage of the attributes of cogeneration and to address the concern that cogeneration development might deter the planning and development of new alternate fuel-fired baseload electrical generating capacity, ERA is proposing an approach under the Fuel Use Act (FUA) that encourages cogeneration in a context of oil and gas savings without deferring new alternate fuel fired capacity.

The more efficient use of oil and gas through cogeneration is consistent with a goal of FUA "to * * * minimize the use of natural gas and petroleum as a primary energy source * * *"

In addition this rule proposes to clarify an ambiguity in the definition of electric generating unit which may present a bar to development of cogeneration.

As discussed below, ERA has several broad generic options for treating the permanent exemption for oil and natural gas use by cogenerators.

II. Fuel Use Act Cogeneration Alternatives

A. No Specific Cogeneration Exemption

ERA could conceivably not implement the discretionary cogeneration exemption, arguing that other remedies are available under FUA. ERA rejects this approach as the Act specifically provides an exemption based on the "economic and other benefits" of cogeneration. ERA believes that such an exemption must be provided.

B. Public Interest

Cogeneration is subject to many institutional barriers. ERA believes that demonstrations of oil/gas cogeneration that would eventually lead to widespread efficient use of alternate fuels to satisfy energy needs would be in the public interest. ERA believes other examples of public interest would be restoration of inner cities and other key national goals.

C. Energy Efficiency

One possible of cogeneration could be granting exemptions solely on the basis of efficient energy use. Thus the regulation would set some threshold, say "sixty percent Btu efficiency"—granting cogeneration solely on those grounds.

ERA believes that energy efficiency is only one aspect that should be considered in granting exemptions. Other aspects include the type of fuel

which is being consumed and whether the fuel is oil and natural gas, coal and other renewable and non-renewable fuels.

D. Inability To Use Alternative Fuel

Two possible criteria for granting cogeneration exemptions are demonstrations that:

- Alternate fuel cannot be used in a candidate cogenerator.

- Alternate fuel cannot be used to replace the industrial and powerplant functions of the candidate cogenerator.

ERA believes that FUA specifically provides for a cogeneration exemption and that this approach could negate an independent meaning for the cogeneration exemption since applicants would first be required to demonstrate the non-applicability of alternate fuels for the cogenerator on the basis of cost, environment, lack of alternate site, etc.

E. Oil and Gas Savings

A possible criterion for granting the cogeneration exemption is a demonstration that oil and gas would be saved by the proposed cogenerator. This efficient use of oil and gas is constrained by the requirement that it not displace alternate fuel use.

Determination of net oil and gas savings requires examination of both the industrial and powerplant function of the cogenerator. The industrial examination can be comparatively straightforward. If the proposed oil/gas fired cogenerator replaces units not subject to FUA—such as a small industrial unit or an existing unit not capable of using an available alternate fuel—oil/gas savings can be directly attributable to the cogenerator.

However, if the proposed cogenerator would replace a new jurisdictional unit or alternate fuel capable existing unit, qualification for another exemption for the industrial unit which would be replaced by the cogenerator would be required in order for any oil/gas savings to be attributed to the industrial side.

Oil/gas savings from the powerplant function of the cogenerator would be very unlikely in areas where oil/gas provide only peaking electrical generation. In certain geographic regions using oil/gas for baseload electrical generation, the oil/gas savings impact of cogenerators is far more complex and involves the impact of the cogenerators themselves on long term capacity development plans by utilities. In addition, cogeneration may achieve oil/gas savings as part of an integrated system which are not readily apparent on a unit by unit basis.

ERA has two serious problems with the oil/gas displacement approach: (1)

As discussed above it fails to provide an easily administered mechanism adapted to all geographic regions and (2) it fails to recognize adequately that often oil/gas savings must be examined in terms of system-wide use of facilities and not simply on a unit by unit basis.

F. Regional Specific Treatment

Another approach can be constructed which accounts for specific regional differences in energy use yet maintains the overall framework of oil/gas savings. This approach involves the following steps:

- (1) A specific oil/gas cogeneration limit is established within each state using oil/gas intensively for electrical generation.
- (2) State officials designate qualified cogeneration units within the limit;
- (3) Individual firms outside the state limit could apply if they demonstrate net oil savings.

ERA believes that allocating quantities of cogeneration exemption as part of a pragmatic, workable oil/gas reduction plan would be workable and effective. To this end this mechanism allows the state and its industries flexibility as part of an achievable oil/gas reduction effort. This approach recognizes regional differences by setting cogeneration limits subject to adjustment. In addition, the approach is flexible. It allows an individual firm to apply for an exemption if the cogeneration limit has been reached and negotiations have not sufficiently progressed to expand that limit.

G. Proposed Approach

ERA proposes in this rule to grant cogeneration exemptions on either a public interest grounds as discussed in section B above or as part of the Regional Specific Treatment discussed in section F.

H. Electric Generating Unit

ERA is concerned that an ambiguity in the definition of cogenerating unit may impede the development of cogeneration for both new units and as an energy efficient modification to existing industrial units.

Under the FUA rules currently in effect, an existing gas-fired industrial unit which elects to cogenerate could be classified as a powerplant. Since existing powerplants are subject to prohibition on increased gas use and must be off gas by 1990, this ambiguity could effectively discourage an energy efficient investment in cogeneration.

Furthermore, under the present rules new industrial facilities may be classified as powerplants if they happen to sell or exchange more than 50% of

their electrical output—irrespective of whether the electrical output, itself, is a large or small fraction of the units total useful energy output.

To remedy this situation, ERA is proposing alternatives to clarify the definition of electric generating unit.

If ERA adopts a standard which classifies additional cogenerators as MFBLs, those new units which are combined cycle, turbine or internal combustion engines are not presently subject to prohibitions by rule. ERA believes the economics of cogeneration will then determine whether these cogenerators would be built, although ERA could prohibit individual cogenerators from using oil or gas on a case-by-case basis or by future rulemaking.

III. Impact of Statewide Cogeneration Capacity Limit

A. National and Regional Impact

In order to determine what initial limits should be placed on the development of cogeneration capacity in states consider two factors:

- The amount of oil/gas that can be displaced by the cogeneration.
- The amount of cogeneration that might potentially be put in operation.

Once these figures are established by the state, it is possible to establish an initial limit that will allow gas/oil saving cogeneration to proceed while minimizing the risk that alternate fuel-fired electrical generating capacity will be deferred because of the availability of the cogeneration capacity. These initial limits will define the initial geographic impact of the oil/gas savings.

Below is a brief description of the analysis and results of oil/gas savings potential of oil- and gas-fired cogeneration. Following that is the estimate of the potential market for cogeneration in the states using oil/gas intensively for baseload generation.

1. *Potential in States and Regions for Displacing Oil or Gas via Oil- or Gas-Fired Cogeneration.* ERA has performed calculations to estimate the maximum number of megawatts of oil- or gas-fired cogeneration that could be added in each state (or interconnected region) subject to the requirement that each additional megawatt result in a net lifetime savings of oil and gas. The analysis is based on the following key assumptions:

1. Adequate measures have been taken to assure that the addition of cogeneration does not cause new utility powerplants burning alternate fuels to be delayed or cancelled.

2. A typical cogenerator operates at full capacity during all hours of the year, except for occasional outages.

3. A typical cogenerator's incremental heat rate (i.e., the additional fuel used to produce electricity, beyond the amount that would have been required to meet the non-electric energy requirement) is about half the heat rate of an oil-gas-fired powerplant (that is, 5,000 to 5,500 Btu/kWh as compared to 10,000 to 11,000 Btu/kWh). Therefore, there is a net annual savings of oil or gas if the utility system's marginal (or incremental) fuel is oil or gas at least half the time.

Generally, as more cogeneration is added, the fraction of the hours when a utility's incremental generating unit will be oil- or gas-fired will decrease. The number of megawatts of cogeneration that could be added before oil/gas savings disappear was estimated for each state based on projected 1988 utility capacity and oil/gas use (using National Electric Reliability Council (NERC) projections).

In effect, the analysis simply estimated the amount of utility oil- or gas-fired capacity that would still be operating more than 50 percent of the time in 1988. Only by replacing this oil or gas fired capacity can the typical baseload cogenerator, with twice the incremental efficiency of a conventional powerplant, produce a net savings of oil or gas.

Based on the analysis, only six states and the New England states are expected to still have enough oil/gas generating capacity by 1988 so that oil/gas savings can be achieved by adding oil/gas cogeneration. In order of megawatts of displacement oil/gas capacity, the states are Texas, Florida, California, Louisiana, New York, New England states and Alaska. A few other states are borderline cases (Kansas, Oklahoma, Arkansas, Mississippi and the PJM pool (Pennsylvania, New Jersey, Maryland, Delaware and Washington, D.C.)) and all other states have oil/gas capacity so low that there will be little likelihood that a baseload oil/gas cogenerator could cause net savings of oil and gas (See Table 1, Statewide Energy Limit, for the cogeneration capacity displacement figures).¹

2. *Estimated Market Development for Cogeneration.* The second factor needed to determine an appropriate initial limit for cogeneration development was the estimate of total cogeneration capacity

that might be developed. Estimates were made (see Table 1, Column 2) for each of the states mentioned above where potential existed for oil/gas savings through displacement of oil/gas generated electricity. The estimates of potential cogeneration development take into account the various technical, economic and institutional constraints on cogeneration development. Three steps were taken to derive the estimates:

(a) The technically suitable market was determined,

(b) The economically attractive market was determined, i.e., where return-on-investment is high enough to warrant investment, and

(c) The fraction of economically attractive market for oil- and gas-fired cogeneration was determined.²

3. *Initial Cogeneration Electric Capacity Limits.* ERA proposes to establish the initial pre-negotiation Cogeneration Electric Capacity Limits to be one-third of the lesser of (i) the oil- or gas-fired electric generating capacity which cogeneration could ultimately displace (Table 1, Column 1), or (ii) the amount of oil- or gas-fired cogeneration electric generating capacity that would be expected to be developed in the states during the 1980's, if such development were unrestricted by FUA (Table 1, Column 2). One third (Table 1, Column 3) appears large enough to accommodate exemption petitions likely to be received in the immediate future, but would not provide an incentive for the states to defer alternate fuel-fired capacity.

4. *State Energy Limits.* The Cogeneration Electric Capacity Limit described above (and given in Table 1, Column 3) presents the existing oil/gas electric utility system capacity which could be replaced by oil- or gas-fired cogeneration without displacing new alternate fuel-fired electric generating capacity.

An overall State Energy Limit for cogenerators can be developed based upon the Cogeneration Electric Capacity Limit (see Table 1, Column 4). Assuming the typical cogenerator is 42.5% efficient (FERC efficiency standard for topping cycle) and the cogenerator produces 45% electric output compared with useful thermal output, one megawatt of cogeneration electrical capacity is equivalent to 16.9 million Btu/hr. of energy input. On a full year this is equivalent to 1.48×10^{11} Btu/yr. or about 24,700 barrels of oil equivalent to 1 year.

¹For a full description of the analysis of oil/gas displacement by oil/gas-fired cogeneration, see the following document *Potential in States and Regions for Displacing Oil or Gas via Oil- or Gas-Fired Cogeneration* May, 1980, on file in Room B-110, 2000 M Street, N.W., Washington, D.C.

²For a full description of the cogeneration market development estimates see the document *Market Development of Oil- and Gas-Fired Cogeneration Installations in Selected States Between 1980 and 1990* May, 1980, on file in Room B-110, 2000 M Street, N.W., Washington, D.C.

B. Impact on Individual Industries and Competition

The impact upon individual industries will depend to an extent on the method of allocation of cogeneration capacity by the states. There is no basis at this point to assume that any particular industry will be favored or disadvantaged by the granting of cogeneration exemptions.

With the allocation of any scarce resource (in this case limited cogeneration capacity) it is possible that the recipients may receive some marginal competitive advantage. For example, if a state were to favor new or expanding industry versus replacement investment in its allocation of cogeneration capacity, it is possible that some marginal cost advantage could be obtained by the new facilities.

C. Impact on Levels of Government

There should be no particular impact on any level of government beyond the administrative effort required of states that receive a cogeneration capacity allocation.

D. Impact on Demographic Groups

There should be no particular impact on any demographic group. As described previously, the impact of cogeneration will be geographic because of the potential to save oil and gas in states with substantial oil- and gas-fired baseload electrical generation.

E. Other Costs and Benefits

The primary benefit achieved through cogeneration is the increased efficiency in oil use, i.e., the same amount of electricity and steam generation is obtained with less oil use. Below is an estimate of initial oil savings if cogeneration systems were installed in those states and regions specified as heavy oil and gas users. The following is assumed:

- Cogeneration accounts for the equivalent of 1312 Megawatts (the initial cogeneration allocated to the states).
- Baseload oil- and gas- burning powerplants have a heat input rate of about 10,500 Btu's/kWh and cogeneration systems a marginal heat rate of 5,250 Btu's/kWh; this yields an efficiency factor of 5,250 Btu/kWh for cogeneration.
- The baseload system capacity factor is assumed to be .7 and operation occurs 8760 hours/year.
- 6.5 million Btu's in a barrel of oil.

Estimated Oil Savings in Btu's = (MW Capacity × Capacity factor × Hours/Year) × 5250 Btu's/kWh × 1000 = (1312 × .7 × 8760) × 5250 × 10³ = 42,237 × 10⁹ Btu's/year

Estimated barrels/year saved =
6,500,000 bbls

Estimated barrels/day saved = 17,800
bbls

To the extent that inefficient oil use can be displaced, there will be a lessening of demand for oil although not as great as if the inefficient oil use were displaced by alternate fuel use other than oil or gas.

Another benefit of the cogeneration strategy described in the Notice of Proposed Rulemaking is that states that receive a cogeneration capacity limit will have some control over implementation of their state policy on cogeneration.

Another benefit is the reduced administrative burden on facilities. Facilities that seek an exemption to use cogeneration in those states with a cogeneration capacity limit will not be required to submit a demonstration of oil and gas savings.

A cost incurred if the cogeneration strategy is implemented is the additional administrative effort required by states with cogeneration capacity limits.

[FR Doc. 80-24007 Filed 8-9-80; 8:45 am]

BILLING CODE 6450-01-M