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UNITED STATES OF AMERICA  
ATOMIC ENERGY COMMISSION

In the Matter of  
CONSUMERS POWER COMPANY  
(Midland Plant, Units 1 and 2)

}  
}  
}

Docket Nos. 50-329A  
50-330A

PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

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October 8, 1974

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## I. PRELIMINARY STATEMENT

I-1           This proceeding involves the application of Consumers Power Company (Consumers or Applicant) for permits authorizing the construction of two pressurized water nuclear power reactors, designated as the Midland Plant, Units 1 and 2. The proposed facilities are to be located on the Applicant's site adjacent to the Tittabawasee River in Midland County, Michigan. The units are designed to operate at 482 MW(e) and 818 MW(e) respectively (Stafford - Transcript (Tr.) 9244 and Consumers Power Company application for licenses for Midland Units - Docket Nos. 50-329A, 50-330A).

I-2           The application for the proposed facility was reviewed by the Department of Justice pursuant to the provisions of Section 105 of the Atomic Energy Act of 1954, 68 Stat. 919, 42 U.S.C. 2011-2296 at 2135 as amended by P.L. 91-560, 84 Stat. 1472 (December 19, 1970) and by the Staff of the Atomic Energy Commission (Staff). The results of the Department's review are contained in a letter of advice to the Atomic Energy Commission dated June 28, 1971 in which the department concluded that the issuance of unconditioned construction permits may maintain a situation inconsistent with the antitrust laws and accordingly recommended that a hearing be held pursuant to Section 105 of the Atomic Energy Act.

I-3            Subsequently petitions to intervene were submitted to the Atomic Energy Commission by Wolverine Electric Cooperative, Inc., Northern Michigan Electric Cooperative, Inc. and several Michigan Municipals (see Petitions to Intervene filed on September 30, 1971 and October 4, 1971).

I-4            The AEC Staff, in its answers to these petitions supported the admission of the petitioners as parties in view of the issues involving alleged anticompetitive practices by the Applicant (see Answers of AEC Staff filed on October 15, 1971 and November 19, 1971).

I-5            On April 19, 1972, the Atomic Energy Commission's Notice of Antitrust Hearing was published in the Federal Register (37 FR 7726). An Atomic Safety and Licensing Board (Board) was established in accordance with the Atomic Energy Act and the Commission's regulations on April 11, 1972. The Board's notice for the first prehearing conference in this proceeding was issued on April 19, 1972.

I-6            The parties to this proceeding are the Applicant, the Regulatory Staff, the Department of Justice, Wolverine Electric Cooperative, Inc., Northern Michigan Electric Cooperative, Inc., and the cities of Traverse City, Grand Haven, Holland, Zeeland, Coldwater, and the Michigan Municipal

Electric Association (collectively, Wolverine, Northern Michigan, the Cities and the Municipal Association constitute the "joint intervenors").

I-7

This is a contested proceeding within the meaning of the Commission's regulations in 10 CFR §2.4(n).

II. RELEVANT ISSUES IN CONTROVERSY

Prehearing Conference Order of the Atomic Safety and Licensing Board,  
August 7, 1972, page 3.

II-1

The substantive issues in this case, as set out by the Board, are as follows: (a) whether Applicant has the power to grant or deny access to coordination; (b) whether Applicant has used this power in an anticompetitive fashion against the smaller utility systems; (c) whether Applicant's said use of its power has brought into existence a situation inconsistent with the antitrust laws, which situation would be maintained by activities under the licenses that Applicant seeks.

### III. STATUTES INVOLVED

The following statutory materials are pertinent to this proceeding:

A. Atomic Energy Act, §105(a) and (c); 42 U.S.C.A. 2135  
(December 10, 1970).

- a. Nothing contained in this Act shall relieve any person from the operation of the following Acts, as amended, 'An Act to protect trade and commerce against unlawful restraints and monopolies' approved July second, eighteen hundred and ninety; sections seventy-three to seventy-seven, inclusive, of an Act entitled 'An Act to reduce taxation, to provide revenue for the Government, and for other purposes' approved August twenty-seven, eighteen hundred and ninety-four; 'An Act to supplement existing laws against unlawful restraints and monopolies, and for other purposes' approved October fifteen, nineteen hundred and fourteen; and 'An Act to create a Federal Trade Commission, to define its powers and duties, and for other purposes' approved September twenty-six, nineteen hundred and fourteen. In the event a licensee is found by a court of competent jurisdiction, either in an original action in that court or in a proceeding to enforce or review the findings or orders of any Government agency having jurisdiction under the laws cited above, to have violated any of the provisions of such laws in the conduct of the licensed activity, the Commission may suspend, revoke, or take such other action as it may deem necessary with respect to any license issued by the Commission under the provision of this Act.

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- c. (1) The Commission shall promptly transmit to the Attorney General a copy of any license application provided for in paragraph (2) of this subsection, and a copy of any written request provided for in paragraph (3) of this subsection; and the Attorney General shall, within a reasonable time, but in no event to exceed 180 days after receiving a copy of such application or

written request, render such advice to the Commission as he determines to be appropriate in regard to the finding to be made by the Commission pursuant to paragraph (5) of this subsection. Such advice shall include an explanatory statement as to the reasons or basis therefor.

(2) Paragraph (1) of this subsection shall apply to an application for a license to construct or operate a utilization or production facility under section 103: Provided, however. That paragraph (1) shall not apply to an application for a license to operate a utilization or production facility for which a construction permit was issued under section 103 unless the Commission determines such review is advisable on the ground that significant changes in the licensee's activities or proposed activities have occurred subsequent to the previous review by the Attorney General and the Commission under this subsection in connection with the construction permit for the facility.

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(4) Upon the request of the Attorney General, the Commission shall furnish or cause to be furnished such information as the Attorney General determines to be appropriate for the advice called for in paragraph (1) of this subsection.

(5) Promptly upon receipt of the Attorney General's advice, the Commission shall publish the advice in the Federal Register. Where the Attorney General advises that there may be adverse antitrust aspects and recommends that there be a hearing, the Attorney General or his designee may participate as a party in the proceedings thereafter held by the Commission on such licensing matter in connection with the subject matter of his advice. The Commission shall give due consideration to the advice received from the Attorney General and to such evidence as may be provided during the proceedings in connection with such subject matter, and shall make a finding as to whether the activities under the license would create or maintain a situation inconsistent with the antitrust laws as specified in subsection 105a.

(6) In the event the Commission's finding under paragraph (5) is in the affirmative, the Commission shall also consider, in determining whether the license should be issued or continued, such other factors, including the need for power in the affected area, as the Commission shall have the authority to issue or continue a license as applied for, to refuse to issue a license, to rescind a license or amend it, and to issue a license with such conditions as it deems appropriate.

(7) The Commission, with the approval of the Attorney General, may except from any of the requirements of this subsection such classes or types of licenses as the Commission may determine would not significantly affect the applicant's activities under the antitrust laws as specified in subsection 105a.

(8) With respect to any application for a construction permit on file at the time of enactment into law of this subsection, which permit would be for issuance under section 103, and with respect to any application for an operating license in connection with which a written request for an antitrust review is made as provided for in paragraph (3), the Commission, after consultation with the Attorney General, may, upon determination that such action is necessary in the public interest to avoid unnecessary delay, establish by rule or order periods for Commission notification and receipt of advice differing from those set forth above and may issue a construction permit or operating license in advance of consideration of and findings with respect to the matters covered in this subsection: Provided. That any construction permit or operating license so issued shall contain such conditions as the Commission deems appropriate to assure that any subsequent findings and orders of the Commission with respect to such matters will be given full force and effect.

- B. The Sherman Antitrust Act,<sup>1/</sup> An Act To protect trade against unlawful restraints and monopolies. Fifty-First Congress, approved July 2, 1890 (26 Stat. 209, as amended; 15 U.S.C. 1). (26 Stat. 209; 50 Stat. 693; 15 U.S.C. (1) and (2) (1970)).

Section 1. Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is hereby declared to be illegal, contracts or agreements prescribing minimum prices for the resale of a commodity which bears, or the label or container of which bears, the trade mark, brand, or name of the producer or distributor of such commodity and which is in free and open competition with commodities of the same general class produced or distributed by others, when contracts or agreements of that description are lawful as applied to intrastate transactions, under any statute, law, or public policy now or hereafter in effect in any State, Territory, or the District of Columbia in which resale is to be made, or to which the commodity is to be transported for such resale, and the making of such contracts or agreements shall not be an unfair method of competition under section 5, as amended and supplemented, of the act entitled, "An act to create a Federal Trade Commission, to define its power and duties, and for other purposes." approved September 26, 1914: Provided further, That the preceding proviso shall not make lawful any contract or agreement, providing for the establishment or maintenance of minimum resale prices on any commodity herein involved, between manufacturers, or between producers, or between wholesalers, or between brokers, or between factors, or between retailers, or between persons, firms or corporations in competition with each other. Every person who shall make any contract or engage in any combination or conspiracy hereby declared to be illegal shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding fifty thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

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<sup>1/</sup> The Sherman Antitrust Act is published above as amended by Public No. 314 (Miller-Tydings Act), 75th Congress, approved August 17, 1937 (50 Stat. 693), which added the two provisos at the end of the first sentence of section 1.



MONOPOLIZING TRADE; PENALTY (26 Stat. 209; 15 U.S.C. 2).

Sec. 2. Every person who shall monopolize or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding fifty thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

- C. The Clayton Act, §7, acquisition by corporation of stock or assets of another corporation (38 Stat. 731; 15 U.S.C. 18), (1970).

Sec. 7.<sup>2/</sup> That no corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no corporation subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another corporation engaged also in commerce, where in any line of commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.

No corporation shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no corporation subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of one or more corporations engaged in commerce, where in any line of commerce in any section of the country, the effect of such acquisition, of such stocks or assets, or of the use of such stock by the voting or granting of proxies or otherwise, may be substantially to lessen competition, or to tend to create a monopoly.

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<sup>2/</sup> Public No. 899 (Celler-Kefauver Antimerger Act), 81st Congress, approved December 29, 1950, amended Section 7 to read as set forth above (64 Stat. 1125).

This section shall not apply to corporations purchasing such stock solely for investment and not using the same by voting or otherwise to bring about, or in attempting to bring about, the substantial lessening of competition. Nor shall anything contained in this section prevent a corporation engaged in commerce from causing the formation of subsidiary corporations for the actual carrying on of their immediate lawful business, or the natural and legitimate branches or extensions thereof, or from owning and holding all or part of the stock of such subsidiary corporations, when the effect of such formation is not to substantially lessen competition.

Nor shall anything herein contained be construed to prohibit any common carrier subject to the laws to regulate commerce from aiding in the construction of branches or short lines so located as to become feeders to the main line of the company so aiding in such construction or from acquiring or owning all or any part of the stock of such branch lines, nor to prevent any such common carrier from acquiring and owning all or any part of the stock of a branch or short line constructed by an independent company where there is no substantial competition between the company owning the branch line so constructed and the company owning the main line acquiring the property or an interest therein, nor to prevent such common carrier from extending any of its lines through the medium of the acquisition of stock or otherwise of any other common carrier where there is no substantial competition between the company extending its lines and the company whose stock, property, or an interest therein is so acquired.

Nothing contained in this section shall be held to affect or impair any right heretofore legally acquired: Provided, that nothing in this section shall be held or construed to authorize or make lawful anything heretofore prohibited or made illegal by the antitrust laws, nor to exempt any person from the penal provisions thereof or the civil remedies therein provided.

Nothing contained in this section shall apply to transactions duly consummated pursuant to authority given by the Civil Aeronautics Board, Federal Communications Commission, Federal Power

Commission, Interstate Commerce Commission, the Securities and Exchange Commission in the exercise of its jurisdiction under section 10 of the Public Utility Holding Company Act of 1935, the United States Maritime Commission, or the Secretary of Agriculture under any statutory provision vesting such power in such Commission, Secretary, or Board.

- D. The Federal Trade Commission Act: Unfair methods of competition and unfair or deceptive acts or practices unlawful. Complaints, findings, and orders of Commission. Appeals. Penalties (38 Stat. 719; 52 Stat. 111; 64 Stat. 21; 66 Stat. 631; 72 Stat. 942; 15 U.S.C. 45), (1970).

Sec. 5. (a)(1) Unfair methods of competition in commerce, and unfair or deceptive acts or practices in commerce, are hereby declared unlawful.

#### IV. REQUESTS BY THE BOARD

At the conclusion of this proceeding the parties were directed to address themselves in their proposed findings to several issues which concerned the Board (Tr. pp. 9284-9290). With the exception of the three items indicated below the Staff has responded to the Board's direction. In those instances in which the Staff has not addressed itself to the states issues, we have indicated the reasons.

1. Noerr-Pennington Doctrine

The Staff does not contend that the Applicant has engaged in any activity that would fall within the parameters of the Noerr-Pennington doctrine. The issue has been raised by the Department of Justice and will be addressed in the Department's proposed findings.

2. Parker v. Brown

The Staff by agreement with the Department of Justice will rely on the Department's analysis of the Parker v. Brown doctrine with regard to this issue.

3. Sales to Ultimate Retail Customers

The Staff does not contend that sales to ultimate retail customers is an issue in this proceeding. However the freedom of choice of a wholesale customer and sales to that customer are issues which are discussed by the Staff.

V. DEFINITIONS

- V-1 For the purpose of these proposed findings of facts, the following are definitions which will be used in these proposed findings:
- V-2 1. Transmission - The act or process of transporting electric energy in bulk from a source or sources of supply to other principal parts of the system or to other utility systems. (Glossary of Electric Utility Terms, Edison Electric Institute Publication No. 70-40, 1970 - See Appendix A).
- V-3 2. Transmission Services - The act by one party in providing "transmission" to one or more other parties. (Aymond - Tr.6046)
- V-4 3. Wheeling - A form of "transmission service" wherein the transfer of electric power is from one utility to another over the facilities of an intermediate utility by direct transmission or displacement.. (Otter Tail Power Company v. United States, 410 U.S. 366 (1973))
- V-5 4. Coordination - The joint development and/or operation of bulk power facilities by or among two or more electric systems for improved reliability and increased efficiency which would not be attainable if each system acted independently. (FPC National Power Survey 1970, I-17-1)

V-6

a. Coordinated Development includes the following:

- (1) Access to Economies of Scale (Mayben - Tr.2649)
- (2) Long-term power exchanges (Wein Prepared Testimony (PT) p.63, NPS 1970, II-2-103, Slemmer PT, p.18)
- (3) Better Utilization of Bulk Power Facilities (Muller - PT, p.20)
- (4) Joint Construction of Bulk Power Facilities (Brush - Tr.2137)

V-7

b. Coordinated Operation includes the following:

- (1) Reserve Sharing (Muller - PT p.20, Wein - PT p.62, Mayben - Tr.2652)
- (2) Emergency Energy (Aymond - Tr.6257, Muller - PT p.21, Wein - PT p.62, Mayben - Tr.2652)
- (3) Maintenance Energy (Aymond - Tr.6257, Muller - PT p.21, Wein - PT p.63)
- (4) Economy Energy (Aymond - Tr.6257, Muller - PT p.21, Mayben - Tr.2652)

V-8

5. Bulk Power Supply - The sources of power which are made available from a transmission system for distribution or for further transmission. (Wolfe - Tr.1709, Brush - Tr.2327).

V-9

6. High Voltage - Levels of voltage which are well above those normally used for distributing electric power, typically 69,000 volts and above (Brush - Tr.2329, Wolfe - Tr.1708, 1710).

- V-10            7.    Firm Power - That power which is continuously available to serve a particular load of a particular magnitude. (Mayben - Tr.2548).
- V-11            8.    Base-Load Power - Generation which is normally operated continuously at a constant output (Glossary of Electric Utility Terms, Edison Electric Institute Publication No. 70-40, 1970, Chayavadhanangkur - PT p.6).

VI. SUMMARY OF LEGAL ARGUMENT - JURISDICTION AND SCOPE

A. Summary

VI-1       The Staff takes the position that there is a sufficient basis for the Commission to conclude that "a situation inconsistent with the antitrust laws" will be maintained if the requested construction permit is issued without appropriate conditions. The facts in this case may indeed show a violation of antitrust laws. However, the Staff would urge that the Board adopt as a standard that in order for a situation inconsistent with the antitrust laws to exist, a violation of the antitrust laws does not necessarily have to be established.

VI-2       The Staff contends that the aforementioned situation will be maintained by the activities under the license. The Staff believes that the record that has been adduced at trial adequately demonstrates the requisite elements of nexus as propounded in the Louisiana Power and Light Company Memorandum and Order <sup>3/</sup> (hereinafter referred to as the Waterford Memo and Order).

VI-3       An examination of the relevant market indicates that Consumers dominates and has sufficient economic power to control the transmission, generation, and distribution of electrical energy, particularly wholesale bulk power, in this

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<sup>3/</sup> September 28, 1973, Docket No. 50-382(A).



market. Further, the Applicant's actions reveal an intent to maintain a situation inconsistent with the antitrust laws by its exercise of its market power by refusing to coordinate and grant access to the Midland plant and by its use of other anticompetitive policies. These factors are more than sufficient to constitute a situation inconsistent with the policies underlying the antitrust laws. The Staff contends that the only method by which this situation can be remedied is by attaching conditions to the Midland license.

B. The Atomic Energy Act Requires, In This Proceeding, That The Commission Determine Whether There Is A Situation Inconsistent With The Antitrust Laws

VI-4 Section 105c of the Act and the legislative history accompanying the Act require the Commission to determine in this proceeding "whether the activities under the license would create or maintain a situation inconsistent with any of the antitrust laws or the policies clearly underlying those laws as specified in Subsection 105(a)."<sup>4/</sup>

VI-5 In Northern Pacific Railroad v. United States,<sup>5/</sup> the Supreme Court set forth the scope and purpose of the Sherman Act:

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<sup>4/</sup> Report, Joint Committee on Atomic Energy, p. 14, Report No. 91-1247, 91st Congress, 2d Session (1970).

<sup>5/</sup> 356 U.S. 1 (1958).

The Sherman Act was designed to be a comprehensive charter of economic liberty aimed at preserving free and unfettered competition as the rule of trade. It rests on the premise that the unrestrained interaction of competitive forces will yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress, while at the same time providing an environment conducive to the preservation of our democratic, political and social institutions. But even were that premise open to question, the policy unequivocally laid down by the Act is competition. And to this end it prohibits "Every contract, combination . . . or conspiracy <sup>6/</sup> in restraint of trade or commerce among the several States."

VI-6 This basic antitrust principle specifically emanating from the Sherman Act in Northern Pacific Railroad applies with equal force to the underlying basis for the Federal Trade Commission Act, Clayton Act and Section 105c of the Atomic Energy Act. <sup>7/</sup>

VI-7 The Staff's fundamental position in light of the legislative history and unambiguous language of the statute is that, under Section 105(c), it is not necessary to establish a violation of any of the laws enumerated in Section

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<sup>6/</sup> Id., at pp. 4 and 5.

<sup>7/</sup> In United States v. Topco Associates, 405 U.S. 596 at 610 (1972), the Court stated that: "Antitrust laws in general, and the Sherman Act in particular, are the Magna Charta of free enterprise. They are as important to the preservation of economic freedom and our free enterprise system as the Bill of Rights is to the protection of our fundamental personal freedoms."

105(a) of the Act. We conclude that a situation inconsistent with the antitrust laws is quite different from a violation of such laws.

VI-8 "Inconsistent" is defined by Webster's as: "(a) not in agreement, harmony or accord; incompatible; (b) not uniform; self-contradictory; (c) not always holding to the same principles or practice; changeable."<sup>8/</sup> The word "violation" is defined to include: "(a) infringement or breach, as of law, rule, right, etc."<sup>9/</sup> Accordingly, to establish that certain conduct is inconsistent with the laws is quite different from establishing that such conduct violates the law.

VI-9 In enacting Section 105c of the Atomic Energy Act, the Joint Committee on Atomic Energy considered the potential problems of defining a "situation inconsistent" with the antitrust laws and stated:<sup>10/</sup>

Of course, the committee is intensely aware that around the subject of prelicensing review and the provisions of Subsection 105(c), there are opinions and emotions ranging from one extreme to the other pole . . . . The legislation proposed by the committee provides for a finding by the Commission as to whether the activities under the license would create or

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<sup>8/</sup> Webster's New World Dictionary of the American Language, 2d College Ed., p. 712.

<sup>9/</sup> Id., at 1585.

<sup>10/</sup> Report, Joint Committee on Atomic Energy, No. 91-1247, 91st Congress, 2d Session, September 29, 1970, pp. 14 and 15 (1970).

maintain a situation inconsistent with the antitrust laws as specified in 105(a). The concept of certainty of contravention of the antitrust laws or the policies clearly underlying these laws is not intended to be implicit in this standard; nor is mere possibility of inconsistency. It is intended that the finding be based on reasonable probability of contravention of the antitrust laws or the policies clearly underlying these laws. It is intended that, in effect, the Commission will conclude whether, in its judgment, it is reasonably probable that the activities under the license would, when the license is issued or thereafter, be inconsistent with any of the antitrust laws or the policies clearly underlying these laws.

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It is important to note that the antitrust laws within the ambit of Subsection 105c of the bill are all the laws specified in Subsection 105a. These include the statutory provisions pertaining to the Federal Trade Commission, which normally are not identified as antitrust law. Accordingly, the focus for the Commission's finding will, for example, include consideration of the admonition in Section 5 of the Federal Trade Commission Act, as amended, that, "Unfair methods of competition in commerce, and unfair and deceptive acts in commerce, are declared unlawful."

The Committee is well aware of the phrases "may be" and "tend to" in the Clayton Act, and of the meaning they have been given by virtue of decisions of the Supreme Court and the will of Congress -- namely, reasonable probability. The committee has -- very deliberately -- also chosen the touchstone of reasonable probability for the standard to be considered by the Commission under the revised 105c of the bill.<sup>11/</sup>  
(emphasis supplied.)

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<sup>11/</sup> Id., at pp. 14 and 15.

VI-10 Our analysis follows the "reasonable probability" standard set by Congress and will focus on this aspect of Section 7 of the Clayton Act as our basis for establishing the standard of inconsistency required by Section 105c of the Act.

C. The Legislative History Accompanying § 105c of the Atomic Energy Act Requires That the Same Standard of Reasonable Probability Required under Section 7 of the Clayton Act be Applied to Determine Whether or Not a Situation Inconsistent with the Antitrust Laws Exists

VI-11 The reasonable probability test selected by the Congress and relied on by the Staff is based on the premise that Section 7 of the Clayton Act sets a standard which the Atomic Energy Commission can utilize in determining the impact of certain situations.<sup>12/</sup> We are relying on Section 7 of the Clayton Act primarily for the purpose of establishing a standard of reasonable probability. However, Section 7 is also significant for our purposes because it is concerned with the impact upon market structures, which is the basis upon which the Staff analyzes the facts in this case.

VI-12 In Brown Shoe,<sup>13/</sup> the Supreme Court emphasized that Congress intended to check a tendency towards concentration in its incipiency and, to this end.

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<sup>12/</sup> Supra, at note 10, p. 15.

<sup>13/</sup> Brown Shoe v. United States, 370 U.S. 294 (1962).

it rejected " . . . the standards for judging the legality of business combinations . . ." <sup>14/</sup> applied in Sherman Act cases. The Court stated that Congress did not provide any "definite qualitative or quantitative tests" <sup>15/</sup> for determining whether a given merger may substantially lessen competition or tend toward monopoly and that by using the words "may be substantially to lessen competition," Congress indicated its "concern was with probabilities, not certainties." <sup>16/</sup>

VI-13

In analyzing horizontal merger cases, the Supreme Court has relied upon market share statistics, concentration ratios, and industry concentration trends to establish that there is a "reasonable probability" that the activity will substantially lessen competition. Consideration has also been given to other elements of market structure and performance, such as ease of entry, the strength of remaining firms, the character of supply and demand in the market, the vigor of competition, and the scarcity of resources and facilities. This same criteria which has been used to establish a violation of the antitrust laws we believe can be utilized to indicate that a situation inconsistent with the antitrust laws exists.

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<sup>14/</sup> Id., at 318.

<sup>15/</sup> Id., at 321.

<sup>16/</sup> Id., at 323.

VI-14           The Commission in applying this standard may conclude that, if a market is concentrated to the extent that an Applicant dominates the generation and transmission of electric energy and its activities preclude other systems in the market from obtaining the benefits of nuclear power, having access to alternative sources of bulk power supply or obtaining economies of scale associated with nuclear power, there is a "reasonable probability" that there is a situation inconsistent with the antitrust laws.

VI-15           The Philadelphia National Bank case <sup>17/</sup> illustrates the position the Court has taken with respect to the need for a broad economic investigation prior to determining that the law has been violated. In that case the court stated:

A merger which produces a firm controlling an undue percentage share of the relevant market and results in a significant increase in the concentration of firms in that market, is so inherently likely to lessen competition substantially that it must be enjoined in the absence of evidence clearly showing that the merger is not likely to have such anti-competitive effects. <sup>18/</sup>

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<sup>17/</sup> United States v. Philadelphia National Bank, 374 U.S. 321 (1963).

<sup>18/</sup> Id., at 363. See also A.D. Neal, The Antitrust Laws of the U.S.A., Cambridge Press at p. 442, "They [the courts] must deal ultimately with facts, and where the fact is that a concern shows itself to be intent on market dominance, this is proof enough of violation of the Sherman Act, whether or not that dominance has already resulted in unduly high prices or bankrupt competitors." See also United States v. Continental Can, 378 U.S. 441 (1964); United States v. Pennzoil, 252 F.Supp 962 (W.D. Pa. 1965).

VI-16 If an Applicant significantly controls or dominates either transmission, distribution or generation, and the Applicant uses that power to protect its dominant position, we take the position that an unconditioned grant to construct a nuclear power plant will have the effect of maintaining the already high level of concentration which will add to the Applicant's dominant position.<sup>19/</sup> Accordingly, a basis for concluding that there is a situation inconsistent with the antitrust laws exists.

D. Applicability of the Antitrust Laws to the Situation Maintained by Consumers Power Company by Virtue of Its Proposed Midland Facility

VI-17 Under Section 105c of the amended Atomic Energy Act,<sup>20/</sup> the Commission must consider, in its prelicensing antitrust review,<sup>21/</sup> three basic antitrust statutes.<sup>22/</sup> The Congressional purpose in enacting Section 105 was to prevent the acquisition or maintenance of nuclear power which could be used to exclude competition or restrain trade and to insure that

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<sup>19/</sup> In United States v. Aluminum Company of America, 377 U.S. 271 (1964), "If concentration is already great, the importance of preventing even slight increases [1.3%] in concentration and so preserving the possibility of eventual deconcentration is correspondingly great."

<sup>20/</sup> P.L. 91-560, 84 Stat. 1472 (December 19, 1970), Section 105c of the Act, as amended.

<sup>21/</sup> Ibid., 105(a).

<sup>22/</sup> Sherman Antitrust Act, 15 U.S.C.A. §§ 1-7 (1970); Federal Trade Commission Act, 15 U.S.C. §§ 41-58 (1970); Clayton Act, 15 U.S.C. §§ 12-27 (1970).



the benefits of nuclear technology will be shared and enjoyed by as many as possible on a non-discriminatory basis.<sup>23/</sup> Accordingly, the Commission must determine whether or not the issuance of a license would create or maintain a situation inconsistent with the antitrust laws.<sup>24/</sup>

VI-18

1. The Atomic Energy Commission's Antitrust Authority

Congress, in enacting 105c of the Atomic Energy Act, firmly established that "any person" choosing to participate in and accept the benefits of nuclear power will be subject to the antitrust laws enumerated in Section 105a of the Act to the extent that activities under the license will create or maintain an anticompetitive situation. No special exemption was established for the electric utility industry. Accordingly, Congress has recognized that pervasive regulation does not exist in the electric utility industry. Any argument to the contrary would render Section 105 a nullity which, obviously, Congress did not intend.

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<sup>23/</sup> Congressional Record, H-9440, September 30, 1970, pp. 9 and 47.

<sup>24/</sup> See Section 105c(5) of the Act, as amended.

VI-19

This Congressional mandate is by no means new to regulated industries.<sup>25/</sup> In the past decade, a series of cases has required

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- 25/ United States v. Trans-Missouri Freight Association, 166 U.S. 290, (1897); (Applying antitrust law to regulated railway industry).  
United States v. Joint Traffic Association, 171 U.S. 505 (1898); (Antitrust applied to certain aspects of interstate commerce).  
Northern Securities Company v. United States, 193 U.S. 197 (1904); (Antitrust applied to regulated securities market).  
United States v. Terminal Railroad Association, 224 U.S. 383; (Antitrust applied to railroads).  
Georgia v. Pennsylvania Railroad Company, 324 U.S. 439 (1945); (Antitrust applied to railroads).  
United States v. Pacific & Arctic Railway & Navigation Company, 228 U.S. 87 (1913); (Applied to railroads).  
United States v. Philadelphia National Bank, 374 U.S. 321 (1963); (Antitrust applied to regulated sector of banking industry).  
United States v. First National Bank & Trust Company of Lexington, 376 U.S. 665 (1964); (Applied to banking).  
United States v. Radio Corporation of America, 358 U.S. 334 (1959); (Antitrust applied to radio-communications).  
United States v. El Paso Natural Gas Company, 376 U.S. 651 (1964); (Antitrust applied to natural gas industry).  
California v. Federal Power Commission, 369 U.S. 482 (1962); (Antitrust applied to electric utility industry).

administrative agencies to consider antitrust in the exercise of their administrative responsibility.<sup>26/</sup>

VI-20

Specifically, the Supreme Court, in Otter Tail,<sup>27/</sup> held that electric utilities were subject to the antitrust review of the Federal Power Commission, since that agency had a statutory directive to consider anticompetitive effects in its licensing process.

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<sup>26/</sup> California v. Federal Power Commission, *supra*, at 485 (1962); (Antitrust applied to electric utility industry).  
Otter Tail Power Company v. United States, 410 U.S. 366 (1973); (Antitrust applied to electric utilities).

This principle was enunciated in several cases prior to Otter Tail. See United States v. Philadelphia National Bank, *supra*; Silver v. New York Stock Exchange, 373 U.S. 341 (1963); and United States v. Radio Corporation of America, *supra*, these cases applied antitrust law to banking, securities, electric power, and communications.

<sup>27/</sup> 410 U.S. at pp. 372-374. See also Philadelphia National Bank, *supra*, at 350-351; Silver v. New York Stock Exchange, *supra*, at 357-361; United States v. Borden Company, 308 U.S. 188, 198 (1939), (Applying antitrust law to the milk industry); and Georgia v. Pennsylvania Railroad Company, *supra*, 456-457, (Applying antitrust to rail industry).

VI-21

Similarly, the Atomic Energy Commission is required under the Atomic Energy Act to consider the antitrust implications of the Applicant's conduct vis-a-vis, the licensed activity. It is not necessary nor required for the Commission to conclude that certain conduct will constitute a violation of the antitrust laws before affirmative action by the Commission is taken.<sup>28/</sup>

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<sup>28/</sup> Report, Joint Committee on Atomic Energy, pp. 14-15, Report No. 91-1247, 91st Congress, 2d Session (1970).

VII. THE RELEVANT MARKET

VII-1 In order to determine the competitive impact of any license granted to the Applicant to construct and operate the Midland plant it is first necessary to delineate a market in terms of geographic location and products or services. Several Supreme Court decisions are particularly instructive in this regard.

VII-2 In addressing the problem of defining a geographic market United States v. Brown Shoe<sup>29/</sup> holds that:

The geographic market selected must . . . both "correspond to commercial realities" of the industry and be economically significant. Thus, although the geographic market in some instances may encompass the entire Nation, under other circumstances it may be as small as a single metropolitan area.<sup>30/</sup>

VII-3 In United States v. Philadelphia National Bank,<sup>31/</sup> the Supreme Court again stressed the importance of commercial and economic factors in defining geographic markets. The Court noted that:

. . . the "area of effective competition" in the known line of commerce must be charted by careful selection of the market area in which the seller operates and to which the purchaser can practicably turn for supplies. (Court's emphasis).<sup>32/</sup>

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<sup>29/</sup> 370 U.S. 294 (1962).

<sup>30/</sup> 370 U.S. at 336-337.

<sup>31/</sup> 374 U.S. 321 (1962).

<sup>32/</sup> 374 U.S. at 359.

VII-4

In the electric utility industry it is the general rule that utilities are provided certain designated areas in which they can serve retail customers.<sup>33/</sup> Usually this determines where a utility's facilities will exist. Notwithstanding the state of Michigan's regulations on utilities to serve retail customers, the extent of Consumers' ability to serve at wholesale is limited only by the ability to make physical interconnections. The projected load growth in the areas served by Consumers Power, both at wholesale and retail, are the basis on which plans for future transmission and generation, including nuclear facilities, are made. Thus, it is proper in this case to define the relevant market area as the area within which Consumers could reasonably and feasibly extend service, as well as the area it is presently serving.<sup>34/</sup>

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<sup>33/</sup> Service area is usually referred to as the territory in which a utility system is required or has the right to supply electric service to ultimate customers (See Glossary of Electric Utility Terms, Edison Electric Institute, Publication 70-40, p.72, 1970). A market area corresponds to the territory in which the competitive effects of granting the Applicant a license to construct a nuclear facility can be assessed. It includes the area over which the Applicant is presently serving and the territory over which the Applicant could reasonably extend service given Applicant's present facilities, projected load growth, and the prevailing commercial realities. The Staff uses "service area" to describe the factual situation as it exists today. For determining the competitive impact of granting a license on the relevant product market, the Staff uses "market area".

<sup>34/</sup> W. Mayben testified that in considering the extension of service to a new customer the following factors, among others, would be weighed: 1) relative distance to customer, 2) new investment required for customer, 3) capability of existing facilities and the anticipated revenues from the customer. (Mayben - Tr.2744, 3614).

VII-5 In discussing the product market the Supreme Court in Philadelphia

National Bank held that:

We have no difficulty in determining the "line of commerce" (relevant product or services market) . . . . We agree with the District Court that the cluster of products (various kinds of credit) and services (such as checking accounts and trust administration) denoted by the term "commercial banking," . . . composes a distinct line of commerce.<sup>35/</sup>

VII-6 The Court further stated that "In sum, it is clear that commercial

banking is a market sufficiently inclusive to be meaningful in terms of trade realities . . . ." <sup>36/</sup> and there was no need to consider the component parts of commercial banking separately -- i.e., checking accounts, personal loans, savings deposits, etc., even though each of these banking services is distinguishable from the other.

VII-7 In Brown Shoe the Supreme Court made clear that there may be both

broad markets whose outer boundaries

are determined by the reasonable interchangeability of use or the cross-elasticity of demand by the product itself and substitutes for it,

and within such broad markets,

well-defined sub-markets . . . which, in themselves, constitute product markets for antitrust purposes.<sup>37/</sup>

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<sup>35/</sup> 374 U.S. at 356.

<sup>36/</sup> 374 U.S. at 357.

<sup>37/</sup> 370 U.S. at 325.

VII-8            Very similar to banking, an integrated power system such as Consumers is capable of producing a variety of bulk power services, and in fact Consumers conducts several types of bulk power transactions with other utilities.<sup>38/</sup> Some of the types of bulk power services in which Consumers engages and in which other electric utilities engage include the following:

1.     bulk power or energy at wholesale for resale;
2.     bulk power or energy rights for coordination of expansion of generating capacity;
3.     coordinated planning;
4.     coordinated operations;
5.     interconnections and coordination of reserve capacity levels;
6.     transmission services including "wheeling."<sup>39/</sup>

VII-9            Because of the fact that each of these various bulk power services are closely interrelated it would be artificial to separate them.

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38/     In 1972 Consumers supplied full requirements of firm power for resale to Bay City, Charlevoix, Chelsea, Eaton Rapids, Harbor Springs, Portland, Union City and St. Louis. It also sold firm power for resale to Coldwater, Hillsdale, Lansing, Marshall, Petaskey, and Northern Michigan cooperative on a partial requirements basis. In addition, Consumers was involved in substantial non-firm power exchanges with Detroit Edison and Indiana & Michigan. These and other transactions are summarized in Wein - PT-56 to 60 and DJ-Exhibits 71, 73, 74, 73A, 75, 76, 78, 79, 80.

39/     Dr. Wein (PT-62 to 63) summarizes an Edison Electric Institute report entitled "Principles of Coordinating Agreements", October, 1966, which enumerates some of the benefits of coordination.



VII-10 For example, distribution systems participate in the bulk power services market by purchasing bulk power at wholesale for resale. Such purchases will assure their retail customers a reliable power supply and will ensure system integrity. Other utility systems, which generate as well as distribute, may seek to combine various inputs in order to obtain a reliable, efficient firm power supply. Such component purchases will ultimately be combined with the existing system characteristics or with planned system alterations. If load growth is to be met by using generation previously held in reserve, for example, compensation for the lowered reserve capability can be accomplished by contracting for emergency power services via an interconnection. The important aspect of these various transactions is that the contracted service has one, and only one, function, i.e., to produce firm power. Thus the grouping of these various bulk power services into the same product market is justifiable since these inputs have a unique application <sup>40/</sup> (NPS, II-2-33, 1970).

VII-11 Within the bulk power services market, there exists three separate and distinct submarkets which are particularly relevant to this case. These

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<sup>40/</sup> This definition of a product market is very close to what the Applicant proposes. "The product is bulk power supplied to electric utilities for distribution and resale to ultimate customers... This supply [of bulk power] may be obtained by mixing in a variety of proportions self-generation, wholesale purchases and interconnection arrangements" (Pace - PT, 31-34) See also Applicant's Pre-Trial Brief at pp. 105-106.

include large scale base load generation, nuclear generation, and high voltage transmission. Base load generation is designed to operate at a high level of capacity and as such, serves a specialized role in filling out the load duration curve.<sup>41/</sup> Base load units, including nuclear generation, differ from the designs for intermediate load and peaking steam-electric equipment, which emphasize lower capital outlay per kilowatt, lower thermal efficiencies, quicker startup capability, and ability to respond quickly to large variations in load.

VII-12 Nuclear generation has different costs and operating characteristics than other base load generation (Aymond - Tr.6351, 6353). Furthermore, nuclear plants tend to have less environmental effects than base load coal fired plants (Brush - Tr.2302).

VII-13 In bulk power markets, the categories of service that are transacted usually involve a combination of generation and transmission resources such as firm power sales for resale or economy energy transactions. Nevertheless,

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<sup>41/</sup> NPS, I-1-18, 19 (1970); and Wolfe - Tr.1676.

transmission services are offered separately by electric utilities and as such can be treated as a distinct submarket (Muller - PT, p.24).<sup>42/</sup>

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<sup>42/</sup> Dr. Muller in testimony relating to the Bureau of Reclamation activities stated the following:

Q. You have testified that you were involved in transmission service arrangements. Can you describe these more fully?

A. Yes. Some arrangements provided for transmission of our power over other systems; other arrangements required that power be transmitted over other systems to us; and still other arrangements allowed the transmission of others over our system. Some arrangements were long-term, some were short-term. Some were point-to-point, while other arrangements were area-wide in scope. In some instances the arrangements specified the loads, but some were more general. Therefore, a very wide range of alternatives were covered in our transmission service arrangements. (Muller PT-24; emphasis added).

VIII. IDENTIFICATION OF APPLICANT AND A DESCRIPTION OF GENERATION AND TRANSMISSION SYSTEMS AND INTERSYSTEM RELATIONSHIPS IN THE RELEVANT MARKET

A. Identity of Applicant

VIII-1 Consumers Power Company is a Michigan Corporation with its corporate headquarters located at 212 West Michigan Avenue, Jackson, Michigan (DJ-Exhibit 21 --Consumers Power Company 1973 Annual Report, hereinafter referred to as CP 1973 Annual Report, pp.1 and 25).

VIII-2 Consumers is a fully integrated major investor-owned public utility involved in the generation, transmission, distribution and sale of electric power both at wholesale and retail. (DJ-Exhibits 18, 19, 21, 109, 204A and B, CP 1973 Annual Report, and "Consumers Power Company Annual Report to the Federal Power Commission for the year ended December 31, 1973" (hereinafter referred to as Consumers' FPC Report, pp.410-413)). Consumers is engaged also in transmitting power to and receiving power from Indiana and Ohio (Aymond - Tr. 6560 and Consumers' FPC Report, p.424A) and is involved with the Detroit Edison Company in exchanging power with Ontario-Hydro (DJ-Exhibit 66 and Consumers' FPC Report, p.424).

VIII-3 In 1973, Consumers' total electric operating revenue was \$495,722,540; net electric income was \$87,462,915; total electric sales equaled 24.1 billion kilowatt hours; peak load was 4,394,295 kilowatts; generation capacity was 5,291,900 kilowatts and electric customers numbered 1,160,840 (CP 1973 Annual Report, pp.18, 26, and 28).

B. Electric Systems Operating in the Relevant Market

VIII-4 The electric utility industry in the State of Michigan is divided into two distinct electric regions: Upper Peninsula and Lower Peninsula (DJ-Exhibit - 204A and B).

VIII-5 Consumers' operations are carried out over most of the Lower Peninsula, except for the Eastern section which is served by Detroit Edison and a small section in Southwestern Michigan which is served by the Indiana and Michigan Electric Company and the Michigan Gas and Electric Company, both subsidiaries of the American Electric Power Company (DJ-Exhibits 18, 19, 204A and B).

VIII-6 There are 23 municipal systems in the relevant market area serving approximately 146,744 customers (Paul - Tr.7805, DJ-Exhibit 19, and

RLP - Exhibit 11302). Consumers serves within the corporate limits of two of these municipals, Bay City and Traverse City (Paul - Tr.7806).

VIII-7            There are 10 distribution cooperatives and 2 generation and transmission cooperatives in Michigan's Lower Peninsula serving 111,000 customers (Paul - Tr.7842, 7843, DJ-Exhibits 19, 20, and 204A and B).

VIII-8            There are three investor-owned utilities in the relevant market. They include Consumers Power Company, Alpena Power Company, and Edison Sault Power Company (DJ-Exhibits 19, 109, and 204B). The smallest of them, Alpena, has 12,600 metered accounts and its only interconnection is with Consumers (Fletcher - Tr.4326, 4255, 4275).

C. Generation Systems in the Relevant Market

VIII-9

1. Consumers Power Company

Net Kilowatts of Generation (Uniform Statistical Reports, 1973, 1972, 1971 and CP 1973 Annual Report p.28; See Appendix B).

<u>TYPE</u>	<u>YEAR</u>		
	<u>1973</u>	<u>1972</u>	<u>1971</u>
Steam			
Fossil	2,816,000	2,846,000	2,986,000
Nuclear	886,700	886,700	75,000
Combustion			
Turbine	449,400	449,400	449,450
Hydroelectric	130,600	130,600	130,350
Pumped Storage	<u>1,009,200</u>	<u>0</u>	<u>0</u>
Total	5,291,900	4,312,700	*3,641,000
Largest Unit	700,000	585,000	372,000
# of Units 500+Mw	5 (4 under Construction)	5 (4 under Construction)	4 (5 under Construction)

\*This figure does not reflect the net kilowatt generating capacity of Allegan Station, which is 2,485, thus resulting in a total of 3,643,485.

VIII-10 Consumers has approximately 1300 Mw of additional planned nuclear generation and 2100 Mw of planned conventional steam generation (1973 Uniform Statistical Report, p.E.20). Consumers' nuclear units at the Midland Plant are sized at 482 Mw(e) and 818 Mw(e), respectively (Stafford - Tr.9244). Consumers has four conventional steam plants of 500 Mw or more (1973 Uniform Statistical Report E-18), a nuclear unit at Pali-sades sized at 811 Mw (see above), gas turbine generators with a total capacity of 237 Mw (see above) and six pumped storage units sized at approximately 168 Mw each (see above and p.E-20). In addition, Consumers has several smaller conventional steam generators, one smaller nuclear generator, several smaller gas turbine generators and several small hydro generators (see above).

2. Other Investor-Owned Utilities, Municipals and Cooperatives

VIII-11 The municipals, cooperatives and other investor-owned utilities cumulatively have approximately 1/5 of total generation of Consumers <sup>43/</sup> (See Amendment 19 to Consumers' Application for the Midland Licenses, question and answer 9; and DJ-Exhibit 109). In 1971 the approximate total generation capacity of these entities was 830,150 kw. (See above and DJ-108). Six of

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<sup>43/</sup> For a comparison of the total generation of Consumers with others, see the tables in section IX, infra.



the municipals and one cooperative did not have any generation (see above and RLP Exhibit - 11307). Ten of the municipal systems having generation had a capacity of 10,000 kw or less (see above). One of the two small investor-owned utilities had four small hydro units with a generating capacity of 6,800 kw (see above, Fletcher - Tr.4256 and DJ-Exhibit 108). The largest generator operated by these entities is Lansing's 160 Mw unit. (Brush - Tr.2081). Many of the other generators operated by these entities are very small gas turbines, diesels, and hydros. (DJ-Exhibit 108). None of these systems presently owns or has access to nuclear power (see above, DJ-Exhibits 18, 108, 109, and Aymond - Tr.6644).

D. Transmission Systems in the Relevant Market

VIII-12

1. Consumers

Consumers owns and controls most of the high voltage transmission lines in the relevant market area. (Aymond - Tr.6651, DJ-Exhibits 1, 18, and 20).

Transmission Lines (Uniform Statistical Reports 1973, 1972, 1971)

		<u>1973</u>	<u>1972</u>	<u>1971</u>
345 kv	<u>Circuit miles</u>	1,421.75	964.28	787.08
	<u>Pole miles</u>	814.25	499.02	396.89
138 kv	<u>Circuit miles</u>	3,338.74	3,217.60	3,188.46
	<u>Pole miles</u>	3,020.31	2,937.08	2,915.38
120 kv	<u>Circuit miles</u>	23.59	"	"
	<u>Pole miles</u>	20.93	"	"
46 kv	<u>Circuit miles</u>	4,198.30	4,137.31	4,052.45
	<u>Pole miles</u>	4,011.25	3,959.49	3,881.46

Transmission Systems Other Than Consumers & Detroit Edison

Voltage Class  
( Circuit Miles By Voltage )

		<u>345kv</u>	<u>138kv</u>	<u>120kv</u>	<u>69kv or less</u>
	a. <u>Investor Owned</u> (DJ-Exhibits 1, 108, 109 and Electrical World Directory of Electric Utilities, 1972-73 Edition, McGraw-Hill, See Appendix C).				
VIII-13	Alpena Power Co. (1971)	0	11	0	38
	Edison Sault Electric Co. ( " )	0	0	0	278
	b. <u>**Cooperatives</u> (DJ-Exhibit 1, 20, 109 and Electrical World Directory of Electric Utilities, 1972-73 Edition)				
VIII-14	*Northern Michigan Electric Cooperative, Inc. (1971)	0	0	0	461
	*Wolverine Electric Cooperative, Inc. ( " )	0	0	0	717
	Southeastern Michigan Rural Electric Coop. ( " )	0	0	0	0
	c. <u>***Municipals</u> (DJ-Exhibits 1, 108, 109 and Electrical World Directory of Electric Utilities, 1972-73 Edition)				
	Lansing (1971)(Brush - Tr.2324)	0	27	0	0
	Charlevoix ( " )	0	0	0	32
VIII-15	Hillsdale ( " )	0	0	0	107
	Petoskey ( " )	0	0	0	4.5
	Sturgis ( " )	0	0	0	19.8
	Traverse City ( " )	0	0	0	1.25

(For an explanation of the asterisked material see following page)

VIII-16 \*Northern and Wolverine have approximately 40 miles of 138 kv which they are operating at 69 kv and some additional 138 kv proposed (DJ-Exhibit 20 and Steinbrecher - Tr.1135).

VIII-17 \*\*All other cooperatives in the relevant geographic area are distribution cooperatives and have 0 miles of transmission line.

VIII-18 \*\*\*The remaining 17 municipal systems within the relevant geographic area do not own transmission lines.

VIII-19

E. Consumers' Sales and Revenues

	<u>1973</u>	<u>1972</u>	<u>1971</u>
Number of Customers <sup>1</sup>	1,180,840	1,147,507	1,112,607
KWH Sales <sup>2</sup>	24.1 billion	22.1 billion	20.5 billion
Total Operating Rev. <sup>3</sup>	\$495,722,560	\$416,994,066	\$59,843,411
Net Income <sup>4</sup>	\$87,462,915	\$69,405,227	\$59,843,411

1. Consumers Annual Report, p.28.
2. Consumers Annual Report, p.28.
3. Consumers Annual Report, pp.18 and 26.
4. Consumers Annual Report, pp.18 and 26.

VIII-20

This indicates that the Applicant experienced an increase of 9.2% in sales from 1972 to 1973. This resulted in an 18.9% increase in total operating revenue and a 26.2% increase in net income.

F. Applicant's Intersystem Relationships

VIII-21

Utilities have found it necessary to expand their coordinating efforts to fully exploit the savings promised by modern technology reliability while at the same time reduces costs. As technology continues to provide opportunities for increasing reliability and reducing cost, these latest developments" ...will not preclude the continued interchange of emergency short term, diversity and economy power between systems."<sup>44/</sup>

VIII-22

These ancillary arrangements are more important than ever in providing utilities access to the promised benefits of modern technology. For example, Mr. W. Jack Mosley, Vice President of Consumers Power Company, in charge of electric planning, testified that "...the bulk power supply of Consumers Power Company is made available to its customers at a lower cost and with better reliability because of these interconnections than could be done under any other alternative." (Mosley - Tr.8516).

VIII-23

Mr. Mosley further testified that: "...the reason we have (interconnections) are for two reasons: to enhance the stability and reliability of our system; and, as an economic thing to do in the development of our power supply" (Mosley - Tr.8652).

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<sup>44/</sup> NPS II-2-23, I-1-21 (1970).

VIII-24 Consumers' first intersystem interconnection with Detroit Edison was a 138 KV tie for the purpose of exchanging emergency and surplus power. Other interconnections were added in 1949 and again in 1952, but coordination developed to the point where the companies agreed to share reserves, and operate in parallel. In 1962 the two companies signed an Electric Power Pooling Agreement which provided for pooled operations, coordination of planning, and the joint construction of electric generating and transmitting facilities.<sup>45/</sup> The formal agreement served to emphasize that in the long run interconnections were vital for efficient operations:

VIII-25 "The plan is simply the extension of a long-standing endeavor on the part of both Detroit Edison and Consumers Power to achieve the lowest possible operating and capital costs. . . . Broadly, purposes of the plan are:

- . To perpetuate economy and dependability in production and transmission of electric power
- . To facilitate supplying emergency power as needed in cases of storm damage or other disruption
- . To advance the art and science of interconnection through further integration of the existing Michigan state-wide electric transmission network."<sup>46/</sup>

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<sup>45/</sup> NPS, II-2-101, 1970.

<sup>46/</sup> Memorandum concerning the Electric Power Pooling Program of Consumers Power Company and the Detroit Edison Company, prepared for the Michigan Congressional Delegation; DJ-Exhibit 68.

VIII-26           The National Power Survey has summarized the major features of this interconnection agreement as follows:

VIII-27           "This agreement provides for pooled operations, coordination of planning and construction of electric generating and transmitting additions, the rendering of mutual assistance during emergencies, and effecting of maximum economy in providing the electrical requirements of each system. From the inception of the agreement, the parties have engaged in continuous interchange of energy on an economy basis and have practiced joint planning of system development and operation. Consumers and Detroit Edison are tied by extensive 138 kv and 345 kv lines." (National Power Survey, Volume II-2-101 and DJ-Exhibits 1 and 210).

VIII-28           The two systems are interconnected through four extra high voltage transmission lines at 120 kv and 138 kv (DH Exhibit 109, p.358; Aymond - Tr.6638). Moreover, as the sole members of the Michigan Pool, Consumers plans generation and transmission additions to its system only in conjunction with the Detroit Edison Company (Amendment #19 - Application for Midland Units 1 and 2 - questions and answers #3 and #4). Thus, Consumers and Detroit Edison operate their systems as a coordinated unit (Amendment #19 - question and answer #7).



VIII-29            In 1960 Consumers became a party to two separate agreements which provided increased opportunities for assuring the delivery of reliable and low-cost power. Joining Detroit Edison, which has had an interconnection with the Hydro-Electric Power Commission of Ontario since 1953, Consumers agreed to provide emergency assistance, exchange surplus energy, and also to coordinate reserves, maintenance, and development. (DJ-Exhibit 73; Applicant Exhibit - 11, 106).

VIII-30            In that same year Consumers and Detroit Edison representing the Michigan Pool signed an interconnection agreement with its neighboring utilities including American Electric Power, Commonwealth Edison Company, Northern Indiana Public Service Company, and the Toledo Edison Company. (Applicant Exhibits - 11, 108, and 11, 109; and DJ-Exhibit 76).

VIII-31            A three year study concluded that two extra high voltage lines of 345 kv would be necessary to achieve the maximum benefits to all participants. The benefits expected by Consumers as a result of this agreement were summarized in a petition to the Michigan Public Service Commission as follows:

- (a) The proposed agreements will permit a saving on the part of the petitioners of substantial amounts of invested capital in fixed assets;
- (b) They will assure a supply of electric energy during periods of emergency on the systems of the petitioners;
- (c) They will permit the interchange of economy energy to the mutual benefit of the interconnected utilities;
- (d) They will provide a source of reliable bulk power supply when needed by the petitioners;
- (e) They will permit the saving on the part of the petitioners of substantial operating costs annually;
- (f) They will permit coordination of the scheduled maintenance of large generating units of the petitioners; and
- (g) They will permit the utilization of time-zone and seasonal diversity.<sup>47/</sup>

VIII-32

In pursuit of further coordination Consumers became a party to the East Central Reliability Coordination Agreement (ECAR) in 1967.<sup>47A/</sup> Formed to further augment the bulk power supply reliability in the East Central Region, ECAR is one of the 9 major regional electric utility organizations which on June 1, 1968 established the National Electric Reliability Council

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<sup>47/</sup> In the Matter of the Petition of Consumers Power Company, the Detroit Edison Company and Indiana and Michigan Electric Company, for approval of proposed agreements for the purpose of establishing certain interconnecting services and transactions, Before the Michigan Public Service Commission, March 10, 1966 (See Appendix D).

<sup>47A/</sup> NPS, II-2-50, 1970; East Central Area Coordinating Agreements and Supplemental Agreements as reported in NPS, II-2-117, 1970.

(NERC).<sup>48/</sup> The primary purpose of NERC is to encourage and assist the development of interregional reliability arrangements among the regional organizations of their members. ECAR members have entered into inter-area reliability coordination agreements with the four regional organizations contiguous to ECAR, namely, Mid-America Interpool Network (MAIN); and Northeast Power Coordinating Council (NPCC). In addition the Michigan Companies (Consumers Power Co. and Detroit Edison Co.) are interconnected with Ontario Hydro, which in turn is a member of NPCC.<sup>49/</sup>

VIII-33            While neither ECAR nor NERC are responsible for the day-to-day operation of power systems, they do develop policies, procedures, and criteria that allow a review of the bulk power supply plans of their members, simulate systems' performance, coordinate maintenance, determine spinning reserve requirements for each system, and improve communication facilities between and among the systems.

VIII-34            Mr. Mosley stated that the purpose of ECAR was one of "... setting up criteria and setting up standards for system development and operation which

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<sup>48/</sup> National Electric Reliability Council Agreement, Dated as of June 1, 1968 as amended on January 21, 1970, August 5, 1970 and July 19, 1972 (NPS, II-2-51, 1970).

<sup>49/</sup> East Central Area Reliability Coordination Agreements, dated August 1, 1967 and Supplemental Agreements, dated October 20, 1967 and April 7, 1970 (DJ-Exhibit 77).

would enhance and maintain the dependability and reliability of the interconnected systems" (Mosley - Tr.8522).

VIII-35            This array of intersystem agreements reveals that Consumers does not operate its system in isolation. Rather Applicant coordinates its operations, primarily through the Michigan Pool. To a limited degree, Consumers is also interconnected with Lansing, Holland, and the Edison Sault Electric Company (Applicant Exhibits - 11, 111, and 11, 112) and Electrical World Directory of Electric Utilities (1972-73 Edition, p.358). The interconnections with Holland and Edison Sault are at 46 kv and the interconnection with Lansing is at 138 kv (DJ-Exhibit 109, Brush - Tr. 2329, National Power Survey, Volume II-2-101, 1970). Consumers' interconnection agreement with the City of Lansing is limited to the transfer of energy during emergencies while the interconnection agreement with the City of Holland involves interchanging capacity and energy (NPS, II-2-103-140, 1970).

IX. CONSUMERS POWER COMPANY DOMINATES  
THE RELEVANT MARKET AREA

IX-1

As the following table indicates, Consumers owns and controls approximately 80 percent of all generating capacity and 100 percent of all large scale generation of 350 Mw and above in the relevant market area. Moreover, all of the nuclear power generation in this area is owned and controlled by Consumers.

IX-2

In addition, Consumers owns and controls approximately 98 percent of all high voltage transmission (69 Kv and above) including 100 percent of the extra high voltage transmission of 345 Kv and above in the relevant market area.

IX-3

Thus, there exists in the relevant market area a bottleneck situation. This control over essential resources allows Applicant to determine how other electric systems in the relevant area participate in the bulk power services market. Such discretionary power over entry indicates that Consumers dominates the relevant market. This dominance in conjunction with denials of access to various bulk power services on nondiscriminatory terms conflicts with the principle stated in several court decisions which are discussed in section XIV, infra.

Table 2: Consumers Power Relative Share of Various Markets and Essential Resources

The Statistics in this table were compiled from the information discussed in section, VIII, supra.

		CPCO	Total	CPCO Share (%)
Firm Power Sales for Resale	1971	21,123,360	24,739,221	85.4%
Generation Capacity	Nuclear 1971	75,000	*75,000	100%
	Total 1971	3,643,485	4,473,635	80%
Transmission Capacity	EHV-345 kv + 1971 - HV- 69 kv + 1971 -	See Section	VIII supra.	100% 98%

\* This figure does not reflect 811,700 of net kilowatts nuclear generating capacity of Palisades - Unit 1, which was put in service December 1972. Furthermore Midland Units 1 and 2 which are planned to be in service in March of 1980 and March 1979 respectively will add an additional 1,300,000 of net kilowatts of generating capacity (See Uniform Statistical Reports, 1972, 1973).

X. SOME CONSIDERATIONS FOR EVALUATING PARTICIPATION  
IN A NUCLEAR POWER PLANT

A. Nuclear Unit Minimum Efficient and Economical Size is  
Approximately 500 MW.

X-1

Nuclear power generating units must be built on a large scale in order to enjoy the economies associated with such power. One engineering witness has testified that:

...nuclear power plants sized at anything less than perhaps 500,000 kilowatts of capacity are not feasible for virtually any utility. The cost of construction seems to be so high that these sizes are not being considered, or less than that are not being considered. (Mayben - Tr.2808, 2558; See also Brush - Tr.2292).

X-2

Consumers and other major investor-owned utilities have sized nuclear units at approximately 500 mw and above (Stafford - Tr.9244, DJ Exhibits 1, 18 and The Nuclear Industry 1973, WASH-1174-73, pp.5-7). A large size nuclear plant will have lower operating cost per kilowatt hour than would a fossil fuel plant going into service at the same time. (Aymond - Tr.6647, 6648, 6351; Mayben - Tr.2825, Wolfe - Tr.1725). Alphonse Aymond, President and Chairman of the Board of Consumers, testified:

Q. Is it your testimony that the Midland Unit power is the lowest cost unit on your system?

A. It of course is not in service yet, but when it goes into service, we anticipate that it will be one of the lowest cost units on the system. (Aymond - Tr.6351).

X-3 Mr. Aymond further testified that nuclear power will be the lowest cost based load power available and the older the nuclear plant, the lower the cost.

Q. Dr. Leeds: Mr. Aymond ... your answer might indicate that you were saying that ... the cost of power from the newer plants would be more than the cost of power from the existing plants; is that correct?

A. Well, much depends ... on the trend of fuel costs in the future. But if they go as we anticipate we believe that nuclear power will be the lowest cost base load power available and that the older the nuclear power plant, the lower the cost, because construction costs keep going up all the time (Aymond - Tr.6353; see also Brush - Tr.2502).

B. Due to the Large Size of Economical Nuclear Units and the High Costs of Such Units, Small Systems Cannot Build Nuclear Units and Therefore Cannot Independently Participate in Nuclear Power Supply

X-4 The cost of construction of nuclear units is so high that sizes of less than 500mw are not economically feasible (Mayben - Tr.2808). Because of the costs and large size associated with economical nuclear units, nuclear power is not a feasible alternative for a small system trying to meet its load growth (Mayben - Tr.2808, Kline - Tr.4431, Fletcher - Tr.4333, Gutman - PT p.20, Munn - Tr.4119, 4120). Mr. Robert L. Paul, General Supervisor of commercial, electric and government sales for consumers, testified that "...It was obvious that they, a small municipal system, could not build a nuclear power plant." (Paul - Tr.7988).



X-5            One witness representing Lansing, Michigan, the largest municipal system in the State of Michigan, testified that:

...the municipals--we are too small, as an individual municipal system, to build a nuclear plant. Our information is that 500mw and up, or maybe 500 mw is the smallest size that is economical to consider. With our load we could not afford to build, or justify building that large a unit. (Brush - Tr.2292).

X-6            Mr. Joseph Wolfe, former Director of the Light and Power Department of Traverse City, testified that the largest unit a system equal to the size of Traverse City could build would be 20 to 30 mw (Wolfe - Tr.1550, 1726).

X-7            Mr. Robert Kline, Jr., Vice Chairman of the Board and Chief Executive Officer of Edison Sault Electric Company was asked:

Q.    Mr. Kline, you indicated...that you have not made any studies with regard to nuclear power....

A.    Yes, that's correct.

Q.    Can you explain...why...?

A.    Principally because of the smallness of the company, sir.

Q.    ...what does the smallness of the company have to do with the studying of nuclear power...?

A.    Well, because the cost of a nuclear plant for a company our size would be prohibitive. (Kline - Tr.4431).

X-8

Mr. E. Harold Munn Jr., President and Member of the Board of Public

Utilities of Coldwater testified:

Q. Mr. Munn, has Coldwater--Has the electrical system of Coldwater considered any other alternatives in planning for load growth or obtaining alternative sources of bulk power supply?

A. Well, yes. I have to say Yes on that. You have to realize that we're locked into our alternatives, either expansion of generation or expansion of purchase from other sources.

We talked with our engineers and have been advised that our own efforts in the direction of a non-fossil fuel plant such as a nuclear plant are just not economically feasible. And I raised the question at the time that the Consumers Power people presented their last new contract to us in Coldwater, concerning the participation in nuclear power because the contract only provided for a basic cost with adjustments for demand, and so forth, and a fuel adjustment cost, which appeared to me to be based upon the cost of coal; no provision for nuclear.

But we have looked at the matter of nuclear power and indeed, when we intervened in this particular case, it was with very serious intent of wanting to have nuclear power available at what appeared to us the only really viable alternative to what had been offered to us.

Q. When you say "nuclear power" being an alternative do you mean purchasing nuclear power or building your own nuclear power plant?

A. Well, it did not appear economically possible for us to build our own nuclear plant, and so we were looking toward--we are looking toward the fact that we need to obtain a supply of power, hopefully from a nuclear source, that will give us a unit of power that we can depend upon at a cost that will not inflict hardship on our customers (Munn - Tr. 4119, 4120).

X-9           The availability of nuclear power to Consumers and the unavailability to smaller systems in the relevant market is significant because nuclear power holds out the promise of being lower cost power (Aymond - Tr.6647, Mayben - Tr.2825, Wolfe - Tr.1723). This is extremely important in meeting load growth because of the unavailability of other fuels (Mayben - Tr.2824, 2825).

X-10           Earl Brush, General Manager of Lansing's Electric System, testified that:

"In my judgment the future of the entire electric utility industry is dependent upon nuclear power." (Brush - Tr.2354).

C.    The Only Nuclear Power Plants in the Relevant Market Are Owned and Operated by Consumers Power and Other Major Investor-Owned Utilities

X-11           The only nuclear units in the relevant market are owned by major investor-owned utilities (Aymond - Tr.6645 and DJ-Exhibit 18). The reasons for this, according to Alphonse Aymond, President and Chairman of the Board of Consumers, are:

One, the investment in a nuclear power plant is quite substantial. It requires a great deal of capital, and the cost per kilowatt of capacity declines as the plant increases, so there is a disincentive economically to building such a plant unless you build a large one. And many entities within the state do not have the need for a large plant. Another reason would be that it requires considerable expertise. You have to have a

lot of talent in people in the field of nuclear physics, engineering and other technical skills, and most of the smaller systems do not have that kind of expertise in their employ. (Aymond - Tr. 6645 and DJ-Exhibit 1).

X-12            Thus, at the present time the construction of nuclear power plants by small utility systems in the relevant market is not a viable alternative. Accordingly, access to the benefits of nuclear technology for these systems is severely limited.

XI. BECAUSE CONSUMERS DOMINATES AND OWNS THE COORDINATING MEDIUM, HIGH VOLTAGE TRANSMISSION, IN THE RELEVANT MARKET IT IS ABLE TO CONTROL ACCESS TO NUCLEAR POWER, ATTENDANT COORDINATED DEVELOPMENT AND ALTERNATIVE SOURCES OF BULK POWER SUPPLY THEREBY LIMITING COMPETITION

A. In Order to Effectively and Efficiently Utilize and Coordinate Power from Nuclear Units, Access to High Voltage Transmission and Coordinated Development are Necessary

XI-1 Without access to high voltage transmission services and coordinated development access to nuclear power is meaningless. Earl Brush, General Manager of Lansing, testified that:

Thus, if the municipals are not in some way able to, through orders of Federal agencies or arm's length bargaining work out with the investor-owned utilitys [sic] ownership of nuclear power and the wheeling that has to go with it, I think the municipal industry is slowing [sic] going to fade away and the consumer is going to suffer in the end. (Brush - Tr.2203, emphasis supplied, see also Mayben - Tr.2843).

1. Transmission Service

XI-2 In order to have access to the benefits of nuclear power and coordinated development, a system, whether large or small, needs access to high voltage transmission.

XI-3 William Mayben, a registered engineer and partner in R. W. Beck & Associates, a firm of analytical consulting engineers and qualified expert in power pooling principles in the electric utility industry (Mayben, beginning at Tr.2537) testified that:

\* \* \*

- Q. Mr. Mayben, in your opinion as a consulting engineer, would my [small system] alternatives or the alternatives that you could counsel me on at that point be severely limited under our set of conditions 50/ that I have described?
- A. If these [alternatives described on Tr. 2834 through 2838] are the only alternatives that you have and what you state is that transmission service is not available to obtain either one or the three projects as a resource, again with the caveat that there is no other utility nearby with which you could coordinate, I would say Yes, the alternatives would be limited.
- Q. Would your answer be the same if we were to consider anybody, any large investor-owned utility or anybody that Consumers Power was interconnected with with regard to the alternatives that they may have to offer?
- A. Yes, Mr. Verdisco, the problem still is transmission. Exercising any alternatives or pursuing alternatives will finally depend upon the ability of that utility to obtain transmission services.
- Q. Without all of these things that you have testified that are a necessary prerequisite to making a determination as to whether or not something is an economical alternative in engineering terms, would a small system in Michigan's Lower Peninsula be able to make an intelligent decision, business decision, in your opinion, as to whether or not he should ask for access to Consumers Power Company's Midland Plant?

\* \* \*

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50/ These conditions are described at Tr. 2834. They include: the small system is a total requirements customer and has no access to transmission. In addition the small system is unable to build its own high-voltage transmission system.

The Witness: Mr. Verdisco, I'm not sure which comes first, whether you answer the question on transmission and other coordination services or whether you ask the question on whether you can have access to the plant, but I would say the answers to both are extremely important.

I don't know whether I would necessarily counsel my client not to ask for participation until he got all the answers with regard to these other matters, but I think he should at the same time make sure that he had answers to those before he pursued, in any depth at all, the development of a participation relationship for such a nuclear plant.

Q. Is it your testimony, Mr. Mayben, that the two are so integrally related that they would have to be considered at least at the same time in order to make a decision?

A. Well, I think your question previously said as to whether or not to approach Consumers Power with a request for participation. Definitely to make a decision as to whether or not to finally participate, all of these questions should be answered because the next step would possibly be financing on the part of the municipality, and he cannot take any legitimate steps toward financing until he has these kinds of questions clearly answered (Mayben - Tr. 2838 - 2840).

XI-4

Earl Brush, General Manager of Lansing's electrical system testified

that:

\* \* \*

Q. If the city of Lansing were granted access to the nuclear power from Midland or any future nuclear unit of Consumers Power, in your opinion, would Lansing need access to Consumers Power high voltage transmission system in order to coordinate that power with its system?

A. Well, the alternative, of course, would be to build your own transmission system, and again now you're into the economics, which would be the most economical, to pay Consumers Power an equitable wheeling charge, or persist building your own transmission system.

\* \* \*

Q. Mr. Brush, if you are granted access to a block of power from the Midland Unit, first of all, would you need to have access to Consumers Power high voltage transmission system to get that block of power to your system?

A. Yes, unless I were to build my own transmission lines to Midland.

Q. Secondly, after you get that block of power from the Midland Unit, if you did get that block of power from the Midland Unit, and you wanted to sell some power to a third party that you were not interconnected with, would you need to use Consumers Power's transmission system to wheel that power?

A. Let me see if I understand your question here. I now have access to a block of Midland power?

Q. Yes, sir.

A. Now we've got two choices: I can ask Consumers Power to bring it over their transmission lines, and to me that would be wheeling, into Lansing; or the alternative I would have would be to construct my own transmission lines all the way to Midland.

Q. Yes, sir.

A. And now we're into evaluating the economies of one over the other.



Now I've got the block of power in Lansing. Now your question is, I would want to sell that block of power for part of my own generating power to another utility?

Q. Well, after you get it there, obviously you're going to have something in mind about that block of power. Now suppose your decision was to sell part of that block of power to Wolverine, for instance.

A. Then I have got to have some transmission capability from Lansing to the Wolverine system. Now again, either I do it over Consumers Power transmission, or build my own.

Now if I'm going to take it all the way from Midland to Wolverine, I certainly would not bring it into Lansing and back to Consumers and over to Wolverine. So in that context, I guess the true wheeling would be asked for here, I would ask Consumers to deliver to Wolverine "X" megawatts of power that I am entitled to at Midland, so maybe this is the definition of wheeling that you are using (Brush - Tr.2345 - 2348).

\* \* \*

XI-5

Mr. Stephen Fletcher, President of Alpena Power Company testified that:

\* \* \*

Q. If you had access to Consumers Power's high-voltage transmission system, and they did, in fact, provide wheeling services for you, would your alternatives for planning your load growth be increased?

A. Well, certainly, we'd be able to, if we had -- this is the primary problem of the small group that we have Daverman doing is: if we do get together and plan load growth in Northern Michigan, how do we get the power to the ultimate consumer, not having any transmission services at this time?

So, if we did have access, we would have the alternative of going in with a group of smaller utilities or, I suppose, if we actually had true honest-to-gosh wheeling services, then we could go to Detroit Edison, I & M, anybody, and ask them for wholesale power.

Q. Again, if you had access to Consumers Power's high voltage transmission system and wheeling services, how would that help you, supposing you could get some power from the Midland unit, how would that help you take advantage of that power that you could get from a nuclear unit?

A. Well, of course, like any electrical system, we have -- there would be times when we would not be able, in all likelihood, to utilize the full block that we would buy from a nuclear unit, inasmuch as we would probably buy more than we need right now, anticipating future growth.

In the times that we would not need that power, or as much of it, -- for instance, this time of year, when our major industry in Alpena is shut down and our peaks, rather than being 57 megawatts, are, well, they'll hit 42, 44, someplace in that range -- at this time of year we would certainly consider selling a piece of that power at wholesale or retail to anybody who wanted it.

Q. When you said that you'd be willing to sell this power at wholesale to anyone who wants it, would you consider selling that power to some people that Consumers Power presently serves at wholesale?

A. Yes, I can't see why I wouldn't.

Q. Would you name some of these systems you would sell to?

A. I think that might be better phrased as some of the systems I would approach for a possible sale, had I the power, sir.

But some of them would be some of the municipalities on the west side of the state: Traverse City, Harbor Springs, and, --

We are not talking about having a great block of power to sell, so whether I could take on someone like, say, the City of Bay City, that would probably be pretty absurd. Or to try to sell the City of Lansing.

But there are these small systems: Coldwater is relatively small, Southeastern Michigan Coop, Thumb -- I think it is Thumb Electric, Oceana Coop. at Hart -- there are small systems that are available that could use a relatively small block of power.

\* \* \*

Q. Mr. Fletcher, if you did get access to the Midland plant and it were delivered to your system, would you then need, in your opinion, access to wheeling services in order to take advantage of that nuclear power?

A. Wheeling services would certainly be helpful at that time, depending on the size block we were able to obtain.

The larger the block, the more critical that would become, because we would have certain times when we would not be able to utilize that power and would like to sell it, at profit, to someone else.

Chairman Garfinkel: I don't think that was really the question, though.

The question was in terms of would you need wheeling in order to get the power?

Mr. Verdisco: No, your Honor.

Chairman Garfinkel: You're satisfied with the answer?

Mr. Verdisco: I see that maybe my question was not perfectly clear.

If I could just make one short statement, your Honor?

My initial question was, could they build high-voltage transmission system to the nuclear plant in order to get it to their system. Now, that's access to the transmission services, your Honor.

My second question was after he got it to his system. Before we were just talking about transmission services. Now we're talking about wheeling. Would he need wheeling to then take advantage of this nuclear power that he had had delivered to his system?

Chairman Garfinkel: Yes. I understand now, thank you (Fletcher - Tr. 4332 - 4354).

XI-6

Mr. E. Harold Munn, Jr., President and member of the Board of Public

Utilities of Coldwater testified:

Q. Have you also considered coordination of your facilities with those of other systems, as an alternative in helping Coldwater to attain maximum benefits of its facilities, Mr. Munn?

A. Yes, we have.

It would be highly beneficial to us if we could coordinate, for example, with municipals that have an excess of generation, such as Lansing or Holland, or with the Muni Coop group.

But it's impossible to coordinate absent transmission to wheel the power from one point to another, and so we're locked in, in that they have one customer, in many cases, I guess, to whom they could be connected. And that's Consumers Power, who controls the intervening facilities, transmission facilities. And Consumers Power can buy; and we can't.

- Q. If Coldwater were granted access to nuclear power from Midland, or any future nuclear unit, in your opinion would they need access to high voltage transmission, Consumers' high voltage transmission system in order to transmit that power from Consumers' system to the Coldwater system?

Well, that's about 160 miles between us and Midland, and there's no way that we are going to get power from that generation down to Coldwater unless we have access to a transmission grid.

- Q. Would you also need access to wheeling services by Consumers to take advantage of that nuclear power?

- A. Well, let's assume that we buy a major block of power. This, then, forms a portion of our total available power supply.

If we are going to coordinate effectively, for example with Lansing or with Marshall or with the Coop Muni group, we are going to have to have the ability to move this power around.

The transmission of power from generation at Midland to Coldwater is basic to our own use of that power, as far as just saying, We are going to take X number of kilowatts and we are going to consume them at Coldwater.

But, as far as effectiveness, our cost effectiveness becomes as greater and the benefit to our customers, I believe, as greater, if we can then utilize this at other points in coordination back and forth with these other cities. And we've got to have a grid.

Chairman Garfinkel: Mr. Munn, taking into account Mr. Verdisco's question, suppose between the Midland Nuclear Power Units to one of your grids, to one of your substations, they wheel that power in, or interconnect -- I don't like to call that wheeling, I call that interconnection -- directly into your system, and you get full power, let's say, ten percent of the time, hypothetically.

Q. What would that do for you? You would still need, since you indicated you are surrounded, you would need Consumers Power to do more than that, wouldn't you?

A. Well, this is true.

Q. What would they have to do besides that, for you to make interconnection with all the other municipalities?

Merely interconnecting would not be enough, am I correct?

A. That's right.

There would have to be the provision so that these kilowatts could be moved. There would be some period -- if we bought a solid block from that plant --

Q. -- and they get it to you --

A. -- and they get it to us --

Q. Right.

A. There would be occasions where we would to share this block with some someone else.

Q. All right.

Now, what would Consumers Power have to do further, in order for you to effectively use this entire block?

A. Well, they would have to coordinate the operation, because this power is being moved, as I understand it, within the entire grid. That's what happens now, sir.

Q. Would they have to construct more interconnections?

A. I don't believe so.

I believe their existing grid is interconnected to virtually every one of these with whom we would coordinate.

Q. But they would have to connect -- they would have to, in a sense, connect between your company and some of these other places, wouldn't they?

A. Utilizing, for the most part, existing facilities.

Q. That means they would not have to construct anything in order to interconnect or wheel power between your company and other municipalities?

A. Well, I don't have the engineering knowledge to say it.

It's possible we may have to build a short line to Batavia at high voltage, but, as I understand it, the grid covers the area, so that the interfeeding, interconnection, is in effect, there.

\* \* \*

A. That's only to get the power to Coldwater. Then there's another step, your Honor. As Mr. Munn testified, then they need the wheeling.

Q. Well, that I don't know, Mr. Verdisco.

A. Well, that's what he just testified to.

Q. No.

He said he doesn't know because he's not an engineer. He thinks it exists, but --

A. No, no.

He testified -- and Mr. Munn can correct me, this is my understanding --

By Chairman Garfinkel:

Q. Well, why don't you ask the question again, instead of testifying, Mr. Verdisco?

By Mr. Verdisco:

Q. Mr. Munn, without access to wheeling services, could Coldwater coordinate its activities after it receives this power from a nuclear plant, and -- you want to include nuclear power into all of its activities -- can you coordinate your activities with systems other than Consumers Power without access to wheeling services?

A. No. (Munn - Tr.4121, 4143 - 4147).

\* \* \*

XI-7 As stated in sections VIII, IX, and X, supra, Consumers completely controls transmission in the relevant market. As the record indicates, access to high-voltage transmission services is necessary to gain access to the benefits of nuclear power and coordinated development. A fortiori Consumers controls access to the benefits of nuclear power and coordinated development.

2. Coordinated Development

XI-8 a) Definition: (See Definitions, Section V, infra)

XI-9 b) Coordination is essential <sup>51/</sup> if other utilities in the relevant market are to compete and survive as independent entities. "Isolated

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<sup>51/</sup> As indicated in section A supra, in order to effectuate a coordination agreement high-voltage transmission lines are necessary (Aymond - Tr.6639; Mayben - Tr.2624; and Munn - Tr.4121).



systems are disappearing from the scene." (Paul 8215, Mayben - Tr.2798, 2799, 2800, 2801, 2802, Brush - Tr.2303). They need to have access to all forms of power exchanges in order to compete (Mayben - Tr.2798, Gutman PT - p.20). These systems need to find a way to keep "a handle" on their power costs, and coordination is one of these ways (Mayben - Tr.2801, 2802, 2805). Coordination with the Applicant will also enable these utilities to plan for the development of a future independent power supply (Mayben - Tr.2809).

XI-10           It is significant that municipals in the relevant market do not have the ability to participate in nuclear power supply (Mayben - Tr.2825, Kline - Tr.4431 and Brush - Tr.2292). Consumers is a large, integrated electric utility. It coordinates its activities with other utilities so that it can participate in this power supply (May - Tr.2825). Without access to coordination a small system would be advised not to consider nuclear power from Midland as an alternative (Mayben - Tr.2845).

XI-11           The primary problem for small utilities located in the relevant market, in terms of coordination, is the lack of any transmission facilities available to them in order to actually move blocks of power around so they can coordinate (Fletcher - Tr.4331, Munn - Tr.4121). The only alternative a small system would have absent transmission (Wheeling) rights over Consumers' lines

would be to build its own transmission facilities (Brush - Tr.2351). This is prohibitively expensive for small systems (See Section XI B-4, infra).

XI-12 Alphonse Aymond, President and Chairman of the Board of Consumers Power, was asked whether he saw any feasibility of obtaining benefits by coordinating arrangements with other utilities, cooperatives and municipals (Aymond - Tr.6057, 6629). He answered, "If they can work together to build a joint plant." (Aymond - Tr.6057, 6629; See also Brush - Tr.2352 and Fletcher - Tr.4288).

XI-13 He was then asked to explain what he meant by "work together" (Aymond - Tr.6629). He responded by saying

what I had in mind was that these various entities in Michigan are each relatively small, but together the combination thereof might be sufficient so that they could build a larger plant. So, what I had in mind was what each one of them individually might (sic) be able to achieve, the group together might. (Aymond - Tr.6629 - 6630).

XI-14 Mr. Aymond was asked further whether, as a matter of policy Consumers would be willing to grant these entities access to transmission services so they could work together to perform this joint operation. He responded, "I think that could be worked out." (Aymond - Tr.6630).

B. Consumers Power, Through its Control of High Voltage Transmission, Controls Access to a Small System's Alternative Sources of Bulk Power Supply, Thereby Substantially Reducing a Smaller System's Ability to Compete With Consumers

XI-15

According to Robert L. Paul, General Supervisor of Commercial Electric and Government Sales for Consumers Power, a dual source of power permits a utility to make use of the most economical source (Paul - Tr.8216).  
"...to rely on a single source, of course, is taking a risk of, if you lose that source, of not having power (Paul - Tr.8216).

XI-16

Mr. Paul's views are shared equally by Alphonse Aymond, President and Chairman of the Board of Consumers, who has indicated that within reasonable limits it is in Consumers Power's best interest and to the best interest of its customers to have as many alternatives as possible available to it in meeting its load growth (Aymond - Tr.6627 - 6628). Mr. Aymond explained to the Board that

...frequently your plans go awry, and it's nice to have something to fall back on. Well, any time we plan a capital addition, we look at the various alternatives, and formerly the controlling circumstances in all cases were economic -- what was the most economic alternative, and that was the one that we would pursue. Now we have additional constraints and we look also at environmental concerns, and we try to reach a balance so that possibly the most economic course might not be pursued because it might create some environmental damage which might have been ignored in the past. (Aymond - Tr.6627 - 6628).

XI-17            Access to wheeling services (transmission) is a prerequisite in determining which alternative an electric system should use (Mayben - Tr.2937). If transmission service is not available and a system cannot coordinate with another system then alternative sources of bulk power supply are severely limited. (Mayben - Tr.2813, 2838, Section XI-A infra).

XI-18            Mr. Mayben testified further that:

Exercising any alternatives or pursuing alternatives will finally depend upon the ability of that utility to obtain transmission services. (Mayben - Tr.2838). (Section XI-A infra.)

...a municipal system needs to contemplate the possibility of alternatives, the development of those alternatives, if he is not satisfied with being a wholesale customer and receiving service from the company under its standard terms and conditions for such service. (Mayben - Tr. 2819).

XI-19            Mr. E. Harold Munn, Jr., President and Member of the Board of Public Utilities of Coldwater testified that:

Well, absent the ability to coordinate and purchase elsewhere we have no place to go but more purchases from Consumers. (Munn - Tr.4123).

1. Types of Alternatives Available for Supplying Bulk Power

XI-20

The types of alternatives available to a system in planning for the supply of its bulk power needs is dependent on the ability of that system to overcome the barriers to entry associated with a particular alternative. While many alternatives may be quite costly the right to have access to and choose the best alternative for a particular system is paramount to the continuation of the pluralistic industry as it exists today. (Brush - Tr.2303). For example, some alternatives are not worthy of study unless some form of coordination could be achieved (Mayben - Tr.2810). Others will be dependent on the availability of future fossil fuel supply (Steinbrecher - Tr.1227; Mayben - Tr.2824, 2825).

The following is an analysis of the alternatives for sources of bulk power supply.

XI-21

a. Self-Generation - If Consumers Power refuses to furnish any services including transmission services, or coordination, to a small system interconnected with only Consumers, it would not be appropriate to recommend that such a small system develop its own independent power supply (Mayben - Tr.2807, 2809). Therefore, a small isolated system's access to self-generation, as an alternative, is severely limited by Consumers' control of transmission services.

XI-22                   (1)   Gas turbines - Operating expenses of a gas turbine are too high and it is difficult to determine whether or not a municipal utility would be able to acquire fuel at any price into the future where oil was involved. A gas turbine probably would be less economical than purchasing from Consumers and would not be a prudent method of meeting a small system's power requirements (Mayben - Tr.2806, 2807). Gas turbines are not attractive to total requirements customers. "...if he [small system] wanted those included as an alternative so that he could get the relative cost differences, it could be done." (Mayben - Tr.2806).

XI-23                   (2)   Diesels - The unavailability of fossil fuels means that diesels will not be a viable source of power in the future. (Mayben - Tr.2807, Paul - Tr.8203 and Steinbrecher - Tr.1227).

XI-24                   (3)   Coal - A coal-fired plant would not be desirable for a small system because two units would be required at a minimum. (Mayben - Tr. 2802). A second negative aspect of coal as a fuel is the potential environmental damage of the stack emissions and the necessity of providing storage for large volumes of coal-ash. Thirdly, the cost of electric energy produced by a coal-fired unit does not compare favorably with the cost of energy from a nuclear unit (Aymond - Tr.6647, 6648, 6351).

XI-25

(4) Nuclear - Building a nuclear power plant for a small system is definitely ruled out. "I would not even suggest that he [a small system] waste the time to study that" (Mayben - Tr.2808, Kline - Tr.4431). Fletcher - Tr.4331 and Paul - Tr.7988). This is because a nuclear plant sized at anything less than 500 Mw is not feasible for any utility (Mayben - Tr.2808). A small system would have to have a reasonable assurance of access to transmission services in order to determine whether or not access to the Midland Nuclear Plant would be an economical alternative source of bulk power supply (Mayben - Tr.2831). Building a nuclear plant is not a real alternative for a small system to consider because of costs, size and technological expertise (Aymond - Tr.6645). Building a nuclear power plant is not an alternative to Alpena because it is too expensive (Fletcher - Tr.4311). Without access to transmission services Alpena would not be able to install any generation (Fletcher - Tr.4350).

XI-26

However, some form of direct access to nuclear power is a very important alternative because of low costs, environmental problems and the unavailability of fossil fuels (Brush - Tr.2302; Mayben - Tr.2354, 2359, 2497, 2499, 2807, 2824, 2825; Aymond - Tr.6351, 6353, 6413, 6414; Paul - Tr.8203).

XI-27 (5) Hydro - There are no hydro sites in the relevant market (Brush - Tr.2501 and Paul - Tr.8203).

XI-28 (6) Pumped Storage - Pumped storage facilities are not a viable alternative because they are not baseloaded (Brush - Tr.2502).

b. Wholesale Power Purchases from Consumers

XI-29 Wholesale power purchases may or may not be the lowest cost alternative to a small system. Obviously the more alternatives a small system has the better it can choose the most economical alternative (Aymond - Tr.6627, Wolfe - Tr. 1713 - 1717). However, a municipal system needs to contemplate the possibility of alternatives if it is not satisfied with being a wholesale customer and receiving service from the Company under its standard terms and conditions for such service (Mayben Tr.2818). Buying of wholesale firm power from Consumers by Traverse City was found to be less economical than coordination (Wolfe - Tr.1714). Consumers Power's wholesale rate is not good for Lansing (Brush - Tr.2283, 2286).

XI-30 Professor Peter Gutman testified that:

An offer to sell only wholesale power is essentially an offer to sell only a bundle of services, including generating services, transmission services, maintenance power, emergency power, etc., all tied together. Instead of such tie-in sales, these services should be unbundled so that buyers have the right to



buy them separately or together in whole or in part, as they wish. Certainly, the Consumers Power monopoly over transmission and large generating units should not be used as a vehicle to extend its control to other services. The offer to sell power at wholesale implies that Consumers Power wants to retain a monopoly position in the wholesale power market relative to the small municipals and cooperatives. It would prevent competition in the market for bulk power, since buyers would have no alternatives. It denies choice. It prevents competition and its benefits. (Gutman - PT, p.28).

c. Purchases From Parties Other Than Consumers

XI-31 Power from remote sources or from parties other than Consumers is not a realistic alternative without proper arrangements through Consumers (Wolfe - Tr.1713 - 1719, Brush - Tr.2351). If Alpena had access to Consumers high voltage transmission system it "would have the alternative of going in with a group of smaller utilities or ... we could go to Detroit Edison, I & M, anybody, and ask them for wholesale power." (Fletcher - Tr.4333). The only alternative Lansing would have absent transmission or wheeling rights over Consumers' lines would be to build its own facilities (Brush - Tr.2351). Lansing has not considered purchases from parties other than Consumers because it is completely surrounded by Consumers (Brush - Tr.2333, 2342).

d. Coordinated Development

XI-32           The ability to interconnect and coordinate was not offered as an alternative to Traverse City by Consumers (Wolfe - Tr.1718). If Alpena had access to Consumers high voltage transmission system it could coordinate with systems other than Consumers Power (Fletcher - Tr.4339). Coordination is not an alternative to Alpena Power Company because the coordination agreements in effect in Michigan require reserves which are prohibitive (Fletcher - Tr.4330). If Coldwater had access to Consumers' high voltage transmission plan it could coordinate its activities with systems other than Consumers (Munn - Tr.4127, 4144).

XI-33           Stephen Fletcher, President of Alpena Power Company testified that:

The primary problem for small utilities located in Northern Michigan, in terms of coordination, is the lack of any transmission facilities available to us in order to actually move blocks of power around so we can coordinate. (Fletcher - Tr.4331).

2. Need For Access to High Voltage Transmission in Order To Have Access to Alternative Sources of Bulk Power Supply

XI-34           The control over high voltage transmission gives Consumers Power the ability to (1) control new entry into the bulk power market by smaller systems in the relevant geographic market, (2) dictate which entities shall have access to nuclear power, (3) eliminate potential alternative suppliers

from dealing with Consumers' wholesale customers and (4) dictate which alternatives a small system will be able to consider in planning for load growth. It can be concluded that this control effectively gives Consumers the ability to restrict the growth of competition.

XI-35           For example, the only alternative source of bulk power supply available to Lansing absent transmission or wheeling rights over Consumers' lines would be to build its own facilities (Brush - Tr. 2348, 2351).

XI-36           Mr. Joseph Wolfe, former Director of the Light and Power Department of Traverse City testified that:

Q.   Mr. Wolfe, you previously testified that one of the alternatives that you considered for planning your load growth while you were director of power and light at Traverse City was purchasing power from sources other than Consumers Power. Is that correct, sir?

A.   Yes, sir.

Q.   From whom did you consider purchasing power?

A.   It was considered, but not in a formal way, purchasing power from Indiana-Michigan Electric, who had wholesale rates that were less than Consumers Power Company.

It was considered purchasing power from the city of Lansing, who had power available.

It was considered to purchase power from Detroit Edison, perhaps others. But when I say considered, that was not done in any active way because of the immense hurdles that would have had to have been overcome to actually realize such a purchase.

In other words, we evaluated all the impediments and decided that they were too great to overcome.

Q. Could you explain to me what these impediments consisted of?

A. Any viable or any reasonable way of delivering this power to Traverse City from a remote source would have to come over somebody else's transmission system. The transmission system of the cooperatives might have been useful for this purpose, but only insofar as it was capable of handling these power deliveries, and its system was not designed during that period of time to handle any larger power transfers than what it probably could reasonably -- would reasonably need for itself. So that that would mean that either very large transmission facilities would be involved to upgrade the cooperative's transmission system, or the transmission system of Consumers Power Company would have to be utilized. And this did not appear to be a method which could be accomplished due to the expressed attitude of Consumers Power Company during negotiations and discussions that were held with them (Wolfe - Tr.1727).

XI-37

The primary question which must be answered in comparing alternatives according to William Mayben is:

Can you in some fashion or other obtain transmission service? If you can't then there is little reason to go into the other examinations of whether or not it's economic in comparison to your present form of power supply; whether or not you would be able to obtain the other features of coordination in order to make that a suitable source to you... I would tend to discourage you from

spending a lot of money on engineering studies to be able to tell you whether or not that's [nuclear power] a good source of power for you until you did have reasonable assurance that you did have transmission service available to you. (Mayben - Tr.2831, 2832, 2837).

XI-38           If Lansing could get Consumers to wheel (transmission services) they would definitely investigate "the economies that might flow to us by inter-connecting with other generating utilities in the state." (Brush - Tr.2334, 2335, Fletcher - Tr.4331 - 4334). Lansing would consider interconnecting with Detroit Edison, the MC Pool, Indiana-Michigan, and Michigan Power (Brush - Tr.2335).

XI-39           Without access to Consumers' high voltage transmission system Alpena does not have the opportunity to install its own generation as an alternative source of bulk power (Fletcher - Tr.4275, 4350).

XI-40           If Consumers terminated Alpena's bulk power supply contract Alpena's only alternative, without access to Consumers' high voltage transmission would be the building of its own generation. However because Alpena does not have enough money or load to build generation it would have to build in conjunction with another entity or entities. This effectively eliminates self-generation as an alternative to Alpena and if Consumers terminated Alpena's bulk power supply contract in all likelihood Alpena would be forced to sell its system to Consumers. (Fletcher - Tr.4929, 4297).

3. Consumers Owns and Controls 98% of the High Voltage Transmission in the Relevant Market

XI-41

See section IX-D, supra.

4. High Voltage Transmission Costs Effectively Prohibit Small Systems in the Relevant Market From Constructing High Voltage Transmission Networks which are Necessary for Obtaining Access to Alternative Sources of Bulk Power Supply

XI-42

The cost of constructing high voltage transmission lines are prohibitively expensive for most municipals, cooperatives and small investor-owned utilities (Fletcher - Tr.4282, 4284; Wolfe - Tr.1732; Gutman - PT, p.29). According to William Mayben, a 138 kv line would cost between \$25,000 and \$30,000 per mile and the installation costs increase significantly as the voltage levels increase (Mayben - Tr.2816). There comes a point that construction costs rise sharply as you approach 345 kv and higher voltages (Mayben - Tr.2816).

XI-43

The cost to Traverse City for a high voltage interconnection with Consumers Power over a distance of less than five miles would have cost Traverse City approximately \$100,000 (Wolfe - Tr.1730). In order to build high voltage transmission lines a suitable right of way would have to be obtained which would also significantly add to costs (Wolfe - Tr.1732).

XI-44

In addition to the prohibitively high costs of transmission lines the duplication of facilities would not be in the overall best interest of the public (Brush - Tr.2336; Munn - Tr.4141; Wolfe - Tr.1732, 1733).

C. Consumers' Policies Have Been Anticompetitive

XI-45

Consumers, through its announced policies and its failure, in some instances to define policies, has created an atmosphere in which smaller systems in the relevant market have been prohibited effectively from competition. This prohibition is twofold: that is (1) Consumers in effect prohibits the smaller system from competing for existing and new wholesale loads and (2) Consumers in effect prohibits the smaller systems from dealing with suppliers other than Consumers thereby eliminating a small system's alternative sources of bulk power supply.

XI-46

Consumers has refused to deal with small electric systems in the relevant market by refusing to accept requests by municipals and cooperatives for terms and conditions of service which would treat municipality owned and cooperatively owned utilities on the same basis as Consumers treats other privately owned utilities. This is evidenced by the refusal of Consumers to (1) grant access to nuclear power, (2) grant access to transmission services (wheeling), and (3) grant access to coordinated development (interconnection agreements).

XI-47 1. Nuclear Power Participation

a. Requests

XI-48 Consumers has been requested, by several small electric systems in its service area, to grant access to nuclear power from the Midland Units. Mr. Steven Fletcher, President of Alpena Power Company, has requested access to the Midland Nuclear Unit. The request was made to Mr. Shepard, Bay City Division Manager of Consumers Power Company, in the fall of 1973.

Mr. Fletcher testified:

Q. Mr. Fletcher, have you requested access to the Midland Nuclear Unit.

A. I spoke to Mr. Shepard one day late last year, and said that -- I told him that we would be interested in a part of Midland if it were available. He advised me that that was not available at that time (Fletcher - Tr.4350).

XI-49 By letter dated July 29, 1971, the City of Grand Haven, Michigan inquired about the possibility of Grand Haven purchasing a direct interest in the Midland Plant and receiving a block of the generation. Grand Haven's letter was specific in the amount of power (10mw or 20mw) it wished to purchased (DJ-Exhibit 27.)

XI-50 By letter dated July 20, 1971, Northern Michigan Electric Cooperative, Inc. informed Consumers Power of the cooperative's interest in exploring participation in the ownership and output of the nuclear fueled electric power generating plant being constructed at Midland (DJ-Exhibit 22).



XI-51 By letter dated May 24, 1971, Traverse City advised Consumers Power that they would be interested in exploring the feasibility of buying a share of the generating capacity of one or both of the Midland nuclear units. (DJ-Exhibit 24).

XI-52 Mr. E. Harold Munn, Jr., President and Member of the Board of Public Utilities of Coldwater, testified:

Q. Mr. Munn, has Coldwater requested access to the Midland Nuclear Units?

A. Yes, we have. By intervention in this case we have asked for participation.

Q. Can you give a time frame for when you asked for access to Midland?

A. Well, I don't have our counsel here. He would probably be able to pin point it; but it would be at the genesis of this case, in -- what -- 1971. We did discuss, I think, informally and orally, with Consumers the eventual fact of nuclear power in connection with the last contract that was written with them; and I pointed out that there was no purchase made for the economies of nuclear power in that contract. But as far as a formalized request, I think it would be in connection with this particular intervention (Munn - Tr. 4141-4142).

b. Refusals to Grant Access to Nuclear Power

XI-53 Consumers Power has never taken the initiative in offering nuclear power benefits to the small electric utilities systems in the relevant market. This is evidenced not only from testimony given in this proceeding

which is noted below but also from the fact that since the formal requests, as described in section 1(a) infra, Consumers has continued to fail to grant the requests for nuclear power from the smaller systems.

XI-54

Mr. Steven Fletcher testified:

- A. Has Consumers Power Company ever taken the initiative to advise you that they were building, for instance, the Midland Unit, and that possibly you could participate in this nuclear unit?
- A. No. Our main informative other than casual industry sources, about this kind of thing comes through the news media.
- Q. Are you familiar with Consumers Power plans to put up the Quanicassee nuclear unit?
- A. I was aware and before aware for about 8 or 10 months that Quanicassee was on the drawing boards. However, I had no idea that it was as close to starting as it seems to be in terms of starting the licensing procedures.
- Q. What was your source of information with regard to Quanicassee?
- A. I believe The Detroit Free Press.
- Q. Has Consumers Power Company advised you, in light of your request with regard to the Midland Plant, that possibly you could participate in the Quanicassee Unit?
- A. I don't recall there ever being any mention of Quanicassee (Fletcher - Tr. 4351, 4352).

XI-55

Mr. E. H. Munn, Jr., of Coldwater, testified:

Q. Did Consumers Power ever take the initiative and advise Coldwater of its plans regarding Midland, and offer Coldwater some form of participation in Midland?

A. Well, I am not aware of any participation being offered to us.

\* \* \*

Q. You testified that you put Consumers Power on notice in 1971, approximately 1971, or maybe a little bit before, that you desired to have access to nuclear power. Is that correct, sir?

A. Yes, in connection with this case.

Q. Are you familiar with Consumers Power's plans to build another unit called Quanicassee?

A. Only through the news reports.

Q. Has Consumers Power ever taken the initiative and advised Coldwater that since Consumers had been put on notice in 1971 that you were interested in nuclear power, that possibly you could have some type of participation in Quanicassee, sir?

A. Well, to the best of my knowledge they have none. I've seen nothing. (Munn - Tr. 4142, 4143).

XI-56

Mr. Earl Brush, General Manager of Lansing Light and Power, testified:

Q. Did Consumers Power Company contact you with regard to participation in the Quanicassee Unit?

A. No, sir. (Brush - Tr. 2312).

2. Refusals to Grant Access to Transmission Services (Wheeling)

a. Requests

XI-57

By letter dated May 24, 1971 Traverse City advised Consumers Power that it was interested in arrangements for the wheeling of emergency power under Consumers' transmission system to Traverse City or other suitable delivery points (DJ-Exhibit 24).

XI-58

Robert Paul, General Supervisor of commercial, electric and governmental services for Consumers Power, testified:

Q. Has the marketing department ever received a request from another electric system for wheeling, unit purchasing coordinated development, admission to the Michigan Pool or other -- than the standard wholesale or emergency sharing arrangements?

A. Yes, subsequent to the initiation of these proceedings the Company received such requests from various members of the Michigan Municipal Cooperative Power Pool and from the City of Coldwater.

\* \* \*

Q. ...instead of formalized were there any informal requests for wheeling?

A. The question of wheeling was raised in the meeting with Southeastern Michigan Rural Electric Cooperative.

\* \* \*

Q. Now, what kind of a request was that...?

A. Well, we had a meeting with the board members of the Southeastern Michigan Rural Electric Cooperative to discuss a number of things, and in that meeting, someone raised the question, would Consumers Power Company wheel power from the Cardinal Plant to Southeastern Michigan.

Q. And what was their response?

A. ...our response was we did not have a policy or rate on wheeling, but that also such wheeling would involve other systems under which we had no control.

Q. ...could I make an assumption now that you did not intend further pursuit with respect to wheeling?

A. That's right...that was our response (Paul - Tr.7934, 7936).

b. Refusals

XI-59

Consumers refusal to grant access to transmission services to smaller electric systems in its service area is evidenced primarily by the complete lack of transmission provisions in the contracts that Consumers has with these small systems (DJ-Exhibits 79, 80, 81, 90, 92, 93, 95, 99).

XI-60

Consumers refused to wheel power for the Southeastern Michigan Rural Electric Cooperative in 1969 (Paul - Tr.7936, and DJ-Exhibit 125).

XI-61

Consumers' President, Alphonse Aymond has recognized that if small systems could work together and build joint plants, Consumers could get

benefits from coordinating with these other utilities (Section XI, A-2, supra). Mr. Aymond has also testified that high voltage transmission is necessary to effectuate a coordination agreement (See Aymond - Tr.6639).

XI-62 Consumers had no defined policy with regard to access to transmission (wheeling) services until testimony by Alphonse Aymond on February 12, 1974 in this proceeding (Aymond - Tr.6046). Mr. Alphonse Aymond, President and Chairman of the Board of Consumers testified that:

Q. Mr. Aymond, could you tell the Board what has been your company's policy since 1960 in providing wheeling service for other electric utilities?

A. In -- until recent years, we have -- the last two or three years -- the Company had not ever received any concrete proposal that it provide wheeling services for any other utility.

And by wheeling services, I assume you mean the offering of the use of our transmission system to another utility for a fee.

Since we have never received a proposal, we never had any occasion to draw up a policy, and so we did not have one until recently. (Aymond - Tr.6046-6047).

XI-63 Joseph Wolfe, former Director of Light and Power for Traverse City testified:

Q. Did you ever ask Consumers Power Company for access to their transmission system for these purposes. [third party alternatives]?

A. Not during that period of time.

Q. Why not?

A. I felt it was futile. (Wolfe - Tr.1729).

XI-64

Stephen Fletcher, President of the Alpena Power Company, testified:

Q. Have you authorized such [feasibility of a joint system steam generation at some site in Northern Michigan] a study?

A. Yes, sir, we have.

Q. And does this study also consider the feasibility of transmission lines to be constructed by your company and others to facilitate the supply of power from the plant to your various load areas?

A. Yes, that is correct ... we had Daverman Associates do the study. They do most of the work for ... the cooperative companies in Michigan. And they already had a good grasp on what transmission the so-called MMPP, which is a power pool coordination agreement, as I understand it, between some co-ops and some cities. They already knew. They had done the study for that, so they knew what the transmission was that was at the disposal of the co-ops.

Q. Have you discussed any arrangements, other than constructing your own transmission?

A. Well, as we understand it, meaning this small group that has undertaken this study, there is no other way for us presently to transmit any generating capacity to remote points unless we own our own transmission line.

We have been assured by the Cooperatives with whom we are doing this study that Consumers Power will not wheel the power for us. (Fletcher - Tr.4275, 4276).

\* \* \*

- Q. In your contacts with Consumers' engineers, have they ever made any representations to you with regard to wheeling services?
- A. You mean have they ever offered us the rights to wheel on Consumers' system? If that's what you mean, the answer is no.
- Q. Have they ever advised you that wheeling would be out for your system?
- A. Well, I don't believe we have ever heard it directly from any of Consumers' people that wheeling would be out. However, inasmuch as we have, in the two men who are working as superintendent and assistant general superintendent, some 32 years experience with Consumers, they have advised us that Consumers has never wheeled for small utilities.

\* \* \*

- Q. Chairman Garfinkel: "...so far as you know...from your experience -- they [Consumers] have not wheeled for any utility other than a large system, a part of their pool or a pool arrangement is that right?
- A. To my knowledge Consumers has not wheeled for anyone outside of I believe it is called the Michigan Power Pool. (Fletcher - Tr. 4329).

XI-65 Alphonse Aymond, President and Chairman of the Board of Consumers

testified that:

- Q. ...if there was an inquiry and it came out that there was no policy for it, wouldn't that be an inhibiting factor to obtaining a specific offer of wheeling?
- A. I think that's possible... (Aymond - Tr. 6177).



3. Refusals to Grant Access to Coordination (Interconnection Agreements)

XI-66

Alphonse Aymond, President and Chairman of the Board of Consumers Power has recognized the beneficial effects of coordinating operations (See Aymond - Tr.6257). This is certainly evidenced by the extensive coordination agreement that Consumers has with the Detroit Edison Company (Michigan Pool) and other interchange agreements it has with major investor owned utilities in and outside the State of Michigan (See DJ-Exhibits 73, 74, 75, 76, 78, and National Power Survey II-2-101-105, 1970).

a. Requests

XI-67

Several requests for access to coordination with Consumers have been made by smaller systems in the relevant market.

XI-68

Mr. Joseph Wolfe, former Director of the Light and Power Department for Traverse City testified:

Q. ...did you have any occasion to contact the Consumers Power Company to determine what arrangements might be available through that Company?

A. Yes, I did.

\*

\*

\*

A. We have already considered some other plans, but we did hire Daverman Associates to make a comparison of the alternatives available to the City...in order to arrive at a comparison, I requested a meeting with the Consumers

Power Company representatives. Mr. Daverman and I did meet with Robert Paul of Consumers Power, and I believe Willis Allen of Consumers Power. This was in early 1968. We requested from them an interconnection agreement or an interconnection arrangement. (Wolf - Tr.1563, 1564).

XI-69

Earl Brush, General Manager of Lansing Light and Power testified:

Q. In this packet of materials, following that letter (letter from Earl Brush to Jack Mosley, Vice President of Consumers dated January 30, 1970), the single page letter I described there appears to be a document entitled "Draft Interconnection Agreement Between Consumers Power Company and City of Lansing, Michigan" ....

Now, in connection with your earlier testimony, did you refer to a proposal that you and their draft will make to Consumers Power?

A. This is the proposal that we sent to Consumers Power with my letter of January 30, 1970 (Brush - Tr.2112).

\* \* \*

Q. Mr. Brush, did I ask you before whether there came a time when you approached Consumers Power concerning a more sophisticated kind of coordinated development?

A. Yes, the letter of January 5, under my signature to Mr. Mosley, affected to consider 5 points which would have then required some changing in our contract. (Brush - Tr.2158, 2293).

XI-70

Mr. Brush further testified:

Q. . . . I would like to ask you about some of the contacts which you have had with the Michigan Pool, or with Consumers Power concerning the Michigan Pool.

A. All right, sir.

Q. Have you had any personal contacts with any personnel associated with the Michigan Pool, discussing the Pool?

A. We met with Mr. Mosley and Mr. Kaiser back in January. May I refer to my papers?

Q. Yes.

A. This was the 5 point letter that has been introduced and talked about and in a subsequent meeting we met with Consumers Power on January 26 to take over the full 5 points in this letter preparatory to the Stanley studies. One of the questions was the Michigan Pool.

Q. That was this year?

A. That's right, this year. That is the one and only time that I have talked with Consumers Power about the Michigan Pool. We asked them if they would explain to us as they saw it the advantages and disadvantages and did they know of any negotiations reactions on either their group part or Detroit Edison permitting the municipal to join the Pool. They answered in the affirmative. We have never heard any negotiation. We would not be opposed. We cannot talk for Detroit, however (Brush - Tr. 2532, 2533).

XI-71

In addition, Consumers Power acknowledges receipt of requests for coordination from smaller entities in the relevant market. (Paul - Tr. 7924, 7928, 7936).

b. Refusals

XI-72 Consumers Power has received and has refused requests for coordination with several small systems in its service area. On the other hand, Consumers is engaged in extensive coordination with larger investor owned utilities (see section VIII supra, National Power Survey, 1970, supra, and Consumers' 1973 FPC Annual Report).

XI-73 Joseph Wolfe, former Director of the Light and Power Development for Traverse City testified:

...we requested from them (Consumers) a interconnection agreement or a interconnection arrangement. We were told at that time by the Consumers Power people that there were only two methods by which they could interconnect with us. One was their standard wholesale participation purpose rate, PP-1 Rate, which was strictly a purpose, a one way arrangement. The other was an interconnection agreement similar to that being offered to the City of Holland ... and it was obvious from examining the conditions and the formula involved with the reserve requirement, that it would not have been advantageous to the City (Wolfe - Tr. 1564).

XI-74 Robert L. Paul, General Supervisor of commercial, electric and governmental services for Consumers Power, testified:

Q. You mentioned Northern Michigan and Wolverine and also Traverse City has for making such requests. What were the nature of those requests, sir?

A. Essentially in the period from '64 to '70, Northern Michigan and Wolverine had, at different times, requested that the Company consider something other than a straight wholesale

type of arrangement which basically might provide for the expansion of emergency support, things of this type. In the case of Traverse City's request in '68, it was again something that would provide for emergency sharing support, something other than the straight wholesale arrangement.

Q. What response was made by Consumers Power to these various requests.

A. During the 1964 negotiations with Northern Michigan and Wolverine and the subsequent contacts with Northern Michigan and Wolverine up to '70 we responded to Northern Michigan Wolverine that since they were deficient in having sufficient generating capability on their system to provide to us what we consider benefits in the amount that would be of no will, let me say would be of mutual benefit for the company to enter into some kind of an emergency sharing arrangement and since that did not persist such capacity, we did not feel that such an arrangement was desirable.

Q. How about the Traverse City request?

A. In the case of the Traverse City request - and this would also apply to the requests of Northern Michigan and Wolverine following 1968. We responded in effect that these systems did not meet criteria that had been established within the Company for determining whether or not a system -- for determining whether or not the Company would interconnect with another system (Paul - Tr.7924, 7925).

D. Consumers' Company Policies Eliminate Competition

XI-75

Robert L. Paul, General Supervisor of commercial, electric, and government sales for Consumers Power Company (An employee of Consumers since 1949, Paul - Tr.7804), has testified:

My responsibility essentially is to provide functional supervision and direction to the company's programs and activities dealing with commercial electric sales, governmental gas and electric sales, steam sales, and wholesale sales to other utilities, and retail matters. (Paul - Tr.7805).

XI-76           The record in this proceeding is replete with exhibits and testimony which reflect that Mr. Paul's duties included dissemination of company policies to Consumers employees and that the policies reflected in many of Mr. Paul's communications were designed to intentionally eliminate competition (Paul - Tr.8270 and DJ-Exhibits- 171 and 274).

XI-77           Mr. Paul was asked on cross examination whether, if someone in the field office wanted to know what the company policy was on competition with municipals would he come to Mr. Paul for an answer. Mr. Paul testified, "If he wasn't aware of its, yes, he may come to me". (Paul - Tr.7960).

XI-78           On cross examination Mr. Paul acknowledged the authorship of D. J. Exhibit 188 (Paul - Tr.8026). Mr. Paul testified that this document was a brief outline that he had put together for a talk that he gave to a group of Consumers' engineers (Paul - Tr.8027-8028). Mr. Paul testified that the preparation of the material outlined in D.J. - Exhibit 188 was made in advance of his speech and was for the purpose of putting down on paper some thoughts that he would develop and present to the engineering group (Paul - Tr.8029).

XI-79

In D.J. Exhibit-188, Mr. Paul stated:

I would like to take a few minutes of your time today to discuss a very unique phase of our electric business--that being our sales to Municipal, REA and other power companies or wholesale sales as they are defined. Although these sales represent a small portion of our total electric business, the associated problems and their relationship to the future welfare of our Company are extremely important to all of us. In this phase of our business we are in the position of perpetuating the existence of the municipal plants and REA's, which could be the nucleus of greater public power systems yet to come. Yet, if we don't do business with them we may be forcing their more rapid consolidation and expansion.

I don't want to infer here that we are at odds with all our wholesale power customers. We have extremely good relationships with many municipal plants and some cooperatives. Many of these have no aspirations beyond the operation of their small plants or systems as they exist today, and like doing business with us. However, we must never forget that the public power proponents, of which there are some dedicated ones here in Michigan, are always working on these people or have their eyes on them.

\* \* \*

The first goal of our Marketing activity or program concerning other utility systems in our service area is, of course, to acquire these systems. Since 1950, Consumers Power has purchased 6 municipal electric systems. An offer to purchase the Charlevoix system was turned down, but we are now supplying most of Charlevoix's requirements. In 1965, when it became apparent that Traverse City was about to expand its generating plant, we attempted to head this off with a lease proposal, but this never got very far.

\* \* \*

Although relatively small today, by comparison to our system, you can see that the extent of the system is considerable. As indicated earlier, the cooperatives are also doing everything in their power to extend the system even further.

It is this growing system that presents the real problem to Consumers Power Company because the system is not only duplicating our system but it is also attempting to achieve a completely independent power source. It was the source of power to the distributing cooperatives that caused all the controversy last year.

XI-80 In another document, Department of Justice-Exhibit 187, Mr. Paul stated that:

Although we could supply the distributing cooperative directly with wholesale electric energy at a cost significantly below that now paid to Northern Michigan and Wolverine for this power, contractual arrangements and other problems make it extremely difficult, if not impossible, to disassociate the distributing cooperatives from their G and T suppliers. Of course, one method of accomplishing this would be to acquire all the facilities of Wolverine and Northern Michigan. Mr. Paul testified that he viewed this as a possibility as of March 20, 1970. (Paul - Tr.7965).

XI-81 In the next to the last sentence in DJ-Exhibit 187, the following statement is made:

Although it would improve the position of the distributing cooperatives, it would hopefully eliminate future increased penetration or influence of public power groups in our service area. (Paul - Tr.7960).

XI-81A In D.J. Exhibit-274, Mr. Paul stated:

The continued expansion of the two generating and transmission (G&T) cooperatives in Michigan ... poses a serious threat to Consumers Power Company and should be of considerable concern to all of us.

\* \* \*

Should the cooperatives succeed in getting Congress to establish an REA Bank, we can anticipate even further expansion of the G&T systems here in Michigan and resulting increased competition.



XI-82

Mr. Paul's testimony on the third page of D.J. Exhibit 188,

The first goal of our marketing activities or programs concerning other utility systems in our service area is, of course, to acquire these systems (DJ Exhibit-188, p.3 and Paul - Tr.8043), reflects Consumers' policy.

XI-83

Mr. Paul was asked:

Q. ...when you stated "our marketing activities or programs," were you referring to the activity of our program of your marketing department?

A. Well, essentially this was my activity. In other words, I was carrying out this activity within the marketing department, essentially on my own.

\* \* \*

Q. But wouldn't you say this type of statement, in effect, is really the policy of the company that you wouldn't reflect something that would be contrary -- in a document contrary to the policy of the company.

A. We had no policy in these areas.

Q. All right. But you had a certain responsibility in your position to develop policy, isn't that right?

A. To possibly recommend policy that might be implemented; yes, sir, in other words, to recommend action to management.

Q. ...the first goal of our... to me, that has language indicating that this is the position of the Company. You wouldn't be saying the first goal of our...on your own? (Paul - Tr.8047).



XI-86            In addition to DJ - Exhibit 188, Mr. Paul has reflected company policy in DJ - Exhibit 187, DJ - Exhibit 156 and DJ - Exhibit 171.

The policy reflected in DJ - Exhibit 187 is described above. The policy reflected in DJ - Exhibit 156 can be summarized by the following quotation from that exhibit.

The City of Harbor Springs has indicated an interest in selling Consumers Power Company a distribution line... we, of course, are interested in purchasing this line not only because of the purpose that will be obtained, but also because this action will help us secure this area from further penetration by Top-O, Michigan Rural Electric Cooperative... because of the pending competitive threat from Top-O, Michigan we would appreciate receiving this appraisal and evaluation as soon as possible.

XI-87            In DJ-Exhibit 171, Mr. Paul wrote: "I believe the criteria for third parties as presented in your letter of September 5 to J. B. Falahee, very adequately covers the subject and should help prevent undesirable third parties from becoming a part of our present or any future pooling agreement".

E.    Consumers' Dominance in the Relevant Market in Conjunction with Company Policies Designed to Eliminate Competition Constitutes a Situation Inconsistent with the Antitrust Laws

It can reasonably be concluded that:

XI-88            1.    Consumers, notwithstanding the recognition of the importance of coordination and transmission has never taken the initiative and offered access to transmission service. In addition, Consumers has

created an atmosphere, due to its failure to have a formal wheeling policy, which effectively prevents access to Consumers' transmission.

XI-89                   2.     A small utility located in the relevant market area would have opportunity for coordination with other small investor-owned utilities, cooperatives, municipalities or Consumers Power if it had access to high voltage transmission. There is only one high voltage transmission line of any consequence in this area and it is owned and operated by Consumers Power Company (Mayben - Tr.2768 and DJ-Exhibit 1; Section VIII-D infra). Transmission is extremely significant in connection with the ability to secure access to a regional power exchange (Mayben - Tr.2768, 4121).

XI-90                   3.     The granting of access to nuclear power on terms which do not include access to high voltage transmission for the purpose of coordinating development and operations is intended to exclude or destroy competition.

XI-91                   4.     Consumers' dominance over the bulk power services market in the relevant market area coupled with the various company policies previously described constitute a situation inconsistent with the antitrust laws under Section 5 of FTC Act.

XI-92                   5.     The Board should note that the addition of the Midland facility under an unconditioned license is likely to exacerbate this situation.

XI-93 Mr. E. Harold Munn, Jr., President and Member of the Board of

Public Utilities testified that:

...if Coldwater was granted access to Consumers' high voltage transmission system Coldwater's alternatives for obtaining bulk power or for planning load growth would be improved and we would immediately be injected into the market where the basic service is available, and be able to negotiate directly with the source of supply. (Munn - Tr.4123; emphasis supplied.)

XII. THE RELATIONSHIP BETWEEN THE NUCLEAR FACILITY AND SITUATION INCONSISTENT WITH THE ANTITRUST LAWS ("NEXUS")

XII-1 In the Louisiana Power and Light Memo and Order <sup>52/</sup> the Commission required that a "meaningful nexus" must be shown between the situation alleged to be inconsistent with the antitrust laws and the "activities" under the proposed license. Since this proceeding is a case of first impression, the Staff intends to give close attention to the nexus requirement. <sup>53/</sup>

XII-2 In the past, courts have addressed themselves to the issue of whether or not an alleged anticompetitive practice is related to a facility by a sufficient degree to require administrative antitrust review. In Municipal Electric Association of Massachusetts v. S.E.C., <sup>54/</sup> the court was called on to evaluate an S.E.C. order approving the acquisition of stock in two nuclear

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<sup>52/</sup> Supra, at note 3.

<sup>53/</sup> The term "nexus" refers to a "connection, tie, or link ..." (Webster's New World Dictionary, supra, at note 47). In a legal sense, nexus problems invariably refer to the degree of extent of a connection, rather than the existence of a relationship. Within the last 50 years, courts have turned away from the concept of physical connection and physical presence, looking rather to the impact or effect of a connection. CF Hanson v. Denckla, 357 U.S. 235 (1958); International Shoe Company v. State of Washington, 326 U.S. 310 (1935), compare Pennoyer v. Neff, 95 U.S. 417 (1877); for "nexus", as a general term which is satisfied by even indirect effect, see American Refrigerator Transit Company v. State Tax Commission, 238 Ore. 340, 395 P.2d 127 (1964).

<sup>54/</sup> 413 F.2d 1052 (D.C. Cir. 1969).

power electric generating companies. The complainants were a group of municipalities who asserted that this acquisition would lead to an increase in the concentration of low cost power. They alleged that such concentration was in contravention to the antitrust laws, and that the S.E.C. was in error for not considering this alleged anticompetitive effect. In addition to increased concentration, the municipalities brought to the attention of the court the fact that this facility, were it owned and operated by the large utilities in the region, would become a vehicle for foreclosing a number of development possibilities to which the municipalities were entitled.

XII-3

The court found a nexus between the trend toward concentration of low cost power and the proposed facility. It was concerned with the allegation that the sponsors of nuclear facilities " ... are obtaining a monopoly in New England over electric generation through systematic exclusion of municipalities and other small electric distributors from 'participating in or purchase of power from' nuclear generators in New England ...."<sup>55/</sup>

XII-4

In assessing the allegations to determine which were sufficiently related to the nuclear units to provide the required nexus prerequisites to antitrust review, the court considered: (1) the fact that the plant will

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<sup>55/</sup> 413 F.2d at p. 1057.

be interconnected with the New England Power Grid; (2) the fact that the municipals were being denied access to low cost power on reasonable terms; (3) the ability of the sponsors to absorb power generated from the units and the regional problems of power distribution; and (4) the alleged increase in concentration in Massachusetts and, indeed, New England by control over low cost electric power through nuclear generation plants.

XII-5           The issues set forth in the Waterford Memorandum and Order by the Commission as within the Board's discretion include whether the applicant's ability to hinder or prevent smaller electric entities from achieving access to the benefits of coordinated operation and access to the benefits of economy of size of large electric generating units results in a situation inconsistent with the antitrust laws. If the Board finds that there exists a situation inconsistent with the antitrust laws, it must determine the relationship that exists between said situation and the activities under the license.

XII-6           The Federal Power Commission has also had the opportunity to review allegations of anticompetitive practices made by the same Massachusetts Municipals. In Municipal Electric Association of Massachusetts v. Federal



Power Commission,<sup>56/</sup> the court affirmed action taken by the FPC in connection with an antitrust allegation made during a licensing proceeding for a hydroelectric project. The municipals alleged that the licensed facility, if constructed, would result in severe anticompetitive consequences. The FPC considered relevant to the licensing process, allegations as to whether the municipals would be discriminated against in the sale of power generated during the period before the licensees can absorb the full output of the project; whether the facility was a link in a general boycott, conducted by private power interests in New England, denying municipal power companies access to sources of bulk power and transmission facilities; and whether the municipals had been wrongfully excluded from the New England Electric Coordinating Council.

XII-7

The consideration given to the exclusion of the small systems from the Coordinating Council indicates that participation in one dominant planning group is [REDACTED] related to the facility so as to trigger antitrust review. The courts have further found a nexus exists between facilities and conduct involving discriminatory interchange

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<sup>56/</sup> 414 F.2d 1206 (D.C. Cir. 1969).

agreements and interconnecting agreements,<sup>57/</sup> and wheeling and coordination as a general policy in the electric utility industry.<sup>58/</sup>

XII-8

Those factors that the Board should consider in this case as being reasonably related to the proposed facility are then not unlike the factors that courts in the past have considered, i.e., " ... [T]he requirement of reasonable nexus ... is fairly implied in the jurisprudence. Development of the requirement must await consideration in the first instance by the agency involved, and an analysis of the factual context."<sup>59/</sup> Consequently, a technical analysis of the impact of nuclear power in the Consumers' System is the next factor for consideration.

XII-9

Long before the Midland plant will be put into service, its integration into Consumers' System had already influenced the location and use of the company's 345 KV lines which will eventually be connected

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<sup>57/</sup> Gainesville v. Florida Power Corporation, 402 U.S. 515 (1971); Gulf States Utilities v. F.P.C., 411 U.S. 747 (1973).

<sup>58/</sup> Otter Tail, supra, at note 26.

<sup>59/</sup> City of Lafayette, Louisiana v. F.P.C., 454 F.2d 941, 953, (D.C. Cir. 1971). Aff'd sub nom., Gulf States Utilities v. F.P.C., 411 U.S. 747 (1973).

with the Midland plant. Approximately 85 percent of the nearly 300-mile network will have been in operation by the time the Midland plant is completed. Most of these transmission lines which were designed around the Palisades plant, Consumers' second nuclear plant, has been in operation since the end of 1971. The majority of the additions to the transmission network will be used to integrate the Ludington Pumped Storage plant <sup>60/</sup> and the Midland plants. <sup>61/</sup> This example of system planning which involved three new technologies, extra-high-voltage transmission, pumped storage and nuclear generation, clearly demonstrates the integrated role nuclear power plays in Consumers' System. <sup>62/</sup>

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<sup>60/</sup> The Ludington Facility shows further relationship between the nuclear plant and Consumers' system. It is the largest facility of its kind in the world. Consumers' Annual Report, 1972, p. 6.

<sup>61/</sup> Derived from Consumers' Federal Power Commission Form 12 for the year ending December 31, 1971; and "System Performance and Transmission Planning", Volume II, A Report by ECAR to the Federal Power Commission, April 1972.

<sup>62/</sup> According to Consumers' president, the company operates an "integrated system" and obtains important advantages from coordination. In the Matter of Consumers Power Company, Docket Nos. 50-329A and 50-330A, Deposition of Alphonse H. Aymond, May 15, 1973, Tr. 166-71. See also, Deposition of Harry R. Wall, May 30, 1973, Tr. 78; Mosley, Tr. 8516, 8652; F.N. 45, supra, and Section XI, supra.

It is furthermore a delineation of the nexus which exists between the system and the nuclear facility.

XII-10 Consumers has substantial investments in nuclear power. It first introduced nuclear energy into its system when its Big Rock Point plant went into service in 1965. While this first nuclear venture was only 70 Mw in size, Consumers was planning for the integration of its 700 Mw Palisades plant and its 1300 Mw Midland plant. Further, by the time that Palisades was put into operation at the end of 1971, plans for the 1300 Mw Quanicassee plant were announced. Accordingly, Consumers is relying extensively on nuclear power to meet its growing requirements. It is expected that by 1980, 25 percent of the company's generating capacity will be in nuclear power.<sup>63/</sup>

XII-11 There are several reasons why nuclear power is preferred as an energy source by Consumers. These include the assured availability of nuclear support, its environmental qualities, and its low cost of operation (See Section X, supra; and Aymond, Tr. 6353). For example, there are no hydroelectric sites available to Consumers which are capable of developing 1300 Mw of generation, gas is not available, and it is doubtful that large

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<sup>63/</sup> Load Projection and Resource Planning, ECAR, Volume I, April 1972 (See Appendix J).

quantities of oil would be available to fuel large base load plants such as Midland (See Section XIB, supra; and Mayben, Tr. 2824). Coal is available, but the costs of controlling its environmental impact do not make it an attractive alternative:

The ash collected from a coal fired plant . . . . would amount to about one-half million tons per year. The problems of disposing of this quantity of ash in an environmental acceptable way are naturally formidable . . . . Sulfur dioxide would also be emitted in large quantities from a coal-fired installation . . . . There would also be emissions of other contaminants such as nitrogen oxides and trace elements that . . . represent atmospheric contamination that would not exist with a nuclear plant . . . . With the impact of environmental considerations and new Federal, state and local standards for industry emissions, coal faces further market uncertainty.<sup>64/</sup>

XII-12

According to Consumers, nuclear power is the only practical large-scale energy source among the several new developing technologies.

"Pumped storage plants can operate for only a portion of a day and rely on base load units for pumping power during off-peak hours . . . ."; "coal

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<sup>64/</sup> Moreover, "although fossil units have a better heat rate than nuclear units, the higher fuel cost results in higher overall costs." Consumers Power Company, Supplemental Environmental Report, pp. 5.2-1, 5.2-8; Docket Nos. 50-329 and 50-330.

liquefaction ... is at least a decade away and cannot be seriously considered for production of synthetic petroleum in significant quantities in the short term ..."; and "oil shale may provide substantial quantities of oil in the long term, but certainly not in the next decade."<sup>65/</sup>

XII-13            Thus, access to nuclear power presents the most promising source of low-cost and reliable energy currently available. In the words of its chairman, " ... when it [Midland] goes into service, we anticipate that it will be one of the lowest cost units on the system" (Aymond, Tr. 6351). Mr. Aymond further testified that " ... if they go as we anticipate, we believe that nuclear power will be the lowest cost base load power available ..." (Aymond, Tr. 6353).

1.     Large Scale Nuclear Generation Has Led to Lower Costs and Greater Efficiencies

XII-14            The development of the large-scale nuclear generating units has followed technological advance in transmission and fossil-fueled generation. The use of nuclear-fueled power is "probably the most important single change in the electric power industry during the past fifty years."<sup>66/</sup> Economic and environmental considerations have dictated the industry's

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<sup>65/</sup>    Ibid.

<sup>66/</sup>    NPS, p. I-6-1, 1970.

XII-20

Without access to coordination on a large scale, the small system cannot gain the benefits of modern technology and the economics of nuclear power. (Mayben, Tr. 2842). Substantial obstacles confront the efforts of a small system or group of small systems, to enter into nuclear generation on an isolated basis. The typical small firm will seldom be able to achieve the gigantic level of investment required to place a large, economic, nuclear facility in operation. (Mayben, Tr. 2808). Cost projections (See Appendix E) for nuclear stations are larger than \$1 billion per station, which exceeds the total electric plant investment of all but the top 30 systems in the nation. If a group of small systems attempt to overcome this capital entry barrier by combining their financial resources and engaging in coordinated development, they still must either obtain the use of extra-high-voltage transmission lines in their area or construct their own transmission. (Mayben, Tr. 2769; Brush, Tr. 2293; Wolfe, Tr. 1731).

XII-21

The owner of existing transmission, typically a dominant large private utility, however, may refuse to provide transmission service. Attempts to construct large-capacity transmission will likely be foreclosed by environmental and esthetic considerations, if not the additional high capital requirements. (Wolfe, Tr. 1724; Mayben, Tr. 2269; Munn, Tr. 4141). Even if the group surmounts these obstacles, the relatively small

scale of the pooling group will seldom economically justify the installation of the large nuclear units (Section X, supra). That is, the group may be forced to carry substantial reserve capacity and may lack a market for all of the unit's output.

4. Competitive Implications of Nuclear Technology

XII-22

Because technological improvements have progressively widened the cost gap between small scale and large scale generation and transmission, "most of the smaller electric systems which generate the bulk of their electric requirements are at a relatively greater economic disadvantage than they were during the 1950's and the early 1960's."<sup>77/</sup> (Wein, PT p. 65). This disadvantage will likely continue to grow in view of the prospects of higher fossil fuel prices. Without coordination opportunities, systems with generation capacity will experience higher bulk power costs and inferior reliability.<sup>78/</sup> (Mosley, Tr. 8516).

XII-23

Additionally, the lack of coordination opportunities affect the economic alternatives that an unintegrated electric energy distributor may consider when planning for future bulk power supply needs. (Muller, PT

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<sup>77/</sup> NPS, p. I-17-27, 1970.

<sup>78/</sup> Ibid., at p. 28.



pp. 19-20; Munn, Tr. 4123; Mayben, Tr. 2810). Just as technical change has made it more difficult for smaller generating entities to continue on an integrated basis, these same changes have made it more difficult for wholesale customers to seriously consider backward integration into generation as a viable alternative to wholesale purchase. Without an opportunity for intersystem coordination, entry into bulk power supply is economically inefficient. (Muller, PT pp. 36-37).

XII-24           The impact of nuclear technology will foster greater pressures for increased concentration and reduced diversity in the electric utility industry. Small generating firms will find it less economical to continue on that basis in the absence of coordination; retail distributors will similarly be foreclosed by lack of coordination opportunities from constructing their own power supply system. Consequently, industry generation and transmission resources will increasingly tend to become controlled by large interconnected utilities.

XII-25           Smaller systems, on the other hand, will continue to suffer economic penalties as long as they do not have the opportunity to achieve access to nuclear generating units and ancillary arrangements which makes such access economically meaningful. In Michigan this means, for example, that individual systems will become either partial or full requirements customers

of Consumers rather than continue to generate their own power. These choices by individual systems, if based on the presently limited options available, may prove to be the proper ones on economic grounds alone, but the totality of these decisions will have far-reaching consequences on the organizational diversity of the electric systems in Consumers' service area. The loss of such diversity would severely limit the competition among Consumers and its neighboring systems (See Section XI, supra).

XII-26

One commentator on antitrust issues in the electric power industry has concluded that prospective benefits of yardstick comparisons flowing from organizational diversity provide the most persuasive justification for the application of antitrust policy in the electric utility industry.

Companies are perhaps most fearful of this kind of competition because it may have the greatest impact upon regulatory control. Today, with the growing interdependence of systems and with many of them purchasing their power needs, the yardstick concept may have lost much of its usefulness unless the utility has access to economically-priced power, either by membership in a power pool or as a result of competition in the sale of wholesale power.

To illustrate, assume that a municipal system is buying all or most of its power from a neighboring private system. There exists between the two an indirect, but very real competition to serve their respective areas since the state commission or the voting public might well decide

to allow the system that furnished the cheapest power to serve both areas. Unless the municipality has access to alternative sources of economical power, either by joining a pool to build large, efficient generating plants or by having access to alternative wholesale sources, the neighboring system can virtually control the performance of the municipal system through its control over the wholesale price of power. Of course, the Federal Power Commission can regulate the wholesale rate to eliminate this control, but to say that such regulation is sufficient is either to reject the yardstick concept or to argue in a circle since a regulated price cannot be used as a yardstick to measure the effectiveness of regulation. Such control by selling systems is probably very common and very effective, primarily because of the almost universal control over transmission by the dominant selling system in an area. This kind of "unfair" competition is usually directed at municipals and cooperatives but also occasionally at small private systems, particularly when the seller is seeking to absorb the smaller system by merger.<sup>79/</sup>

XII-27            Yardstick competition has received explicit consideration in antitrust proceedings involving electric utilities. In Municipal Electric Association v. S.E.C.,<sup>80/</sup> yardstick competition was discussed as an important issue. Yardstick competition was also viewed as significant in the American Electric Power case.<sup>81/</sup>

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<sup>79/</sup> James E. Meeks, "Concentration in the Electric Power Industry: The Impact of Antitrust Policy." *Columbia Law Review*, Volume 72, pp. 77-78.

<sup>80/</sup> 413 F.2d 1052, 1058 (D.C. Cir. 1969).

<sup>81/</sup> In the Matter of American Electric Power, Inc., Initial Decision dated July 20, 1973, p. 117 (hereinafter cited as AEP); *Federal Securities Law Reporter*, Paragraph 79, 424 (1973).

XII-28           The initial decision, which denied the proposed merger noted that  
" ... for yardstick comparisons to be meaningful and effective as a competitive tool it is essential that a sufficient number of utilities be available for comparison purposes."<sup>82/</sup> However, yardstick comparisons between an integrated utility and its wholesale customers have little validity when the wholesale customers do not have access to alternative power sources. Only if utilities have access to power supplies on equal terms are yardstick comparisons meaningful.

XII-29           In addition to impairing yardstick competition, lack of access to the use of large-scale nuclear generation and HV transmission restricts wholesale competition in the traditional sense. Several examples of wholesale competition among suppliers to serve municipal distribution systems were discussed in the AEP proceeding.<sup>83/</sup>

XII-30           In U.S. v. Florida Power Corporation,<sup>84/</sup> the Department of Justice and two Florida utilities entered into a consent decree which terminated a division of markets agreement which restricted wholesale competition.

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<sup>82/</sup> AEP, p. 117.

<sup>83/</sup> Ibid., pp. 105-106.

<sup>84/</sup> U.S. v. Florida Power Corporation and Tampa Electric Company, 1971 Trade Cases, 73, 637. (N.D. Fla. 1971).

5. Conclusion

The addition of the Midland facility to applicant's system will enable applicant to maintain: (1) its dominant market position relative to the smaller systems; (2) its ability to construct nuclear power plants to the exclusion of the smaller systems; and (3) its dominance of high voltage and extra high voltage lines.

XII-31           The addition of the 1300 Mw Midland nuclear plant will help enable Consumers to maintain its dominant position in its service area in Michigan's Lower Peninsula. This one plant is equal to approximately four times the entire load of all other municipals, cooperatives and small investor-owned utilities in Consumers' service area (Section VIII, supra).

XII-32           Alphonse Aymond, President and Chairman of the Board of Consumers has stated that "Well, it seems self-evident that the larger the system, the greater potential for economies of scale (Aymond, Tr. 6441).

XII-33           The addition of the Midland units will increase Consumers' total generating capacity by approximately 25 percent (Section VIII, supra). This will enhance Consumers' ability to sell capacity and energy to wholesale customers and other electric utilities in its service area.

XII-34           Nuclear units must be large scale in order to be efficient and economical (Section X, supra). With the addition of the Midland units

and considering Consumers' interconnection with Detroit Edison, Consumers' load and the load of the Michigan Pool will be of sufficient size to warrant additional nuclear units.

XII-35            This advantage cannot be enjoyed by the small systems in the relevant market because of their small size (See Section XI, supra). Therefore, Consumers will continue to enjoy general growth and the benefits of nuclear power while the smaller systems will be excluded from these benefits.

XII-36            In addition to generation, the large scale nuclear units and increased load to Consumers and the Michigan Pool load will create new demand for extensions of high voltage and extra high voltage transmission systems which Consumers already dominates in its service area (Sections VIII and IX, supra).

XII-37            Consumers will enjoy considerable economies of scale with the installation of the Midland units (Mayben, Tr. 2558). The smaller systems without access to coordination and high voltage transmission services will continue to build small, very costly fossil units, thus, increasing Consumers' dominant position.

XIII. RELIEF

A. In Order to Attenuate the Impact on Small Systems of Applicant's Market Power and Control Over High Voltage Transmission and Remedy the Situation Inconsistent with the Antitrust Laws, Access to Coordinated Development and Transmission Service is Required

1. Opening Up Alternatives to Smaller Systems Would Help Remedy the Situation Inconsistent with the Antitrust Laws by Removing Some of the Barriers to Power Supply Alternatives

a. Freedom of Choice

XIII-1

If a customer of Consumers has no alternatives for obtaining low cost power or other services then this customer will be forced to accept whatever final proposal Consumers makes (Paul - Tr.8231). The more alternatives a system has the better able it is to choose the most economical alternative (see Section XI, supra). If alternatives are available to small systems many systems would have the opportunity to install self-generation and obtain some form of access to nuclear power (Fletcher - Tr.4350, see also Section XI, supra). These systems would also be able to coordinate with systems other than Consumers Power (Fletcher - Tr.4348, 4349; see also Section XI, supra).

b. More Alternatives Mean the Possibility of Lower Production Costs and Lower Costs to the Consuming Public

XIII-2

Several witnesses have testified that the more alternatives available to small electric systems in the relevant market mean more benefits for the consuming public. Earl Brush, General Manager of the Board of Water and Light, City of Lansing, Michigan, testified that:

...interconnections between any two utilities, there ought to be benefits flowing to both of them. We feel that there are certainly benefits flowing to us from that interconnection. These benefits ultimately flow to the customers, and this would be true if we were to interconnect with Detroit Edison and there were some material benefits to both parties. It would certainly inure to the benefit of both utilities. (Brush - Tr.2341).

Q. Chairman Garfinkel: Let me ask you something, Mr. Brush. Suppose you had this type of interconnection. Would this result in a lower rate to the consuming public?

A. In operation, yes, sir, it would, and I'm certain that the investor-owned's likewise would have a lower rate to the customer. (Brush - Tr.2341).

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Q. Chairman Garfinkel: Well, let me ask you something: Suppose you had the power from Midland and Quanicassee. Could you make use of that power as your company is presently constituted...?

A. We certainly would. We have adequate generating capacity now to serve our present load. All right, if we could bring in a block of power that was less costly than what we are now producing it for, we could certainly use it and furnish it to our customers because it would lower our overall cost and they would benefit from this. (Brush - Tr.2349, 2350).



XIII-3 Mr. Brush also testified that it is important to have as many alternatives as possible because it is incumbent on us to study all of the alternatives and select the plan that will result in the end-use customer getting power at the lowest cost-power -- or at the lowest cost possible. . . . (Brush - Tr.2340).

XIII-4 Harold Munn, President and member of the Board of Public Utilities of Coldwater testified that:

If, through coordination, we can realize the lowest unit cost possible this, then results in the lowest cost for our customers, and we can postpone the effective date of increases of costs. (Munn - Tr.4129).

XIII-5 Stephen Fletcher, President of Alpena Power Company, testified that:

The primary one [objective] is to serve our customers as cheaply as possible, in order to keep their rates as low as possible. (Fletcher - Tr.4288)

XIII-6 If Alpena was able to secure a 20 Mw entitlement from a nuclear plant and sold a part of that power at cost to another system such as Traverse City it would reduce expenses and decrease the cost per kilowatt hour to our ultimate retail customers (Fletcher - Tr.4361).

c. Small System Could Effectively Compete With Consumers If They Had Alternative Sources of Bulk Power Supply

XIII- In order for a small utility to effectively bargain it must have the ability to utilize a transmission system (Mayben - Tr.2769). By

having access to Consumers' high voltage transmission system small electric systems in the relevant market would be able to coordinate bulk power supplies from systems other than Consumers. If a small system had access to Consumers' high voltage transmission it would have the alternative of participating with a group of smaller utilities or it could go to Detroit Edison, I & M, or any other utility with which an interconnection is feasible either directly or indirectly, and ask them for wholesale power (Fletcher - Tr.4334).

XIII-8 William Mayben, Engineering Consultant, testified that:

I have long expressed the point that any small system's position, even as it affects the price at which he pays for wholesale power in many cases, is affected by availability of alternatives. And in my judgment, a municipal system needs to contemplate the possibility of alternatives, the development of those alternatives, if he is not satisfied with being a wholesale customer and receiving service from the company under its standard terms and conditions for such service. (Mayben - Tr.2819; see also, Wolfe - Tr.1717, 1731; Brush - Tr.2340).

XIII-9 The opening up of options to a small system would help remedy the situation by removing some of the barriers to power supply alternatives. (Mayben - Tr.2821).

XIII-10 If Alpena had access to nuclear power from Midland it would consider selling that power to some systems Consumers presently serves at wholesale - Coldwater, Traverse City, Harbor Springs, Southeastern Michigan Corp. (Fletcher - Tr.4335).

XIII-11 If Alpena Power could get reliable power from the MC Pool it would buy power from the Pool rather than from Consumers (Fletcher - Tr.4306).

XIII-12 Mr. Fletcher was asked how access to Consumers' high voltage transmission system would increase Alpena's alternatives so that it could take advantage of power that it could get from a nuclear unit:

A. Well, of course, like any electrical system, we have -- there would be times when we would not be able, in all likelihood, to utilize the full block that we would buy from a nuclear unit, inasmuch as we would probably buy more than we need right now, anticipating future growth.

In the times that we would not need that power, or as much of it . . . we would certainly consider selling a piece of that power at wholesale or retail to anybody who wanted it. (Fletcher - Tr.4334, 4335).

Q. . . . would you be willing to sell this power at wholesale to anyone who wants it, would you consider selling that power to save people that Consumers Power presently serves wholesale?

A. I think that might be better phrased as some of the systems I would approach for a possible sale, had I the power, sir. But some of them would be some of the municipalities on the west side of the state: Traverse City, Harbor Springs . . . Coldwater . . . , Southeastern Michigan Coop., Thumb Electric, Oceana Coop. (Fletcher - Tr.4335).

XIII-13 Dr. Gutman noted that:

The availability of carrier service to wheel bulk power permits the non-integrated municipality coop or privately owned electricity distributor to gain access to

more than the single source of bulk power available locally. (Gutman - PT-15).

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Transmission service is absolutely essential. Without the ability to buy transmission service the small utility or coop must buy wholesale bulk power, emergency power, maintenance power, etc. from the utility directly adjoining it geographically. It has no other alternatives (Gutman - PT-22).

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The right to buy transmission services is essential both to permit competition to exist in the wholesale power market and to reduce costs through the establishment of competition and coordination. (Gutman - PT-26).

B. Other Areas of the United States are Characterized by Small System Participation in Regional Coordinated Development and Operation

XIII-14 The intersystem coordinating arrangements and power supply arrangements denied to the smaller electric systems in the relevant market are made available to smaller systems in other parts of the country through a variety of coordinating organizations. The organizations vary from informal planning groups such as the Western Energy Supply and Transmission Associates (WEST) consisting of 23 utilities in nine southwestern states to a tightly coordinated operating group such as the New England Power Pool Agreement (NEPOOL) which is opened to all electric systems in that section of the country.

XIII-15        The degree of intersystem coordinating arrangements among other groups of utilities range somewhere between the WEST group and the more formal NEPOOL group and include such groups as the Northwest Power Pool (NWPP) and the Pennsylvania, New Jersey, Maryland Interconnection (PJM).

XIII-16        While the actual method by which these coordinating organizations implement their intersystem arrangements differ, they all offer a wide degree of latitude regarding the ability of smaller systems to benefit from intersystem coordinating arrangements through direct or indirect membership.

XIII-17        Typical of the organizational diversity of the members of such coordinating organizations are the members of WEST <sup>85/</sup> which consists of 12 privately owned companies; five municipal systems; three generation and transmission cooperatives; two irrigation districts and one state authority. Also typical is the range in the sizes of the various systems which make up these coordinating groups. For example, the largest system in WEST, Southern California Edison Company, owns generation of 11211 Mw and 8600 miles of transmission. In contrast, Plains Electric Generation & Transmission Cooperatives, Inc. owns generation of 50 Mw and less than 500 miles of transmission. Various members of WEST have installed jointly

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<sup>85/</sup> NPS III-3-193, 1970.

two 750 Mw coal fired units at Four Corners, New Mexico and plan to construct jointly two 750 Mw coal fired units at Mohave, Arizona on Colorado River.

XIII-18 Several members of WEST are also undertaking a nuclear generation program in which joint ownership of nuclear units is anticipated. Application for the program's first nuclear station, Arizona Nuclear Power Project was submitted in July of 1974. As this time, the joint owners of the plant include four large, private utilities in Arizona and New Mexico and the Salt River Project, a state agency located in Arizona, but ownership participation in this plant has also been offered to smaller utilities in Arizona and New Mexico.

XIII-19 The Northwest Power Pool <sup>86/</sup> (NWPP) was one of the earliest interconnected groups formed. Organized in the early 1940s by six systems located in Utah, Montana, Idaho, Washington, Oregon and Canada, it has expanded to include 18 systems, two of which are in Canada. As in WEST membership, NWPP consists of both privately run and publicly owned systems, including municipal, Federal and Provincial. As an outgrowth of these pool operations, other coordinating groups have been formed, among which is the Pacific Northwest Coordination Agreement (PNCA).

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<sup>86/</sup> NPS 1970, p. III-3-189, 190.

This group coordinates the electric power needs for over 15 systems including the City of Seattle which owns generating facilities with capability of 1500 Mw and over 600 miles of transmission, and the Bonneville Power Administration (BPA) which owns no generating facilities but serves as the supplying agency for over 100 electric systems.

XIII-20        Still another coordination group in the northwest is Washington Public Power Supply System (WPPSS) which consists of 18 public utility districts and three municipal utilities. WPPSS has undertaken to rely heavily on nuclear generation to solve its future power needs and it has given numerous utilities in the region the opportunity to participate in its planned nuclear units. Planned in conjunction with BPA, Nuclear Project No. 1 will involve 104 publicly and cooperatively-owned firms and five private <sup>87/</sup> utilities. Though the output of Nuclear Project No. 3 will be shared by WPPSS members and only four private firms, Nuclear Project No. 2 <sup>88/</sup> will have 95 publicly and consumer-owned participants. <sup>89/</sup>

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<sup>87/</sup> See prospectus dated Feb. 8, 1973 of WPPSS for issuance of \$25,000,000 of 4.25% notes to finance Nuclear Project No. 1 (See Appendix G).

<sup>88/</sup> See question 12 of Information Requested by the Attorney General for Antitrust review furnished with the WPPSS Application for Nuclear Project No. 1 (See Appendix H).

<sup>89/</sup> See Application of Washington Public Power Supply System for a Construction Permit and Facility License Docket No. 50-397 for Nuclear Project No. 2 at Hanford, Washington.

XIII-21        While only a few of the several coordinating groups in the West region have been mentioned, it is apparent that much consideration has been given to the problem of how to allow small systems to participate in economies inherent in large-scale power developments. In addition to the example of the WPPSS projects, it has been suggested by utilities of that area that "[s]mall systems may also be able to act in concert to install large units. . . and may find it desirable to participate in wheeling arrangements to deliver power from such jointly sponsored plants without themselves constructing transmission lines."<sup>90/</sup> This type of wheeling arrangement is presently being implemented by members of the Rocky Mountain Power Pool, and avoids the duplication of facilities and land use. According to these electric systems "Coordinated Planning and development among large and small systems on an area-wide basis provides the best assurance of optimum resource development."<sup>91/</sup>

XIII-22        Another group which is heavily dedicated to nuclear power is the PJM group, consisting of six systems with operations in Maryland, Pennsylvania, New Jersey, Delaware, District of Columbia, and part of Virginia. Presently PJM members are operating two nuclear units and are planning to operate

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<sup>90/</sup> NPS 1970, p. III-3-196.

<sup>91/</sup> Ibid.



an additional ten units in the near future. In addition the group is constructing approximately 600 miles of 500 Kv transmission lines which will interconnect these generating plants.<sup>92/</sup>

XIII-23        The PJM agreement is flexible in that it permits member companies to include other systems with which it operates in parallel as part of the power pool. Thus, three municipality owned systems are also satellite members. One is the City of Dover, Delaware which is interconnected with Delmarva Power and Light, which in turn has an agreement with Philadelphia Electric Co., a PJM signatory. The other is the City of Vineland, New Jersey, which is interconnected with Atlantic City Electric Co. which is also interconnected with Philadelphia Electric Co. These municipal systems benefit from coordinated planning and operation of the PJM Pool, by accepting requirements for pool participation similar to the requirements imposed on other pool members.<sup>93/</sup>

XIII-24        Another group of utility systems, far removed from the group in the northwest, has organized a highly formalized power pool open to all utilities.

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<sup>92/</sup> NPS 1970, pp. II-1-77 through 81.

<sup>93/</sup> Ibid.

The New England Power Pool Agreement (NEPOOL) permits membership to any electric system located in the six-state New England area, regardless of size, type of ownership, or degree of vertical integration.<sup>94/</sup> As a result the approximately 40 members of NEPOOL vary greatly by type. Some members own no generation, others have less than 100 Mw, while still other systems are completely integrated controlling as much as 2000 Mw of generation and hundreds of miles of high voltage transmission.

XIII-25        Despite the organizational diversity of NEPOOL members, the planning of pool facilities is completely coordinated. Thus, all members are cognizant of existing generation and transmission capacities within their area and can plan to meet their loads more efficiently. Many modern base-load generating units are jointly owned, including seven nuclear projects. Additionally, if any member has excess capacity it must be offered on a unit purchase basis to members with capacity deficiencies. Operations are also coordinated so that power is provided to any member system during periods of emergency and maintenance.

C.    Intersystem Coordination Is Lacking Among Systems in the Relevant Market

XIII-26        Organizationally diversified systems benefit from improved power supply reliability and economy by coordinating planning and operations

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<sup>94/</sup> NPS 1970, p. II-1-73-75.

(Wein - PT, p.64). This is true whether the system is a member of a tightly knit group such as NEPOOL or a member of PNCA whose members are not bound by contractual agreements but by mutual cooperation. Such cooperation is not found among the electric systems in Consumers' service area, because Consumers has used its dominant position to deny meaningful coordination with or among systems within its service area who were otherwise interested in such arrangements.

XIII-27 For example, during the period 1963-64 the Wolverine and Northern Michigan cooperatives, two members of MMCPP, were unable to reach agreement on a contract for emergency power with Consumers, the only system owning high voltage transmission with which members of MMCPP can readily coordinate (Steinbrecher - Tr.1160). Consumers stated that it did not see any benefits it could derive from such an arrangement and instead offered through a supplier-customer relationship to supply all of the load growth requirements of the pool. Negotiations resumed in 1969, but again were not fruitful. <sup>95/</sup>

XIII-28 Some systems have been successful in negotiating contracts with Consumers for emergency power, but these contracts include provisions

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<sup>95/</sup> Advice Letter from Attorney General, To Bertram H. Schur, from Richard McLaran, June 21, 1971.

which effectively limit the small systems' alternatives, and are not typical of contracts among the member of other coordinating groups (Chayavadhanangkur - PT, p.21). For example, in its contracts to provide emergency power to the Cities of Lansing and Holland, Consumers does not undertake to obtain power from other interconnected utilities if it does not have power available to meet either city's emergency.

XIII-29           While Lansing's ability to obtain emergency power is severely limited, a grave concern in most circumstances, Lansing because of its relatively large load, has installed larger and more efficient units than the other smaller systems in Consumers service area. The City of Holland is not as fortunate. Under the provisions of its contract with Consumers, the formula which determines the amount of emergency power Holland will receive is designed to provide for a decrease in emergency power as Holland increases the size of its largest unit (Chayavadhanangkur - PT, p.21). In effect, Holland is limited to installing units of approximately the size of its second largest unit,<sup>96/</sup> presently 22 Mw in size, and is prevented from installing larger, more efficient, generating units.

XIII-30           In other instances in which smaller systems do not have contracts for emergency power with Consumers it appears that they are planning to meet

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<sup>96/</sup> See agreement dated 11/15/67 between Consumers and the City of Holland, Supplement A thereto (DJ-Exhibit 100).

emergencies through the more costly device of a partial requirements rate schedule in lieu of emergency assistance arrangements that are common to intersystem coordination (Wolfe - Tr.1564). The partial requirement contracts which Consumers has with its customers contains a demand and energy rate block structure and an adjustment for fuel and taxes. Demand is determined as the maximum use during any 15-minute period of the month and is subject to a 60% eleven-month ratchet but not less than a stated minimum KVA (Chayavadhanangkur - Tr.5119; Wolfe - Tr.1567, 1568). This demand related ratchet provision has a significant impact on future planning for new generation and in effect discourages the installation of any unit (or a larger unit if generation already exists) since the penalty caused by an outage of a unit must be paid for as an eleven-month period.<sup>97/</sup>

D. The Following Proposed Relief Will Remedy the Inconsistency

1. Justification for Proposed Relief

XIII-31

The Staff believes that the information and materials submitted herein lead to several conclusions. First, a situation inconsistent with the antitrust laws is being maintained by the Consumers Power Company by its use of its dominance in the relevant market by denying access to coordinated

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<sup>97/</sup> See Consumers' wholesale contract rate for resale service: partial purchase (Contract Rate PP-1; Applicant's Exhibit 11, 003).

developments and operations. Second, there is a relationship between the situation and the activities under the license. Third, this situation will be maintained by the granting of unconditioned licenses. Finally, since the activity under the licenses would maintain the situation inconsistent with the antitrust laws, it is appropriate that the licenses be conditioned to alleviate the situation as authorized by section 105c(6) of the Atomic Energy Act.

XIII-32           While public regulation at the retail level has sought to avoid wasteful duplication of facilities in order to promote efficiency, regulatory authority at the wholesale level by the Federal Power Commission (FPC) is limited. Essentially, the FPC has the authority to regulate wholesale rates for those electric systems engaged in interstate exchanges of power and services and to compel, under emergency conditions, system interconnection for purposes of reliability.<sup>98/</sup> Generally, the FPC cannot compel system interconnection for purposes of coordinated operation or require systems to engage in coordinated development for purposes of economy and efficiency. That is, the FPC cannot order large and small systems to jointly build plants or engage in power exchanges that reduce power supply costs.<sup>98A/</sup> Thus, FPC regulation is not designed to effectuate the diffusion of modern technology, including nuclear technology, for the benefit of the electric utility systems in the State of

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<sup>98/</sup> Federal Power Act, Part II, Section 201(a) and (b), June 1, 1967.

<sup>98A/</sup> Ibid.

Michigan (Wein - Tr. 4205-4037). The Applicant agrees that the FPC's ability to regulate wholesale competition is also limited (Pace - Tr. 7538-7540).

XIII-33 The remedies effected by these conditions will be directed to the dominance possessed by the Applicant with respect to the other electric systems within the relevant market and the use of this dominant position to deny access to coordinated development and operations and to alternative sources of bulk power supply, including nuclear power. The availability of alternatives will provide an opportunity to improve the performance of existing generation, and to put together an improved lower-cost aggregate of sources and types of supply when additional resources are needed. (Muller - PT, p. 37, Wolfe - Tr. 1717). The ability of all electric systems to participate in the benefits of technological change will thus provide an opportunity for higher levels of performance by all industry members, a goal which the antitrust laws are designed to preserve.

XIII-34 Under similar circumstances where it has been necessary to remedy an antitrust condition, Applicants have agreed to the imposition of similar conditions in their nuclear facility licenses. To date, nineteen Applicants have agreed to accept conditions recommended by either the Department of Justice or the Staff of the Atomic Energy Commission.<sup>99/</sup>

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<sup>99/</sup> See Docket Nos. 50-302; 50-269, 270, 287; 50-361, 362; 50-341; 50-369, 370; 50-367; 50-366; 50-404, 405; 50-400, 401, 402, 403; 50-413, 414; 50-424, 425, 426, 427; 50-416, 417; 50-389; 50-434, 435; 50-445, 446; 50-452, 453; 50-458, 459; 50-460; 50-461, 462; 50-463, 464.

XIII-35           The Staff is of the opinion that such conditions are consistent with the legal theory discussed above and, moreover, as shown, are consistent with industry practice reflected by a large sector of the electric utility industry.

XIII-36           The following five conditions are prefaced by a set of Definitions and a Statement of General Understanding to clarify and complement the conditions.

2.    License Conditions for Midland Nuclear Station

a.    Definitions

XIII-37                       *"Licensee" means Consumers Power Company or any successor or assignee of this license and includes each present or future wholly-owned subsidiary and any successor to it.*

XIII-38           *"Applicable area" refers to the "relevant market" as defined in Section VII, supra.*

XIII-39           *"Bulk power" refers to electric power which is made available to "Licensee" or a receiving "entity" for resale by the "Licensee" or "entity".*

XIII-40           *"Unit power" refers to "bulk power" which is produced by a specific designated generating unit.*



XIII-41            *"Bulk power transactions" refers to specific arrangements for the purchase, sale, exchange and/or transmission of "bulk power".*

XIII-42            *"Entity" means a person, private or public corporation, municipality, rural electric cooperative, joint stock association, business trust, or lawful association of the foregoing, owning, operating or proposing to own or operate equipment or facilities for the generation, transmission or distribution of electricity, provided that, except for municipalities or rural electric cooperatives, "entity" is restricted to those which are or will be public utilities under the laws of the State of Michigan or under the Federal Power Act, and are or will be providing electric service under a contract or rate schedule on file with and subject to the regulation of the state regulatory commission or the Federal Power Commission.*

b.            General Understanding

XIII-43            *"Licensee" recognizes that it is generally in the public interest for electric utilities to interconnect, coordinate for reliability and economy and engage in "bulk power transactions" in order to increase interconnected system reliability and reduce the costs of electric power. "Bulk power transactions" should be such as to provide net benefits both to the parties and compensation should be such that neither party would have a net detriment. The benefits to participants in such arrangements need not*

necessarily be equal and the benefits realized by a small system may be greater than those realized by a larger system. However, neither "licensee" nor any other entity should be obligated to enter into such an arrangement if (1) to do so would violate any lawfully existing, contracts it has with a third party or (2) such arrangements would jeopardize its ability to maintain reliable service. "Licensee" and other parties are to be compensated, in accordance with effective rate schedules, for all facilities required and/or services rendered. Rate schedules, as required to provide for the facilities and arrangements needed to implement the license conditions herein, including provisions as are reasonably necessary to protect the adequacy and reliability of the electrical system, are to be submitted by "Licensee" to the regulatory agency having jurisdiction thereof. The following conditions shall be implemented in a manner consistent with the provisions of the Federal Power Act and any applicable state or local statutes and all rates, charges or practices in connection therewith are to be subject to the approval of regulatory agencies having jurisdiction over them. In implementing the conditions which follow "licensee" will act in accordance with the foregoing principles.

I. Access to Nuclear Units

XIII-44

"Licensee" shall offer an opportunity to participate in the Midland Nuclear Units and any other nuclear generating unit(s) which it

may construct, own and operate severally or jointly, during the term of the instant license or any extension or renewal thereof, to any "entity(ies)" in the "applicable area". Such participation shall be by an ownership interest, or by equity participation, or by a contractual right to purchase a portion of the output of such units at the option of the "entity(ies)" or on any other mutually agreeable basis. Such participation shall be in reasonable amounts as mutually agreed to by the parties or, in the absence of such agreements, as determined or approved by the Atomic Energy Commission.

XIII-45        In the event that during the term of the instant license, or any extension or renewal thereof, "Licensee" is afforded an opportunity to participate in the ownership of or rights to a portion of the output of one or more other nuclear generating units which "Licensee" does not construct or operate, "Licensee" shall exert its best efforts to obtain participation in such nuclear units for any "entities" in the "applicable area" requesting such participation on terms no less favorable than the terms of "Licensee's" participation therein.

XIII-46        In order for the municipals, electric cooperatives and small investor-owned electric utilities in the "applicable area" to remain in the competitive

market place with Consumers Power Company, it is vital that they have access to the benefits of low cost nuclear power. (Mayben - Tr.2649, 2825, Aymond - Tr.6353). Because of the small size of the above group of electric systems, taken in the aggregate, it is not economically feasible for them to build a nuclear unit on their own (Brush - Tr.2292, Fletcher - Tr.4333). The smallest economically attractive nuclear unit is approximately 500 Mw (Mayben - Tr.2808, Wolfe - Tr.1679) while the combined peak loads of the above group was less than 500 Mw in 1972.

XIII-47 Nuclear power will be the lowest cost base load power available in the foreseeable future. (Aymond - Tr.6353, Brush - Tr.2354, Wolfe - Tr.1721). It has been shown that coordinated development by the small electric systems in the "applicable area" using nuclear units can result in an approximate 16-17% decrease in bulk power costs when compared to isolated operation. (Helfman - PT, p.31).

XIII-48 The prospect of low cost power is not the only relevant consideration, however. Nuclear power holds out the promise for decreasing environmental impacts, and because of the fuel shortage, regardless of the difference in costs, access to nuclear power is vitally important. (Brush - Tr.2302, 2303). In other words, it is not just a question of the cost of generation,

it is largely a question of the long term supply of alternative sources of fossil fuel (Chayavadhanangkur - Tr.5140, Mayben - Tr.2825).

b. Interconnection

XIII-49

"Licensee" shall interconnect with any "entity" in the "applicable area" which owns and operates, or has access rights to, or which has undertaken to negotiate firm contractual obligations thereof, either separately or jointly with others, to provide some or all of its bulk power supply and which requests such interconnection for one or more of the following purposes:

- (a) maintenance and coordination of reserves, including, where appropriate, the purchase and sale thereof,
- (b) emergency support,
- (c) maintenance support,
- (d) economy energy exchanges,
- (e) purchase and sale of firm and non-firm capacity and energy, and
- (f) delivery of "unit power" or other participation power.

XIII-50

The interconnection agreement shall be consistent with the operating requirements of "licensee's" and the participating "entity's" systems.

XIII-51 Without the benefits of interconnection arrangements and the associated coordination, even the largest electric systems would find it difficult to justify the installation of large base load generating units, whether fossil or nuclear fueled. (Rogers - Tr.5545). Indeed, this applies even more strongly to the smaller electric systems such as those existing in Michigan's Lower Peninsula (Mayben - Tr.2842).

Without the use of the joint generation and transmission system and the interconnections and interchange arrangements that Consumers Power Company has, it is impossible for Intervenor to install generation of the type and size of the Midland Units. (Chayavadhanangkur - PT, p.17).

XIII-52 The installation of economic nuclear generation becomes possible only when each of the small electric systems becomes interconnected with Consumers on a fully coordinated power pooling basis. (Helfman - PT, p.34). It has been said that without access to interconnection and coordination a small system cannot even consider nuclear power as an alternative. (Mayben - Tr.2845, 2842).

Indeed, Consumers Power Company has the ability to nullify any advantages that Intervenor may obtain from an Atomic Energy Commission order allowing participation by denying access to transmission and coordination or by granting it on unfavorable terms and conditions. (Chayavadhanangkur - PT, p.19).

XIII-53

Reserve coordination is vitally important if an electric system is to operate in the most efficient manner. (Muller - PT, pp.19, 20; Wein - PT, p.62; Helfman - Pt, p.34; Chayavadhanangkur - PT, pp.10, 13; Brush - Tr.2217). The ability to share reserves allows the system the possibility of decreasing investment without sacrificing system reliability. This is accomplished through the reliance on the interconnected neighbors to provide emergency support in lieu of providing the emergency reserves on his own system. The advantages of emergency support are documented in the record. (Mayben - Tr.2569; Chayavadhanangkur - PT, pp.10, 18; Wein - PT, p.62; Muller - PT, p.21; Aymond - Tr.6637, 6257). Maintenance support is related to emergency support in that a small system could effectively maintain their generating units without the fear that simultaneous outages of other generating units would cause an undue burden on its customers. (Muller - PT, p.21; Wein - PT, p.62; Aymond - Tr.6257, 6637). Economy energy exchanges are important because both parties to the transaction receive economic benefits from the transaction through a splitting of the savings. (Wein - PT, p.62; Muller - PT, p.21; Aymond - Tr.6257; Wolfe - Tr.1590). An important aspect of the operation of an electric system is the ability to purchase firm or non-firm capacity on a long or short term basis. This ability allows the system to cover equipment outages delays in planned construction or greater-than-expected load

growth. (Muller - PT, pp.19, 21; Wein - PT, pp.63, 64; Chayavadhanangkur - PT, pp.10, 22 ). The delivery of any form of access power is required if the access is to be consummated. (Brush - Tr.2293, 2345; Rogers - Tr.5531; Mayben - Tr.2821; Chayavadhanangkur - PT, p.29; Wolfe - Tr.1731).

c. Reserve Requirement

XIII-54

"Licensee" and the "entities" to a reserve sharing arrangement shall from time to time jointly establish the minimum reserves to be installed and/or provided under contractual arrangements as necessary to maintain in total a reserve margin sufficient to provide adequate reliability of power to the interconnected systems of the parties. The allocation of the reserve responsibility among the parties of the reserve sharing arrangement shall be on a reasonable basis as mutually agreed or, in the absence of such agreement as determined by the Atomic Energy Commission.

XIII-55

The parties to such a reserve sharing arrangement shall provide such amounts of spinning and operating reserve capacity as may be adequate to avoid the imposition of unreasonable demands on the others in meeting the normal contingencies on operating their systems. However, in no circumstances shall any party's spinning or operating reserve requirement exceed its allocated reserve responsibility.



- XIII-56           A primary benefit of interconnected operations is the ability to pool and share the installed reserves (Brush - Tr.2217, Wolfe - Tr.1635). When an electric system is forced to operate in isolation, it is necessary for that system to carry as its reserves an amount equal to or greater than its largest unit. (Chayavadhanangkur - PT, p.13, Mayben - Tr.2563). Under a reserve sharing arrangement, the system would have access to the reserves of the other members of the pool if a generation deficiency should occur. All members to the reserve sharing arrangement should be able to decrease their individual reserve requirements under this type of arrangement. (Wein - PT, p.63, Chayavadhanangkur - PT, p.13).
- XIII-57           One way in which a large electric system can negate some of the advantages of interconnection is to impose an inequitable reserve responsibility upon the smaller system. For example, in the interconnection agreement between Consumers Power Company and the City of Holland, Michigan, the City is required to maintain 45-48% reserves while Consumers, as an equal member of the Michigan Pool, maintains 15-20% reserves. (Chayavadhanangkur - PT, p.21). This is in contrast to a trend towards equalized percentage reserves in coordinating agreements. (Rogers - Tr.5520). One of the essential elements of coordination is equalized reserves. (Rogers - Tr.526). Pooling reserves can directly reduce costs by allowing economies

of scale, an efficient mix of generation and lesser total reserves. (Chayavadhanangkur - PT, p.14; Wolfe - Tr.1635; Brush - Tr.2217).

d. Transmission Services

XIII-58

"Licensee" shall transmit "bulk power" over its transmission facilities to, from, between or among "entities" with which it is interconnected now or in the future; and between any such interconnected "entity(ies)", and any other "entity(ies)" engaging in bulk power supply between whose facilities "Licensee's" transmission lines and the transmission lines of others would form a continuous electrical path, provided that (1) permission to utilize such other transmission lines has been obtained, and (2) the arrangements reasonably can be accommodated from a technical standpoint. Any "entity(ies)" requesting such transmission arrangements are obligated to give reasonable advance notice of its (their) schedule and of power to be transmitted over "Licensee's" facilities.

XIII-59

"Licensee" shall include in its planning and construction program sufficient transmission capacity as required for the transmission services requested herein provided that the "entity(ies)" give "licensee" sufficient advance notice as may be necessary to accommodate its (their) requirements from a technical standpoint. "Licensee" shall not be required to construct transmission facilities which will be of no demonstrable present or future benefit to "licensee".

XIII-60

An essential ingredient in any coordination agreement is access to the use of an existing high voltage transmission system. (Rogers - Tr.5526; Fletcher - Tr.4331; Brush - Tr.2293, 2345, 2351; Wolfe - Tr.1731). The availability of transmission is extremely significant in connection with the ability to secure access to regional power exchange market. (Mayben - Tr.2768). However, it would not be economically or technically feasible to construct the kinds of facilities necessary to interconnect the smaller systems. The costs of constructing high voltage transmission lines are prohibitively expensive for most municipals, cooperatives and small investor owned utilities. (Fletcher - Tr.4282, Wolfe - Tr.1729). Therefore, it is essential that the smaller electric systems obtain the rights to utilize the intervening transmission system owned by Consumers Power Company. (Mayben - Tr.2769). Access to Consumers' transmission facilities would avoid an unnecessary duplication of facilities and thus decrease environmental impact and enable use of higher voltage, more efficient, transmission lines. (Chayavadhanangkur - PT, p.26 and generally Sections X and XI, supra).

e. Power For Resale

XIII-61

"Licensee" shall sell power for resale to any "entity" in the "applicable area" now engaging or proposing to engage in the retail distribution and sale of electric power for full or partial requirements, at "Licensee's" filed and effective rates.

XIV. LEGAL ARGUMENT

- A. It is the Staff's Position that the Criteria of the Federal Trade Commission Act Provides a Sound Framework for Analysis Under § 105c

XIV-1           The Atomic Energy Act of 1954, as amended in 1970, refers to several antitrust statutes which must be considered in determining whether or not the granting of a license will create or maintain a situation inconsistent with the antitrust laws. The Federal Trade Commission Act is specifically recognized as one of these laws. In the present case, an inconsistency with the Federal Trade Commission Act (FTC Act) can be used to establish a situation inconsistent with the antitrust laws.

XIV-2           Within the parameters of Section 5 of the FTC Act is conduct which amounts to violations of the Sherman or Clayton Acts as well as conduct which is unfair or which, if allowed to go unabated, will amount to a violation of these statutes.<sup>100/</sup>

XIV-3           In FTC v. Cement Institute,<sup>101/</sup> the FTC challenged a pricing system as being an instrumentality for price fixing and thus a violation of Section 5.

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<sup>100/</sup> See Fashion Originator's Guild v. FTC, 312 U.S. 457 (1940).

<sup>101/</sup> 333 U.S. 683 (1947).

The government had previously moved against the same system under Section 1 of the Sherman Act, but had failed to prove a combination or agreement to fix prices.<sup>102/</sup>

XIV-4 Referring to the overlap of the two statutes in relation to collusive practices, the Court in Cement Institute stated:

... [A]lthough all conduct violative of the Sherman Act may likewise come within the unfair trade practice prohibitions of the Federal Trade Commission Act, the converse is not necessarily true. It has long been recognized that there are many unfair methods of competition that do not assume the proportions of Sherman Act violations.<sup>103/</sup>

XIV-5 Thus, the Court in Cement Institute held that not only did the Commission have the power to declare unlawful practices which might restrain competition in their incipient stages, it also had the power to declare unlawful practices which violate the Sherman Act. The scope of Section 5 was further expanded in FTC v. Motion Picture Advertising Service Company, Inc.<sup>104/</sup> In that case, the respondent and three similar companies held exclusive agreements with three-fourths of all the theaters in the United

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<sup>102/</sup> Cement Manufactures Protective Association v. United States,  
268 U.S. 588 (1925).

<sup>103/</sup> 333 U.S. at 694 (1948).

<sup>104/</sup> 344 U.S. 392 (1953).

States for the showing of their films. No concerted activity was alleged; the complaint challenged only the legality of unilateral action by each respondent.

XIV-6           The Court held Section 5 was violated. In discussing the scope of Section 5, the Court stated:

The "unfair methods of competition" which are condemned under Sec. 5(a) of the Act, are not confined to those that were illegal at common law or those that were condemned by Sherman Act . . . . Congress advisedly left the concept flexible to be defined with particularity by the myriad of cases from the field of business . . . . It is also clear that the Federal Trade Commission Act was designed to supplement and bolster the Sherman Act and the Clayton Act . . . to stop in their incipiency acts and practices which, when full blown, would violate those Acts . . . as well as to condemn as "unfair methods of competition" existing violations of them.<sup>105/</sup> (Emphasis added.)

XIV-7           The Supreme Court has upheld FTC findings of "unfair" practices where the anticompetitive impact, as determined by the Commission was characteristic of the anticompetitive impact caused by conduct specifically proscribed under Sherman and Clayton Act standards. In FTC v. Brown

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<sup>105/</sup> 344 U.S. 392 at 394-395 (1953). This case also held that "...[A]dvise which has sewed up a market so tightly for the benefit of a few falls within the prohibitions of the Sherman Act and is therefore an unfair method of competition within the meaning of the Federal Trade Commission Act."

Shoe Company <sup>106/</sup> and Atlantic Refining Company v. FTC. <sup>107/</sup> the Court upheld the FTC's proscription of practices which had the same anticompetitive effect -- market foreclosure -- as exclusive dealing and tying arrangements, but which violated neither the Sherman Act nor the Clayton Act. The Court said in Atlantic Refining, "All that is necessary in § 5 proceedings ... is to discover conduct that runs counter to the public policy declared in the act." <sup>108/</sup>

XIV-8            A more extensive market analysis was not necessary since, " ... [J]ust as the effect of this plan is similar to that of a tie-in, so is it unnecessary to embark upon a full scale economic analysis of competitive effect." <sup>109/</sup>

XIV-9            In Brown Shoe, the Court recognized that the Commission's power under Section 5 was a " ... broad power ... and is particularly well established with regard to trade practices which conflict with the basic

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<sup>106/</sup> 384 U.S. 316 (1966).

<sup>107/</sup> 381 U.S. 357 (1965).

<sup>108/</sup> Id. at 369 (1965).

<sup>109/</sup> Ibid., 384-385 at pp. 320-321.

policies of the Sherman and Clayton Acts even though such practices may not actually violate these laws.<sup>110/</sup>

XIV-10

The Federal Trade Commission Act does not speak in terms of "monopoly", "contract", "conspiracy" or "agreement"; it speaks in terms of "competition". Section 5 of the FTC Act prevents in the incipiency anti-competitive acts and conditions before they become full-blown violations, not simply to proscribe well-defined anticompetitive behavior. In FTC v. Sperry and Hutchinson Company,<sup>111/</sup> Section 5 of the Federal Trade Commission Act was determined to have a substantive reach which permits the Commission to challenge practices not enumerated in the Clayton Act nor forbidden by the Sherman Act. Section 5 of the FTC Act gives the FTC broad powers to prevent unfair methods of competition and unfair or deceptive acts or practices other than those which violate the letter or the spirit of the Sherman and Clayton antitrust laws. As stated by the Court:

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<sup>110/</sup> After finding that Brown's contracts conflicted with the central policies of both Section 1 of the Sherman Act and Section 3 of the Clayton Act, the Court rejected respondent's agreement that the Commission was required to prove a substantial lessening of Competition or a tendency to create a monopoly, as would be required under Section 3. It acknowledged that such proof would be necessary to establish a violation of Section 3, but felt it inappropriate under Section 5, because the Commission is empowered "to arrest trade restraints in their incipiency without proof that they amount to an outright violation of Section 3 of the Clayton Act or other provisions of the antitrust laws."

<sup>111/</sup> 405 U.S. 233 (1972).



[T]he Federal Trade Commission does not arrogate excessive power to itself if, in measuring a practice against the elusive, but congressionally mandated standard of fairness, it, like a court of equity, considers public values beyond simply those enshrined in the letter of encompassed in the spirit of the antitrust laws.<sup>112/</sup>

XIV-11 As a guide to the public policy, the Federal Trade Commission may look to the antitrust laws themselves and to the decisions under them.<sup>113/</sup> In addition, it may act to remedy a situation which involves incipient violations of the antitrust laws.<sup>114/</sup> To sum up, the antitrust laws were "designed to be comprehensive charter of economic liberty aimed at preserving full and unfettered competition as the rule of trade."<sup>115/</sup>

XIV-12 It is the Staff's position that the "FTC Standard" suggested above is fully applicable to the facts in this proceeding.

XIV-13 The main thrust of the Staff's position in this matter is that the situation inconsistent with the antitrust laws that will be maintained by an unconditioned license is a situation inconsistent with Section 5 of the Federal

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<sup>112/</sup> 405 U.S. at 244 (1972).

<sup>113/</sup> Northern Pacific Railroad v. U.S., 356 U.S. 1, 4 (1958).

<sup>114/</sup> FTC v. Brown Shoe Company, 384 U.S. 316 (1966).

<sup>115/</sup> Supra, note 6.

Trade Commission Act and the policies underlying the antitrust laws. However, we believe that a short analysis of some of the leading monopoly cases will enable the Board to obtain a focus on the Staff's dominance theory "in light of the antitrust policies relating to monopoly".

B. Consumers Power Company Dominates the Relevant Market

XIV-14           The courts have on several occasions defined "monopoly power". For example, in United States v. E.I. duPont de Nemours,<sup>116/</sup> it was defined as the power to control prices or the ability to exclude competition.<sup>117/</sup> Practically speaking, it is clear that the requisite power may be found to exist even without any showing that prices actually have been fixed or that

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<sup>116/</sup> 351 U.S. 377 (1956); which also makes clear that the passage of time does not immunize the transaction from attack.

<sup>117/</sup> This definition was affirmed in United States v. Grinnell, 384 U.S. 563 (1966).

competitors were actually excluded.<sup>118/</sup> The question is whether the power exists to accomplish such ends.<sup>119/</sup>

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<sup>118/</sup> 351 U.S. at 389.

<sup>119/</sup> American Tobacco Company v. United States, 328 U.S. 781 (1946). In connection with this case, consider, Eugene V. Rostow's interpretation in his book, A National Policy for the Oil Industry, Yale University Press (1948), at p. 13:

"When three companies produce so large a percentage of market supply, that fact alone is almost sufficient evidence that the statute is violated. Ruthless and predatory behavior need not be shown. The actual elimination of small competitors is unnecessary . . . . Parallel action, price leadership, a reliance on advertising rather than price competition as a means of inducing changes in each seller's share of the market, and above all, size -- the market position of a small number of large sellers or buyers -- these are now key points to be proved in a case of monopoly, or of combination in restraint of trade. From such evidence inferences of combination will be drawn, if cautious pleaders rely on Section 1 as well as on Section 2. But the content of an anti-trust case has been enormously limited and simplified, under Section 1 as well as Section 2. Painstaking search for scraps of evidence with a conspiratorial atmosphere are no longer necessary. There need be no parade of small business men as witnesses, to testify that they have been driven from the trade, and their lives ruined, by the ruthless squeeze of monopolistic pressure. Under the Tobacco case, the economic fact of monopoly is very close to being the legal proof of monopoly. The decisive elements are the power to assert a degree of control over price and output in the market as a whole; and the power to deter or discourage potential competition -- even, as Judge Hand said, by embracing 'each new opportunity as it opened,' and facing 'every new comer with new capacity already geared into a great organization, having the advantage of experience, trade connections and the elite of personnel.'"

XIV-15            Although the amount of market power needed to constitute a monopoly has not been quantified precisely, it has been tailored to the factual situation. Clearly, where a party controls more than 80 percent of a market, monopoly power exists.<sup>120/</sup>

XIV-16            Quantification of what constitutes a predominant share of a market also was considered in Alcoa.<sup>121/</sup> The Court found that a 90 percent share of the aluminum market constituted a monopoly. In Philadelphia National Bank,<sup>122/</sup> the court did not specify the exact percentage that would constitute undue concentration but did cite the writings of economists who had recommended a 20 to 25 percent combined share and a 7 to 8 percent increase in concentration as issues of prima facie illegality. In applying this presumptive rule, the court held that at least 30 percent of the commercial banking in the relevant markets was unlawful.

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<sup>120/</sup> See: International Boxing Club v. United States, 358 U.S. 242 (1959) (81% of championship fights).  
United States v. Grinnel Corporation 384 U.S. 563 (1966) (87% of central station alarm business).

<sup>121/</sup> United States v. Aluminum Company of America, 148 F.2d 416 (2nd Cir. 1945).

<sup>122/</sup> Supra, at note 17, an antimerger case.

XIV-17 Consumers dominates the HV generation in the relevant geographic market (sections VIII and IX supra). This figure is well within the percentage range of which has been held presumptive evidence of monopoly power. In American Tobacco, <sup>123/</sup> the Court pointed to the "Big three" 80 percent share of the market for premium brands and 66 percent share of the market for all cigarettes as evidence of control over the entire market.

XIV-18 In United States v. Besser Manufacturing Company, <sup>124/</sup> a 65 percent market share, with the balance of the market divided among 50 other companies, was held to be a monopoly, particularly where the industry was dominated by the defendant's manufacturing process. <sup>125/</sup> In United Banana Company v. United Fruit Company, <sup>126/</sup> a market share of 70 percent was held to be a sufficient demonstration of power.

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<sup>123/</sup> See note 119, supra.

<sup>124/</sup> 96 F.Supp. 304 (E.D. Mich. 1951), aff'd., 343 U.S. 444 (1952).

<sup>125/</sup> In the case at hand, Consumers accomplishes domination by controlling sources of generation and transmission services necessary for economies in bulk power supply. The integration of nuclear power into Consumers' system will result in similar control over the output of the plant (nuclear).

<sup>126/</sup> 245 F.Supp. 161 (D.C. Conn. 1968), aff'd., 362 F.2d 849 (1966).

XIV-19            We do not believe that under the standard set in Section 105c of the Act that it is necessary to establish monopoly power to meet the Sherman Act test. However, showing high market shares will permit the Board to infer existence of a situation inconsistent with the antitrust laws. However, as the Court pointed out in United States v. Columbia Steel,<sup>127/</sup> "The relative effect of percentage command of a market varies with the setting in which that factor is placed."

C.    Consumers Dominance and Control over Essential Resources Coupled with Anticompetitive Policies Constitutes a Situation Inconsistent with Section 2 of the Sherman Act and A Fortiori Constitutes a Situation Inconsistent with Section 5 of the FTC Act

XIV-20            The setting referred to in the Columbia Steel<sup>128/</sup> case which the Staff contends makes the effect of the percentage command of the market pernicious can best be described by analyzing the cases relating to the "bottleneck" or "essential or scarce facility" theory. A. D. Neal, a noted economist, has stated:

The Sherman Act requires that where facilities cannot practically be duplicated by would-be competitors, those

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<sup>127/</sup> 334 U.S. 495, 528 (1948).

<sup>128/</sup> Id., p. 528.

in possession of them must allow them to be shared on fair terms. It is illegal restraint of trade to foreclose the scarce facility.<sup>129/</sup>

XIV-21           The Courts, beginning with United States v. Terminal Railroad Association, 224 U.S. 386 (1912), have consistently adhered to this basic principle. In the Terminal Railroad case, a jointly owned company controlling the principal<sup>al</sup> terminal facilities in St. Louis, Missouri and East St. Louis, Illinois, was declared to be engaging in an illegal restraint on trade when it refused to allow certain competitors to utilize the terminal. The Court based its decision on the arbitrariness of the contract establishing the joint company in excluding non-members and the physical conditions which compelled the use of the combined system by every railroad which desired to cross the Mississippi River.

XIV-22           The Court stated that:

The cost of construction and maintenance of railroad bridges over so great a river makes it impossible for every road [railroad] desiring to enter or pass through the city to have its own bridge.<sup>130/</sup>

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<sup>129/</sup> A. D. Neal, The Antitrust Laws of the U.S.A., Cambridge University Press, 1960 at p. 67.

<sup>130/</sup> 224 U.S. at p. 395.

The result of the geographical and topographical situation is that it is, as a practical matter, impossible for any railroad company to pass through, or even enter St. Louis, so as to be within reach of its industries or commerce, without using the facilities entirely controlled by the terminal company.

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The other companies use the terminal properties because it is not possible to acquire adequate facilities for themselves. The cost to any one company is prohibitive.<sup>131/</sup>

XIV-23            In the relevant geographic market it is impossible in most situations for either municipalities or cooperatives to build nuclear power plants or to coordinate in planning because of the high cost of building the necessary transmission and the inability to utilize the applicant's transmission grid. Any potential for access to nuclear power, alternative sources of bulk power supply and coordinated planning are completely controlled by Consumers Power Company. The ability of Consumers to control access to nuclear power plants and the HV transmission network in effect gives Consumers the right to control the entry of new firms into the bulk power market, to control the growth of competition and the access to nuclear power.

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<sup>131/</sup> Id., at p. 397.



XIV-24            Subsequent to the Terminal Railroad case, the Supreme Court, in Associated Press v. United States,<sup>132/</sup> reaffirmed the "bottleneck" or "essential resource theory."<sup>133/</sup>

XIV-25            In Associated Press, a news association set up a system of by-laws which prohibited members from selling news to non-members, and granted each member powers to block its non-member competitors from membership. The Supreme Court concluded that the association, by systematically stacking the cards in favor of its established members, seriously limited the opportunity for any newspaper to enter into competition where Associated Press members were already publishing. The fact that Associated Press had not achieved a complete monopoly was wholly irrelevant,<sup>134/</sup> as was the fact that the reports of a new association were not "indispensible".<sup>135/</sup> The Court in holding that new entrants must still be allowed

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<sup>132/</sup> 326 U.S. 1 (1945).

<sup>133/</sup> See also Silver v. New York Stock Exchange, 373 U.S. 341 (1963); and International Boxing Club of New York v. United States, 358 U.S. 242 (1959).

<sup>134/</sup> 326 U.S. at p. 13.

<sup>135/</sup> Id., at p. 95.

to share a "facility" on reasonable terms unless it is practicable for them to compete without it, held that:

Inability to buy news from the largest news agency, or any one of its multitude of members, can have most serious effects on the publication of competitive newspapers, both those presently published and those which, but for these restrictions, might be published in the future.<sup>136/</sup> It is obviously fallacious to view the By-laws here in issue as instituting a program to encourage and permit full freedom of sale and disposal of property by its owners. Rather, these publishers have, by concerted arrangements, pooled their power to acquire, to purchase, and to dispose of news reports through the channels of commerce. They have also pooled their economic and news control power and, in exerting into agreements which the District Court found to be plainly designed in the interest of preventing competition.<sup>137/</sup>

XIV-26            Consumers Power, by reason of its pool membership, nuclear power plant capability, control of the coordination medium, and high voltage transmission, can effectively and with intent prevent the development and growth of competition.

XIV-27            In Gamco, Inc. v. Providence Fruit Produce Building, Inc.,<sup>138/</sup>  
practically all the local trade in fruit and vegetable was centered in a

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<sup>136/</sup> Id., at p. 96.

<sup>137/</sup> Id., at p. 97.

<sup>138/</sup> 194 F.2d 484 (1st Cir. 1952), Cert. denied, 344 U.S. 817.

building operated by the defendant. One of the wholesalers experienced financial difficulties and in amalgamating with another wholesaler was denied use of the building based on infringement of a covenant in the lease. In finding that exclusion from the facilities of the market imposed a considerable handicap on Gamco, the Circuit Court of Appeals held that:

... A monopolized resource seldom lacks substitutes; alternatives will not excuse monopolization .... It is only at the building itself that the purchasers to whom a competing wholesaler must sell and the rail facilities which constitute the most economical method of bulk transportation are brought together. To impose upon plaintiff the additional expense of developing another site, attracting buyers, and transshipping his fruit and produce by truck is clearly to extract a monopolists' advantage .... The Act does not merely guarantee the right to create markets; it also insures the right to old ones.<sup>139/</sup>

XIV-28

The Court concluded that the possibility of duplicating the facilities:

... can not of itself destroy the illegality of the asserted monopolization. It is clear ... that exclusion from an appropriate market or business opportunity is actionable notwithstanding substitute opportunities.<sup>140/</sup>

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<sup>139/</sup> Id., at p. 487.

<sup>140/</sup> Id., at p. 488.

XIV-29 In the relevant market without access to the Applicant's transmission services, the municipal and cooperative systems would have to construct many miles of high voltage transmission lines to alternative bulk power suppliers, a process which is prohibitively expensive and uneconomical. Accordingly, without access to Applicant's transmission, the construction of a nuclear plant is out of the question.<sup>141/</sup>

XIV-30 The Staff believes that when a firm has dominant power in a market, it is obliged under the antitrust laws to take the greatest care in not abusing that power. This is particularly meaningful where the essence of the dominant position is the control over some physical facility like a transmission network. A "dominant firm" must share that facility with competitors unless there is some reasonable alternative to the competitor.<sup>142/</sup>

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<sup>141/</sup> In Gamco, the Court continued at p. 489 that "latent monopolist must justify the exclusion of a competitor from a market which he controls. The conjunction of power and motive to exclude with an exclusion not immediately and potentially justified by reasonable business requirements established a prima facie case of the purpose to monopolize."

<sup>142/</sup> See, e.g., Otter Tail Power Company v. U.S., supra, at note 23.

D. A Dominant Firm Cannot in the Circumstances of this Proceeding Refuse to Grant Access to the Nuclear Facility or Associated Transmission

XIV-31 It is well established that a firm that has significant market control cannot refuse to deal or discriminate in its dealings with its customers for the purpose of preserving or extending its dominant position.<sup>143/</sup>

XIV-32 In Eastman Kodak Company v. Southern Photo Materials Company, 273 U.S. 359 (1927), one of the questions posed to the Supreme Court was whether the refusal by a monopolist to sell to a certain class of customers at a dealers' discount was in furtherance of a purpose to monopolize.

XIV-33 The Court held that:

... Although there was no direct evidence -- as there could not well be -- that the defendant's refusal to sell to the plaintiff was in pursuance of a purpose to monopolize, we think that the circumstances disclosed in the evidence sufficiently tended to indicate such purpose, as a matter of just and reasonable inference, to warrant the submission of this question to the jury. "Clearly," as was said by the Court of Appeals, "it could not be held as a matter of law that the defendant was actuated by innocent motives of law rather than by an intention and desire to perpetuate a monopoly."<sup>144/</sup>

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<sup>143/</sup> U.S. v. Colgate, 205 U.S. 300 (1919).

<sup>144/</sup> 273 U.S. at p. 375.

XIV-34 In this proceeding the refusals to grant access to transmission services and coordinated planning in connection with the output from the nuclear power plant ("unique") constitutes a purposeful attempt by Consumers to maintain its dominant position and stifle competition, thereby maintaining a situation inconsistent with the antitrust laws and the policies underlying them.

XIV-35 In Lorain Journal v. United States, 342 U.S. 143 (1951), the publisher of the only daily local newspaper enjoyed a substantial share of the local market of the mass dissemination of news and advertising. A radio station was licensed, and derived most of its income from local and national advertising in direct competition with Lorain Journal. The Court held that its effort to retain its monopoly by refusing to accept local advertising from customers who also advertised through the radio station was a violation of Section 2 of the Sherman Act. The Court reasoned that:

It is consistent ... to hold here that a single newspaper, already enjoying a substantial monopoly in its area, violates the "attempt to monopolize" clause of § 2 when it uses its monopoly to destroy threatened competition.<sup>145/</sup>

XIV-36 The Applicant, the single dominant electric utility in the relevant geographical market enjoys substantial control and dominance over HV

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<sup>145/</sup> 342 U.S. at p. 154.

transmission and has the power to prevent competition (Section VIII and IX, infra). <sup>146/</sup> In fact, the record in this matter establishes that this power has been used. Since 1960, the Applicant has made offers or proposals to purchase five members of the Michigan Municipal Electric Association and has acquired two of them, Grayling (1961) and Allengan (1968).

XIV-37 In addition to prohibiting a refusal to deal for the purpose of preserving or extending a monopoly, where monopolization has not been achieved, a refusal to deal which is a part of an attempt to monopolize is itself a violation of Section 2 of the Sherman Act. <sup>147/</sup> Similarly, it is well established that refusals to deal in one market for the purpose of maintaining a monopoly in another market have long been condemned. <sup>148/</sup> A fortiori, Applicant's market control, even if it falls short of the Sherman

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<sup>146/</sup> For a discussion on unilateral refusals to deal, see United States v. Colgate & Company, 250 U.S. 300 (1919).

<sup>147/</sup> See Swift and Company v. United States, 196 U.S. 375, 396 (1905); American Tobacco Company v. United States, 328 U.S. 781, 785, 809 (1945); and United States v. Aluminum Company of America, 148 F.2d 416, 474-475 (2d Cir. 1945).

<sup>148/</sup> See Lorain Journal v. United States, supra; United States v. Colgate & Company, supra; and Eastmen Kodak v. Southern Photo Materials Company, supra. United States v. Pacific & Arctic Railway & Navigation Company, supra; and United States v. Klearflax Linen Looms, supra.

Act monopoly test, is maintaining a situation that is inconsistent with the antitrust laws or the policies underlying them.

XIV-38

The relevant geographical market has one large, fully integrated utility which controls a substantial portion of generation, and transmission of economical bulk power supply. The remaining utilities in the area are small electric cooperatives and municipal systems. These small systems are not integrated and are usually limited to being wholesale customers of Consumers. Generally, these wholesale customers do not have access to alternative sources of bulk power supply without the cooperation of the Applicant. In view of the control over transmission that Consumers Power Company enjoys, it can effectively foreclose other utility systems within the area from coordinating and interconnecting among themselves and with third party systems outside this area.

XIV-39

Without the active cooperation of Consumers, smaller systems, public or private, have no way of obtaining a firm bulk power supply from alternative suppliers nor any way of coordinating their systems. Thus, even if the smaller systems could coordinate further among themselves, they would be denied the coordination and interconnection opportunities



with alternative sources of supply that are necessary for planning, financing, and construction of large nuclear units. Accordingly, such actual or potential competitors would be unable to take advantage of the economies of scale enjoyed by Consumers.

XIV-40           By ordinarily declining to provide transmission services separately, to smaller systems on equitable terms ( i.e., the same terms as to other systems such as Detroit Edison), Applicant effectively isolates each system thereby substantially reducing its ability to compete by obtaining access to alternative sources of power or by otherwise coordinating with other utilities. Individual systems are accordingly denied low cost bulk power by virtue of enforced isolation and are dependent on Consumers.

XIV-41           The structure of the electric utility industry is such that a system must assure integrity and reliability. Through its dominance, Consumers has the power to influence the integrity and reliability of small systems operating in the relevant geographic market.

XIV-42           This power includes the ability to (1) exclude smaller systems from access to transmission services, (2) refuse to coordinate with smaller systems, and (3) force smaller systems to maintain larger reserves thereby reducing advantages of generation and creating possible planning disruption.

E. Conclusion of Substantive Anticompetitive Analysis

XIV-43           The Staff believes that the Board, based on the above legal and factual analysis, has a sufficient basis to conclude that a situation inconsistent with both Section 2 of the Sherman Act and Section 5 of the FTC Act exists.

XIV-44           However, the Staff urges the Board to apply the "Federal Trade Commission Standard" (set out in Section ~~V.D.~~<sup>XIV</sup> of this brief) to the facts in this proceeding. It is particularly important in view of the facts that: (1) every violation of the Sherman and Clayton Acts is a violation of the FTC Act; (2) every violation of the FTC Act is not necessarily a violation of the Sherman and Clayton Acts; (3) these premises apply also to "inconsistencies"; (4) Section 105a of the Atomic Energy Act refers to inconsistencies with "any" of the antitrust laws enumerated therein; (5) if the FTC Standard is used when applying Section 105c, the other antitrust laws are automatically taken into consideration; and (6) the burden of proof required under the FTC Standard is significantly less than that which is required under the Sherman and Clayton Acts thereby creating an atmosphere conducive to expeditious hearings.

F. Relief

XIV-45           Antitrust relief should unfetter a market from anticompetitive conduct and "pry open to competition a market that has been closed by defendant's

illegal restraints".<sup>149/</sup> In Ford Motor Company v. United States,<sup>150/</sup> the Court held that relief in an antitrust case must be "effective to redress the violation" and "to restore competition".<sup>151/</sup> It also found that the District Court is clothed with "large discretion" to fit the decree to the special needs of the individual case.<sup>152/</sup>

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<sup>149/</sup> International Salt Company v. United States, 322 U.S. 392, 401 (1947).

<sup>150/</sup> 405 U.S. 562 (1972).

<sup>151/</sup> Id., at p. 563.

<sup>152/</sup> The suggestion that antitrust violators may not be required to do more than return the market place to the status quo is not a correct statement of the law. In United States v. Paramount Pictures, Inc., 334 U.S. 131 (1947), the Court sustained broad injunctions regulating motion picture licenses and clearances which were not related to the status quo ante. Section 4 of the Sherman Act empowers the Attorney General to institute proceedings in equity to prevent and restrain violations of the antitrust laws. The relief which can be afforded under these statutes is not united to the restoration of the status quo ante. The relief must be directed to that which is "necessary and appropriate in the public interest to eliminate the effects of the acquisition offensive to the statute," United States v. E.I. duPont de Nemours & Company, 353 U.S. 586, 607-608, or which will "cure the ill effects of the illegal conduct and assure the public freedom its continuance." United States v. United States Gypsum Company, 340 U.S. 76, 88 (1970).

XIV-46           It is well settled that in Section 5 (FTC Act) cases, the choice of remedial order is committed to the discretion of the Federal Trade Commission, and except where the remedy bears no reasonable relation to the unfair practices found to violate Section 5, the Courts will not reverse or modify the Commission's choice.<sup>153/</sup>

XIV-47           When monopolizing an industry in the violation, the scope of the remedy open to the Commission (FTC) is as broad as that open to the Courts.<sup>154/</sup>

XIV-48           In Federal Trade Commission v. National Lead Company, et al.,<sup>155/</sup> it was held that "in some instances the Court is obliged not only to suppress the unlawful practice but to take such reasonable action as is calculated to preclude the revival of the illegal practices."

XIV-49           In Jacob Siegal Company v. Federal Trade Commission,<sup>156/</sup> the Court named the Commission "the expert body to determine what remedy is necessary

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<sup>153/</sup> L.G. Balfour Company v. FTC, 442 F.2d 1 (1971).

<sup>154/</sup> See note 70, *supra*; Abex Corporation v. FTC, 420 F.2d 928 (1971); and American Cyanamid Company v. FTC, 363 F.2d 757 (1966).

<sup>155/</sup> 352 U.S. 419 (1957).

<sup>156/</sup> 327 U.S. 608 (1946).

to eliminate the unfair or deceptive trade practices which have been disclosed. It had wide latitude for judgment and the Courts will not interfere except where the remedy selected has no reasonable relation to the unlawful practices found to exist.

XIV-50            In United States v. Topco Associates,<sup>157/</sup> the Court said:

In applying these rigid rules, the Court has consistently rejected the notion that naked restraints of trade are to be tolerated because they are well-intended or because they are allegedly developed to increase competition.

Antitrust laws in general, and the Sherman Act in particular, are the Magna Charta of free enterprise. They are as important to the preservation of economic freedom and our free enterprise system as the Bill of Rights is to the protection of our fundamental personal freedoms. And the freedom guaranteed each and every business, no matter how small, is the freedom to compete -- to assert with vigor, imagination, devotion, and ingenuity whatever economic muscle it can muster. Implicit in such freedom is the notion that it cannot be foreclosed with respect to one sector of the economy because certain private citizens or groups believe that such foreclosure might promote greater competition in a more important sector of the economy.

The District Court determined that by limiting the freedom of its individual members to compete with each other, Topco was doing a greater good by fostering competition between members and other large supermarket chains. But the fallacy in this is that Topco has no

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<sup>157/</sup> 405 U.S. 596 (1972).

authority under the Sherman Act to determine the respective values of competition in various sections of the economy. On the contrary, the Sherman Act gives to each Topco member and to each prospective member the right to ascertain for itself whether or not competition with other supermarket chains is more desirable than competition in the sale of Topco brand products. Without territorial restrictions, Topco members may indeed cut each other throats. But, we have never found this possibility sufficient to warrant condoning horizontal restraints of trade.

Just as the territorial restrictions on retailing Topco brand products must fail, so must the territorial restrictions on wholesaling. The considerations are the same, and the Sherman Act requires identical results.

XIV-51            Accordingly, the Staff believes that the proposed relief is consistent with the above precedents.

Respectfully submitted,

Signed  
Joseph Rutberg

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Antitrust Counsel for AEC Regulatory Staff

Robert J. Verdisco

Robert J. Verdisco  
Counsel for AEC Regulatory Staff

Dated at Bethesda, Maryland  
this 8th day of October 1974.

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# ELECTRIC UTILITY TERMS

Prepared by the  
Statistical Committee of the  
**EDISON ELECTRIC INSTITUTE**  
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STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the Petition of CONSUMERS POWER COMPANY, THE DETROIT EDISON COMPANY, and INDIANA & MICHIGAN ELECTRIC COMPANY for approval of proposed agreements for the purpose of establishing certain interconnections and the rendering of certain interconnection services and transactions.

Case No. \_\_\_\_\_

Now come Consumers Power Company ("Consumers"), The Detroit Edison Company ("Detroit Edison"), and Indiana & Michigan Electric Company ("Indiana & Michigan") and represent unto the Commission as follows:

1. That Consumers, Detroit Edison, and Indiana & Michigan are corporations, each being duly authorized to do business as an electric public utility in the State of Michigan. That as a part of their respective public utility businesses, Consumers and Detroit Edison own facilities and are engaged in generating, purchasing, transmitting, distributing and selling electric power and energy wholly within the State of Michigan and Indiana & Michigan, a subsidiary of American Electric Power, Inc. ("AEP"), owns electric facilities and is engaged in generating, purchasing, transmitting, distributing and selling electric power and energy in the States of Indiana and Michigan.

2. That the electric systems of Consumers and Detroit Edison are interconnected and for a number of years Consumers and Detroit Edison have operated under an electric power pooling agreement which provides for pooled operation, coordination of planning, design and

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construction of electric generating and transmitting additions, the rendering of mutual assistance during emergencies, and the effecting of maximum economy in providing the electrical requirements of each system. That the electric system of Indiana & Michigan is a part of the seven-state system of AEP and in addition is interconnected with a number of other electric systems, including those of Northern Indiana Public Service Company ("Northern Company"), an electric public utility operating in the State of Indiana, and of Commonwealth Edison Company ("Commonwealth"), an electric public utility operating in the State of Illinois.

3. That for an extended period of time, the petitioners, together with Northern Company, Commonwealth, Ohio Power Company ("Ohio Power"), a subsidiary of AEP, and The Toledo Edison Company ("Toledo"), the latter two companies being electric public utilities owning facilities and operating in the State of Ohio, have studied the desirability of constructing and establishing interconnections between certain of their respective electrical systems and of rendering various interconnection services and transactions among certain of the utility companies involved. That contracts have been negotiated covering the terms and conditions of the establishment of the proposed interconnections and the operation thereof, including Service Schedules proposed initially under such agreements, and the petitioners are now prepared to execute and deliver the proposed contracts subject to the prior approval of this Commission.

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4. That the aforementioned proposed agreements are filed herewith and identified as follows:

(a). Facilities Agreement among Consumers Power Company, The Detroit Edison Company, The Toledo Edison Company, Ohio Power Company, and Indiana & Michigan Electric Company,

(b). Area Coordination Agreement among Consumers Power Company, The Detroit Edison Company, Commonwealth Edison Company, Northern Indiana Public Service Company, The Toledo Edison Company, and Indiana & Michigan Electric Company,

(c). Operating Agreement among Consumers Power Company, The Detroit Edison Company, and Indiana & Michigan Electric Company, and

(d). Operating Agreement among Consumers Power Company, The Detroit Edison Company, and The Toledo Edison Company.

5. That under the aforesaid proposed Facilities Agreement, Consumers will construct and own certain facilities in the southwestern part of Michigan, and Indiana & Michigan will also construct and own facilities in that part of Michigan as well as in the northern part of Indiana, for the purpose of interconnecting the system of Consumers with the system of Indiana & Michigan; Consumers and Detroit Edison will construct and own certain facilities in the southeastern part of Michigan for the purpose of interconnecting the systems of Consumers and Detroit Edison with the system of Toledo; and Toledo will construct

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facilities in Ohio for the purpose of interconnecting its system with the systems of Consumers and Detroit Edison and with the system of Ohio Power, which will also construct and own facilities in the State of Ohio for the purpose of interconnecting with the system of Toledo. That it is proposed that such facilities will be completed and placed in service on or before January 1, 1970, and that thereafter the parties to the aforesaid proposed Area Coordination Agreement and the aforesaid Operating Agreements will render interconnection services and transactions in accordance with the terms thereof.

6. That the petitioners are informed and believe that the foregoing proposed agreements, and performance thereunder, will be advantageous to the petitioners and in the public interest for a number of reasons, including the following:

(a). The proposed agreements will permit a saving on the part of the petitioners of substantial amounts of invested capital in fixed assets;

(b). They will assure a supply of electric energy during periods of emergency on the systems of the petitioners;

(c). They will permit the interchange of economy energy to the mutual benefit of the interconnected utilities;

(d). They will provide a source of reliable bulk power supply when needed by the petitioners;

(e). They will permit the saving on the part of the petitioners of substantial operating costs annually;

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(f). They will permit coordination of the scheduled maintenance of large generating units of the petitioners; and

(g). They will permit the utilization of time-zone and seasonal diversity.

WHEREAS, Consumers Power Company, The Detroit Edison Company, and Indiana & Michigan Electric Company, petitioners herein, pray:

(a). That this Commission find and determine that the terms and provisions of the proposed agreements referred to in paragraph 4 hereof are just and reasonable; and that this Commission approve said proposed agreements and authorize petitioners to enter into and perform such agreements; and

(b). That this Commission grant such other and additional relief as may be appropriate.

Dated: March 10, 1966

CONSUMERS POWER COMPANY

By /s/ H. R. Wall  
H. R. Wall  
Vice President

THE DETROIT EDISON COMPANY

By /s/ Walker L. Cisher  
Walker L. Cisher  
Chairman of the Board

INDIANA & MICHIGAN ELECTRIC COMPANY

By /s/ R. E. Pyala, Jr.  
R. E. Pyala, Jr.  
Vice President and General Manager

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APPENDIX

# THE NUCLEAR INDUSTRY 1973

U. S. ATOMIC ENERGY COMMISSION

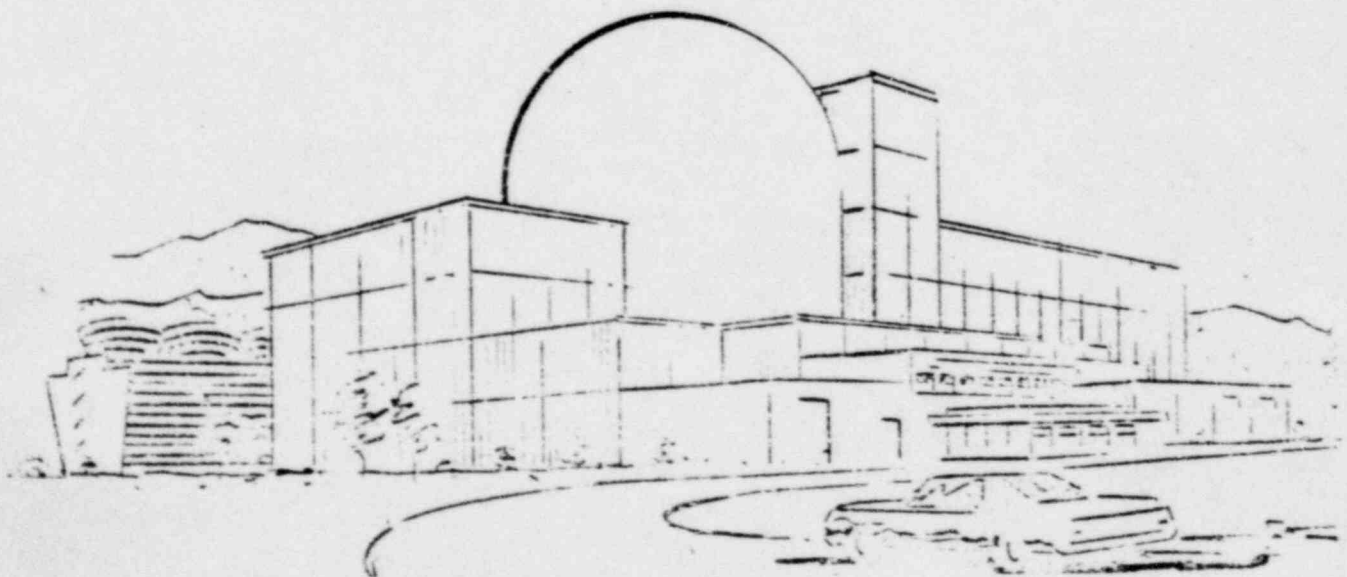


Table 1-2. CENTRAL STATION NUCLEAR PLANTS (continued)

Units Operable, Under Construction, or On Order as of December 31, 1973

Contract Awarded	Operating Utility and Plant	State	Reactor Supplier	Size (Mwe-Net)	Est. Cost* (Millions)	Commercial Operation	Licensing Status**
1967	Arkansas P. & L. Co. (Nuclear One-1)	Ark.	B&W	850	\$ 200	1974	O/P
	Baltimore G. & E. (Calvert Cliffs 1)	Md.	Comb.	845	290	1974	O/P
	Baltimore G. & E. (Calvert Cliffs 2)	Md.	Comb.	845	243	1975	O/P
	Commonwealth Edison Co. (Zion 1)	Ill.	W	1,060	262 <sup>o</sup>	-u	Oi
	Commonwealth Edison Co. (Zion 2)	Ill.	W	1,060	271 <sup>o</sup>	1974	Oi
	Consolidated Edison (Indian Pt. 3)	N.Y.	W	965	400	1974	O/P
	Duke Power Co. (Oconee 3)	S.C.	B&W	886	137 <sup>l</sup>	1974	O/P
	Duquense Light Co. (Beaver Valley 1)	Pa.	W	852	415	1975	O/P
	Florida P. & L. Co. (Turkey Pt. 4)	Fla.	W	693	106	1973	O <sup>k</sup>
	Florida P. & L. Co. (St. Lucie 1)	Fla.	Comb.	801	337	1975	O/P
	Florida Power Corp. (Crystal River 3)	Fla.	B&W	825	300	1974	O/P
	Georgia Power Co. (Hatch 1)	Ga.	GE	786	325	1974	O/P
	Indiana & Michigan Power Co. (D.C.Cook 1)	Mich.	W	1,060	427	1974	O/P
	Indiana & Michigan Power Co. (D.C.Cook 2)	Mich.	W	1,060		1976	O/P
	Jersey Central P. & L. Co. (Three Mile Is. 2)	Pa.	B&W	905	521	1976	C
	Long Island Lighting Co. (Shoreham)	N.Y.	GE	819	309	1977	C
	Maine Yankee A. P. Co. (Maine Yankee)	Me.	Comb.	790	263 <sup>o</sup>	1972	O
	Nebraska Public Power Dist. (Cooper)	Neb.	GE	778	207	1974	O/P
	Northern Indiana Public Service Co. (Bailly)	Ind.	GE	660	244	-u	C/P
	Northern States Power Co. (Prairie Is. 1)	Minn.	W	530	370	1973	O <sup>m</sup>
	Northern States Power Co. (Prairie Is. 2)	Minn.	W	530		1974	O/P
	Northeast Utilities (Millstone 2)	Conn.	Comb.	828	341	1974	O/P
	Philadelphia Electric Co. (Limerick 1)	Pa.	GE	1,065	694	1979	C/P
	Philadelphia Electric Co. (Limerick 2)	Pa.	GE	1,065	512	1980	C/P
	Public Service E. & G. Co. (Salem 2)	N.J.	W	1,115	400	1976	O/P
	Sacramento Mun. Util. Dist. (Rancho Seco)	Cal.	B&W	913	328	1974	O/P
	T.V.A. (Browns Ferry 3)	Ala.	GE	1,065	225 <sup>l</sup>	1975	O/P
	Virginia E. & P. Co. (North Anna 1)	Va.	W	698	477	1975	O/P
	Wisconsin Elec. Power Co. (Pt. Beach 2)	Wis.	W	497	54	1972	O
	Wisconsin Public Service Corp. (Kewaunee)	Wis.	W	541	190	1973	O
(30 Units)			<u>25,567</u>	<u>\$ 8,768</u>			
1968	Carolina P. & L. Co. (Brunswick 1)	N.C.	GE	821	251	1975	O/P
	Carolina P. & L. Co. (Brunswick 2)	N.C.	GE	821	309	1974	O/P
	Consumers Power Co. (Midland 1)	Mich.	B&W	492	770	1980	C
	Consumers Power Co. (Midland 2)	Mich.	B&W	818		1979	C
	Detroit Edison Co. (Fermi 2)	Mich.	GE	1,123	501	1977	C
	Iowa Electric L. & P. Co. (D. Arnold)	Iowa	GE	569	211	1974	O/P
	Pacific G. & E. Co. (Diablo Canyon 2)	Cal.	W	1,106	282	1976	O/P
	Pennsylvania P. & L. Co. (Susquehanna 1) <sup>n</sup>	Pa.	GE	1,052	1,395	1979	C
	Pennsylvania P. & L. Co. (Susquehanna 2) <sup>n</sup>	Pa.	GE	1,052		1981	C
	Portland General Elec. Co. (Trojan)	Ore.	W	1,130	334	1975	O/P
	Power Auth. of S. of N.Y. (Fitzpatrick)	N.Y.	GE	821	301	1974	O/P
	T.V.A. (Sequoyah 1)	Tenn.	W	1,140	449	1975	C
	T.V.A. (Sequoyah 2)	Tenn.	W	1,140		1976	C
	Toledo Edison Co. (Davis Besse 1)	Ohio	B&W	906	409	1975	O/P
(14 Units)			<u>12,991</u>	<u>\$ 5,212</u>			
1969	Alabama Power Co. (Farley 1)	Ala.	W	829	294	1975	O/P
	Cincinnati G. & E. Co. (Zimmer 1)	Ohio	GE	810	323 <sup>o</sup>	1977	C
	Duke Power Co. (McGuire 1)	N.C.	W	1,190	441	1976	C
	Duke Power Co. (McGuire 2)	N.C.	W	1,180		1977	C
	Jersey Central P. & L. Co. (Forked River 1)	N.J.	Comb.	1,070	562	1979	C
	Public Service E. & G. Co. (Hope Creek 1)	N.J.	GE	1,067	1,130 <sup>o</sup>	1981	C/P
	Public Service E. & G. Co. (Hope Creek 2)	N.J.	GE	1,067		1982	C/P
(7 Units)			<u>7,203</u>	<u>\$ 2,750</u>			
TOTAL THROUGH 1969 (91 UNITS)				<u>70,757</u>	<u>\$ 23,011</u>		
1970	Alabama Power Co. (Farley 2)	Ala.	W	879	268	1977	O/P
	Arkansas P. & L. Co. (Nuclear One-2)	Ark.	Comb.	912	275	1976	C
	Commonwealth Edison Co. (LaSalle 1)	Ill.	GE	1,078	733 <sup>o</sup>	1978	C
	Commonwealth Edison Co. (LaSalle 2)	Ill.	GE	1,078		1979	C
	Georgia Power Co. (Hatch 2)	Ga.	GE	795	404	1978	C
	Louisiana P. & L. Co. (Waterford 3)	La.	Comb.	1,113	350	1977	C/P <sup>o</sup>
	Puerto Rico Water Resources Auth. (Aguirre)	P.R.	W	583	140	-u	-
Southern California Ed. Co. (San Onofre 2)	Cal.	Comb.	1,140	1,311	-u	C	
Southern California Ed. Co. (San Onofre 3)	Cal.	Comb.	1,140		-u	C	

Table 1-2. CENTRAL STATION NUCLEAR PLANTS (continued)

Units Operable, Under Construction, or On Order as of December 31, 1973

Contract Awarded	Operating Utility and Plant	State	Reactor Supplier	Size (Mwe-Net)	Est. Cost* (Millions)	Commercial Operation	Licensing Status**
	Virginia E. & P. Co. (North Anna 2)	Va.	W	898	\$ 227	1976	O/P
	T.V.A. (Watts Bar Nuclear 1)	Tenn.	W	1,169	647	1978	C
	T.V.A. (Watts Bar Nuclear 2)	Tenn.	W	1,169		1978	C
	T.V.A. (Bellefonte 1)	Ala.	B&W	1,189	895	1979	C/P
	T.V.A. (Bellefonte 2)	Ala.	B&W	1,189		1980	C/P
	(14 Units)			14,282	\$ 5,060		
1971	Carolina P. & L. Co. (Harris 1)	N.C.	W	915	1,324	1978	C/P
	Carolina P. & L. Co. (Harris 2)	N.C.	W	915		1979	C/P
	Carolina P. & L. Co. (Harris 3)	N.C.	W	915		1980	C/P
	Carolina P. & L. Co. (Harris 4)	N.C.	W	915		1981	C/P
	Commonwealth Edison Co. (Byron Station 1)	Ill.	W	1,120	934*	1960	C/P
	Commonwealth Edison Co. (Byron Station 2)	Ill.	W	1,120		1981	C/P
	Delmarva P. & L. Co. (Summit 1)	Del.	GAC	770	779	1980	C/P
	Delmarva P. & L. Co. (Summit 2)	Del.	GAC	770		1982	C/P
	Duquesne Light Co. (Beaver Valley 2)	Pa.	W	852	393	1979	C/P
	Georgia Power (Vogtle 1)	Ga.	W	1,121	631	1980	C/P
	Georgia Power (Vogtle 2)	Ga.	W	1,121	543	1981	C/P
	Niagara Mohawk Power Corp. (Nine Mile Pt. 2)	N.Y.	GE	1,080	770	1973	C/P
	Pacific G. & E. Co. (GE No. 1)	Cal.	GE	1,128	647	-u	-p
	Pacific G. & E. Co. (GE No. 2)	Cal.	GE	1,128	432	-u	-p
	Philadelphia Electric Co. (Fulton 1)	Pa.	GAC	1,140	777	1981	C/P
	Philadelphia Electric Co. (Fulton 2)	Pa.	GAC	1,140	641	1983	C/P
	South Carolina E. & G. Co. (Summer)	S.C.	W	900	297	1978	C
	Virginia E. & P. Co. (North Anna 3)	Va.	B&W	907	355	1977	C/P
	Virginia E. & P. Co. (North Anna 4)	Va.	B&W	907	262	1978	C/P
	Washington Public Power Sup. Sys. (Hanford 2)	Wash.	GE	1,103	472	1977	C
	(20 Units)			19,967	\$ 8,857		
1972	Alabama Power Co. (Central Alabama 1)	Ala.	GE	1,100	1,100	1980	-
	Alabama Power Co. (Central Alabama 2)	Ala.	GE	1,100		1981	-
	Boston Edison Co. (Pilgrim 2)	Mass.	Comb	1,180	561	1980	C/P
	Cleveland Electric Illum. Co. (Perry 1)	Ohio	GE	1,205	1,234	1979	C/P
	Cleveland Electric Illum. Co. (Perry 2)	Ohio	GE	1,205		1980	C/P
	Commonwealth Edison Co. (Braidwood 1)	Ill.	W	1,120	911*	1980	C/P
	Commonwealth Edison Co. (Braidwood 2)	Ill.	W	1,120		1981	C/P
	Consumers Power Co. (Quanicasse 1)	Mich.	W	1,150	1,200	1981	-
	Consumers Power Co. (Quanicasse 2)	Mich.	W	1,150		1982	-
	Detroit Edison Co. (Fermi 3)	Mich.	GE	1,172	670	1982	-
	Detroit Edison Co. (Greenwood 2)	Mich.	B&W	1,200	1,286	1980	C/P
	Detroit Edison Co. (Greenwood 3)	Mich.	B&W	1,200		1981	C/P
	Duke Power Co. (Catawba 1)	S.C.	W	1,180	666	1979	C/P
	Duke Power Co. (Catawba 2)	S.C.	W	1,180		1980	C/P
	Florida Power & Light Co. (St. Lucie 2)	Fla.	Comb	801	360	1979	C/P
	Gulf States Utilities Co. (River Bend 1)	La.	GE	934	376	1980	C/P
	Clinch River Breeder Reactor Plant	Tenn.	W	350	699	1980	-
	Mississippi P. & L. Co. (Grand Gulf 1)	Miss.	GE	1,290	656	1979	C/P
	Mississippi P. & L. Co. (Grand Gulf 2)	Miss.	GE	1,290	572	1981	C/P
	Potomac Electric Power Co. (Douglas Pt. 1)	Md.	GE	1,178	920	1980	C/P
	Potomac Electric Power Co. (Douglas Pt. 2)	Md.	GE	1,178		1981	C/P
	Public Service E. & G. Co. (Atlantic Offshore Unit 1)	N.J.	W	1,150	1,150	1980	C/P
	Public Service E. & G. Co. (Atlantic Offshore Unit 2)	N.J.	W	1,150		1981	C/P
	Public Service of N.H. (Seabrook 1)	N.H.	W	1,200	960	1979	C/P
	Public Service of N.H. (Seabrook 2)	N.H.	W	1,200		1981	C/P
	Southern California Edison Co. (SCED/HTGR 1)	Cal.	GAC	770	933	-u	-
	Southern California Edison Co. (SCED/HTGR 2)	Cal.	GAC	770		-u	-
	T.V.A. (Plant 1, No. 1)	-	GE	1,228	379	1980	-
	T.V.A. (Plant 1, No. 2)	-	GE	1,228	379	1981	-
	T.V.A. (Plant 2, No. 1)	-	GE	1,228	379	1981	-
	T.V.A. (Plant 2, No. 2)	-	GE	1,228	379	1982	-
	Texas Power & Light Co. (Comanche Peak 1)	Tex.	W	1,150	709	1980	C/P
	Texas Power & Light Co. (Comanche Peak 2)	Tex.	W	1,150		1982	C/P
	Virginia Elec. & Power Co. (Surry 3)	Va.	B&W	882	608	1980	C/P
	Virginia Elec. & Power Co. (Surry 4)	Va.	B&W	882		1981	C/P
	Washington Pub. Pwr. Sup. Sys. (Nuclear Proj. 1)	Wash.	B&W	1,206	526	1980	C/P
	(36 Units)			39,705	\$ 17,703		
1973	Arizona Public Service (Palo Verde 1)	Ariz.	Comb	1,270	2,080	1981	-
	Arizona Public Service (Palo Verde 2)	Ariz.	Comb	1,270		1982	-

Table 1-2. CENTRAL STATION NUCLEAR PLANTS (continued)

Units Operable, Under Construction, or On Order as of December 31, 1973

Contract Awarded	Operating Utility and Plant	State	Reactor Supplier	Size (Mwe-Net)	Est. Cost* (Millions)	Commercial Operation	Licensing Status**
	Arizona Public Service (Palo Verde 3)	Ariz.	Comb	1,270	\$ 2,080	1984	-
	Duke Power (Plant A No. 1)	NC	Comb	1,300	2,500	1982	-
	Duke Power (Plant A No. 2)	NC	Comb	1,300		1982	-
	Duke Power (Plant A No. 3)	NC	Comb	1,300		1983	-
	Duke Power (Plant B No. 1)	SC	Comb	1,300		1984	-
	Duke Power (Plant B No. 2)	SC	Comb	1,300		1985	-
	Duke Power (Plant B No. 3)	SC	Comb	1,300		1986	-
	Georgia Power (Vogtle 3)	Ga.	W	1,121	625	1982	C/P
	Georgia Power (Vogtle 4)	Ga.	W	1,121	583	1983	C/P
	Gulf States Utilities (Blue Hills 1)	Tex.	Comb	918	446	1980	-
	Gulf States Utilities (River Bend 2)	La.	GE	934	344	1981	C/P
	Houston Lighting & Power (Allen's Creek 1)	Tex.	GE	1,150	1,146	1980	C/P
	Houston Lighting & Power (Allen's Creek 2)	Tex.	GE	1,150		1982	C/P
	Houston Lighting & Power (South Texas 1)	Tex.	W	1,250	1,174 <sup>g</sup>	1980	-
	Houston Lighting & Power (South Texas 2)	Tex.	W	1,250		1982	-
	Illinois Power (Clinton 1)	Ill.	GE	955	772	1980	C/P
	Illinois Power (Clinton 2)	Ill.	GE	955		1982	C/P
	Kansas Gas & Electric (Wolf Creek)	Kans	W	1,150	550	1981	-
	Long Island Lighting	N.Y.	W	1,150	650	1981	-
	Northeast Utilities (Millstone 3)	Conn.	W	1,150	648	1979	C/P
	Northern States Power (Tyrone 1)	Wis.	W	1,150	1,100	1982	-
	Northern States Power (Tyrone 2)	Wis.	W	1,150		1983	-
	Portland General Electric		B&W	1,200	460	1980	-
	Public Service E. & G. (Atlantic 3)	-	W	1,150	750	1985	-
	Public Service E. & G. (Atlantic 4)	-	W	1,150		1986	-
	Public Service of Oklahoma (Black Fox 1)	Okla.	GE	950	800	1982	-
	Public Service of Oklahoma (Black Fox 2)	Okla.	GE	960		1983	-
	Puget Sound P & L (Skagit)	Wash.	GE	1,200	678	1981	-
	Rochester Gas & Electric	NY	W	1,150	750	1982	-
	Toledo Edison (Davis-Besse 2)	Ohio	B&W	906	1,000	1981	-
	Toledo Edison (Davis-Besse 3)	Ohio	B&W	906		1983	-
	Union Electric (Unit 1)	Mo.	W	1,150	1,100	1981	-
	Union Electric (Unit 2)	Mo.	W	1,150		1983	-
	Wisconsin Electric Power (West 1)	Wis.	W	900	900	1980	-
	Wisconsin Electric Power (West 2)	Wis.	W	900		1982	-
	Washington Public Power Supply Sys. (Proj. 3) (38 Units)	Wash.	Comb.	1,242	745	1981	-
				<u>43,068</u>	<u>\$ 19,801</u>		
	TOTAL THROUGH 12/31/73 (199 UNITS)			<u>187,779</u>	<u>\$ 74,422</u>		

\*These figures are taken from various sources and are not necessarily on comparable bases.

\*\*O—Operating License, O/P—Operating License Pending, C—Construction Permit, C/P—Construction Permit Pending.

<sup>a</sup>Limit of T-G capacity. Reactor Power 135 Mwe.

<sup>b</sup>Includes capacity of fossil fueled superheater. Electric power from reactor only; Indian Point 151 Mwe.

<sup>c</sup>Operable—License not required.

<sup>d</sup>Temporarily shutdown by the AEC.

<sup>e</sup>AEC approximation of plant cost; utility estimate not available.

<sup>f</sup>License is for 100%, but operation is restricted to 98% of full power until some tests are evaluated.

<sup>g</sup>Operation at 85% of full power.

<sup>h</sup>Operation at low power pending tests.

<sup>i</sup>Two-thirds of total cost for three units.

<sup>j</sup>Operation restricted to 85% of full power.

<sup>k</sup>Operation restricted to 99% of full power.

<sup>l</sup>One-third of total cost for three units.

<sup>m</sup>Operation restricted to 90% of full power.

<sup>n</sup>Order not firm until 1970.

<sup>o</sup>Application is for two units.

<sup>p</sup>Original application for construction permit, filed in 1971, has been withdrawn.

<sup>q</sup>Utility estimate uncertain; AEC estimate used in consolidated table.



# **NUCLEAR POWER 1973-2000**



**December 1, 1972**

**Forecasting Branch  
Office of Planning and Analysis  
United States Atomic Energy Commission**

Table 5

## FORECAST OF ENERGY CONSUMPTION AND GENERATING CAPACITY IN THE UNITED STATES

	1960	1970	1980	1990	2000
Energy Consumed, Metric Ton Coal Equivalent/Capita .....	9.04	12.07	13.70	16.82	20.15
Fraction for Electricity Generation .....	.18	.24	.31	.40	.50
Energy Consumed for Electricity Generation, Metric Ton Coal Equivalent/Capita .....	1.62	2.90	4.25	6.73	10.08
Apparent Load Factor .....	.51	.50	.51	.53	.57
Heat Rate, kg Coal equivalent/kWh .....	.39	.37	.35	.33	.31
Total Electric Generating Capacity/Capita, kW/Capita .....	.97	1.71	2.73	4.42	6.98
Total Electric Generating Capacity, GW .....	175	349	630	1150	2000
Total Nuclear Generating Capacity, GW .....	.02	5.9	132	508	1200

The forecast of nuclear capacity in the United States for the rest of the century has been derived from extrapolations of the trends in total energy consumption, patterns of use, and electrical generating capacity additions. In 1960, just over 9 tonnes of coal equivalent energy were consumed per capita in the United States. In 1970, over 12 tonnes were consumed. This trend, which has existed since at least the 1920s, has been extrapolated to nearly 14 tonnes by 1980 and to 20 tonnes by 2000. The fraction of this energy used for the production of electricity has also shown a continuous increase, from 18 percent in 1960 to 24 percent in 1970. This fraction is projected to increase to 31 percent by 1980 and to 50 percent by 2000. The apparent load factor, defined as the total electricity generated in a year divided by the electricity which could have been generated in a year (8,760 hours) by the capacity available at the end of the year, has remained constant at about 50 percent for several years and is expected to remain at that level for the rest of the century. The heat rate, the energy consumed in production of electricity, has been, until recent years, steadily dropping—from 0.39 kg coal equiv/kWh (10,700 Btu/kWh) in 1960 to 0.37 (10,300) in 1970. This value is expected to drop to about 0.31 (8,500) for the most efficient plants in operation by 2000. If the energy consumed for electricity production is divided by the heat rate, the result is an estimate of the electricity production. A further division by the load factor and a conversion of units produces an estimate of the installed capacity. The total installed capacity in the United States was about 1 kW/capita in 1960 and about 1.7 in 1970. The method described above produces an estimate of 2.7 kW/capita in 1980 and 7 in 2000. These data can then be multiplied by the population of the United States, using the Bureau of Census

Series D projection of population growth, to yield the total electrical generating capacity. This has increased from 175 GW in 1960 to 349 in 1970 and is expected to increase further to 630 GW in 1980 and to over 2000 GW in 2000. Nuclear generating capacity, which was about 3 percent of the total additions to all electrical generating capacity during the 1960s and will probably be about 44 percent of the additions during the 1970s, is forecast to average 72 percent of the additions during the 1980s and 81 percent during the 1990s. The detailed data used in this forecast are summarized in Table 5.

The high forecast of nuclear capacity was derived by the same method, but with use of the assumptions that population will increase according to the Census Bureau Series C projection, that the electrical share of total energy consumption will be 55 percent in the year 2000, and that nuclear additions will be about 90 percent of all additions to generating capacity after 1985. Similarly, the low forecast is based on assumptions of population Series E, an electrical share of 45 percent in 2000, and a market penetration by nuclear reactors of only 75 percent of the total generating capacity additions after 1975.

This most likely forecast is slightly lower for the United States than the one presented a year ago, although it is still within the probable range suggested at that time, 132 to 166 at the end of 1980 and 272 to 344 at the end of 1985. The reduction is due primarily to two factors, a general lengthening of nuclear project schedules and a slight reduction in the rate of growth of energy consumption. Many events occur between ordering a reactor and beginning its operation, events whose impact on schedules have often been minimized in planning. These events include delays due to equipment delivery, labor stoppages, intervention, licensing, and other causes. Experi-

**\$25,000,000****WASHINGTON PUBLIC POWER SUPPLY SYSTEM**

**A Municipal Corporation and a Joint Operating Agency of the  
State of Washington**

**4 $\frac{1}{4}$ % Washington Public Power Supply System  
Nuclear Project No. 1 Revenue Notes, Series 1973**

**Dated: February 15, 1973****Due: December 15, 1975**

Principal and semi-annual interest (June 15 and December 15, first coupon due June 15, 1973) payable at Morgan Guaranty Trust Company, New York, New York, or Seattle-First National Bank, Seattle, Washington. The Notes will be in coupon form in the single denomination of \$25,000, or any multiple thereof.

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*Interest exempt, in the opinion of Bond Counsel, from federal income taxation under existing laws and regulations and a specific ruling to be received from the Internal Revenue Service with respect to the Notes. (See statement under the caption "Tax Exemption" herein.)*

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The Notes are being issued to finance a portion of the cost of acquisition and construction of the Washington Public Power Supply System Nuclear Project No. 1. This Project will be constructed and operated by the Supply System pursuant to an agreement between the Supply System and the Bonneville Power Administration. The Project's entire capability will be sold by the Supply System to certain statutory preference customers and private utility customers of Bonneville and assigned by such customers to Bonneville under Net Billing Agreements and Exchange Agreements, respectively. The Exchange Agreements provide that beginning July 1, 1980, each such private utility will purchase a portion of Project capability and exchange it with Bonneville which will supply a certain amount of power to such utility with payment to be made by the utility to the Supply System. Pursuant to the Net Billing Agreements, the balance of Project capability will be sold to the preference customers who will pay to the Supply System an amount equal to the Project's annual costs, less any amounts received from the private utility customers pursuant to the Exchange Agreements. Each preference customer will assign its share of Project capability to Bonneville which will credit the payments made to the Supply System by such preference customer against billings made by Bonneville to such preference customer for power and certain services. The Net Billing Agreements provide that each such customer is obligated to pay the Supply System whether or not the Project is completed, operable, or operating and notwithstanding the suspension, interruption, interference, reduction or curtailment of the Project output.

The Notes, together with interest thereon, will be payable from any moneys of the Supply System that may be lawfully applied thereto including revenues of the Project and the proceeds of revenue bonds or refunding notes of the Supply System. Interest on the Notes will be capitalized to maturity.

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The Notes are to be issued subject to the approval of legality by Wood Dawson Love & Sabatine, New York, New York, Bond Counsel to the Supply System, and Houghton, Cluck, Coughlin & Riley, Seattle, Washington, Special Counsel to the Supply System. It is expected that the Notes in definitive form will be ready for delivery on or about February 27, 1973.

February 8, 1973

Bonneville markets power to 158 customers, including 104 preference customers (public bodies and cooperatives which have preference and priority upon power from the Federal Columbia River Power System pursuant to the Bonneville Project Act, as amended) under the terms of various power sales and exchange contracts. Each of the Participants is a preference customer and is a party to at least one such contract. The power sales contracts generally provide for the sale and delivery of firm power to a Participant in the amount of its requirements for power over and above the generating resources, if any, that the Participant has available to serve its own loads. Bonneville's obligation is effective for the term of the contract unless Bonneville gives the Participant at least five years' prior notice of insufficiency of supply. Bonneville as a policy matter has agreed to give the Participants eight years' notice and an eight year notice provision has been included in all such power sales contracts executed since March 2, 1971. At the end of such notice period Bonneville may restrict its deliveries to an amount which is not less than the amount which Bonneville will be obligated to deliver in fiscal year 1976 or 25,000 average kw, whichever is more.

These power sales contracts are usually for a term of twenty years and contain provisions for a rate review once each five years, the next rate review date being December 20, 1974. In the past Bonneville has replaced its power sales contracts on or prior to their expiration with new power sales contracts.

#### THE PARTICIPANTS AND THE COMPANIES

The Project has 104 Participants, of which 29 are municipalities, 28 are districts and 47 are cooperatives. The Participants will contract to purchase 67.53% of the Project's capability during the period 1980 to 1996 and 100% of the Project's capability thereafter. The Companies will contract to purchase 32.47% of the Project's capability during the period 1980 to 1996. Exhibit I attached hereto lists each Participant and Company and indicates its share of the Project capability purchased.

Pursuant to the Exchange Agreements, each of the 5 Companies will purchase 6.494% of the Project's capability from the Supply System during the period 1980 to 1996 and exchange such capability with Bonneville for 80 megawatts of capacity and 68 megawatts average annual energy. Payments to the Supply System for the period 1980 to 1990 will be computed under the applicable Bonneville wholesale rate schedule for such capacity and average annual energy. For the period 1990 to 1996, each Company will pay 6.494% of the Fixed Cost and Operation, Maintenance and Other Costs (as defined in the Exchange Agreements), plus payments with respect to fuel costs, certain reserves and transmission costs.

The Participants, all of which are statutory preference customers of Bonneville, currently obtain all or part of their power supply and other services from Bonneville, and, under their power sales and other contracts, will have an estimated net billing capacity which in the aggregate is estimated to be in excess of their share of the Project's estimated annual costs paid to the Supply System. Each Participant's share of such annual costs will be "net billed" (credited) against the billings made by Bonneville to the Participant on a monthly basis under its power sales and other contract(s).

Prior to the sale of the Notes each of the Participants will have executed a Net Billing Agreement, as more fully described below, with the Supply System, and Bonneville.

Under the Net Billing Agreements and the Exchange Agreements, each Participant and each Company assigns its share of the Project's capability to Bonneville, and the entire output of the Project is to be added to and pooled with the other power sources available to Bonneville.

Since the Participants' payments to the Supply System will be net billed, the cost of their share of the power produced by the Project will be borne by Bonneville customers. Bonneville has assured Congress that "any costs or losses to Bonneville under these agreements will be borne by all Bonneville rate payers through rate adjustments, if necessary."

WNP- 1

INFORMATION REQUESTED BY THE  
ATTORNEY GENERAL  
FOR  
ANTITRUST REVIEW

Furnished as a Part of the  
Construction Permit Application

for

WASHINGTON PUBLIC POWER SUPPLY SYSTEM  
NUCLEAR PROJECT NO. 1

12. State (a) for generation facilities and (b) for transmission sub-divided by voltage classes, the most recent estimated cost of applicant's bulk power supply expansion program of which the subject unit is a part, in terms of dollars per kilowatt per year, in mills per kilowatt hour and in both the kilowatt costs and kilowatt hour costs divided by the kilowatt hours. Also state separately the most recently estimated cost of the subject unit(s).

In addition to the Project, the Supply System is presently constructing an 1100 MW Nuclear Power plant, Washington Public Power Supply System Nuclear Project No. 2, and is undertaking the development of Washington Public Power Supply System Nuclear Project No. 3, which will be jointly owned by the Supply System and four investor-owned utilities. The Supply System will own 70% of Nuclear Project No. 3. The following table indicated the estimated annual costs of bulk power generated by these projects:

Project No. 1 (9/1/90 commercial operation estimated costs for 1981-82 operation with 6,500,000,000 kWh generated)

Total cost per kWh	\$48.92
Total cost per kWh	9.18 mills
Capacity cost per kWh	7.58 mills*
Energy cost per kWh	1.60 mills**

Project No. 2 (9/1/77 commercial operations, estimated costs for 1978-79 operation; with 6,000,000,000 kWh generated)

Total cost per kWh per year	\$45.27
Total cost per kWh	8.30 mills
Capacity cost per kWh	6.66 mills*
Energy cost per kWh	1.64 mills**

Project No. 3 (9/1/81 commercial operation, estimated costs for 1982-83 operation, with 6,000,000,000 generated)

Total cost per kW per year	\$55.89
Total cost per kWh	\$10.32
Capacity cost per kWh	8.49 mills*
Energy cost per kWh	2.58 mills*

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\*Based on fixed costs only.

\*\*Based on variable costs only.



CONSUMERS POWER COMPANY  
 APPLICATION FOR  
 REACTOR CONSTRUCTION PERMIT AND OPERATING LICENSE

Docket No. 50-329  
 Docket No. 50-330

Amendment No. 21

Enclosed herewith, amending and supplementing the above-entitled application, are the following:

1. Responses to the items listed in the enclosure to Dr. Peter A. Morris' May 25, 1971 letter to applicant (Attn: Mr. R. C. Youngdahl) consisting of new pages 11.8-1, 11.8-2, 11.8-3, 11.8-4, 11.8-5, 11.8-6, 11.8-7, 11.8-8, 11.8-9, 11.8-10, 11.8-11 and 11.8-12, and figures 1-9, 1-10, 1-11, 1-12, 1-13, 1-14, 1-15, 1-16, 1-17 and 1-18; and revised pages 1-1, 1-iv, 11-iii, 11.1-1, 11.3-1, 11.3-2 and 11.3-3, and figures 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 11-1 and 11-2. In addition, pages 11.1-2 through 11.1-4 are deleted. Also new pages 10, 11 and 12 and revised Appendix A are provided for the General Information Volume.

2. New and revised pages to the pages submitted in Amendment No. 19 regarding antitrust review of the plant pursuant to request of the Justice Department. These additional pages were filed with the Justice Department by letter dated June 4, 1971. Revised pages numbered 9 and 10 replace the similar numbered pages contained

*Pages revised  
 6/19/71*

in Amendment No. 19 and the additional pages numbered 20 through 25 are responses to additional questions of the Justice Department.

CONSUMERS POWER COMPANY

Dated July 6, 1971

By /s/ R. C. Youngdahl  
R. C. Youngdahl, Senior Vice President

Sworn and subscribed to before me this 6th day of July, 1971.

(SEAL)

/s/ Helen R. Lehr  
Notary Public, Jackson County, Michigan  
My Commission Expires December 11, 1973



3. State estimated annual load growth of companies or pools upon which the economic justification of the subject unit is based for each of the next 20 years or for the period applicant utilizes in system planning. Identify each company or pool member.

The annual load growth for the Michigan Electric Power Pool (applicant and The Detroit Edison Company) for ten-year planning period, as measured from summer peak to summer peak (the Pool has a summer peak) and from winter peak to winter peak (for comparability purposes), is as follows:

Year	Summer Load <sup>(1)</sup>		Winter Load <sup>(2)</sup>	
	Growth (MW)	%	Growth (MW)	%
1971	1017	11.5	1130	13.2
1972	800	8.1	740	7.7
1973	840	7.9	760	7.3
1974	930	8.1	815	7.3
1975	960	7.7	835	7.0
1976	1010	7.6	995	7.8
1977	1210	8.4	925	6.7
1978	1190	7.6	985	6.7
1979	1265	7.5	1050	6.7
1980	1355	7.5	1125	6.7

Notes:

- (1) The Pool's summer peak load in 1970 was 8808 MW.  
 (2) The Pool's winter peak load in 1970 was 8540 MW.

4. For the year the subject unit would first come on line, state estimated annual load growth of any coordinating group or pool of which the applicant is a member (other than the coordinating group or pool referred to in the applicant's response to Item 3) which has generating and/or transmission planning functions. Identify each company or pool member whose loads are indicated in the response hereto.

Applicant plans generation and transmission additions to its system only in conjunction with The Detroit Edison Company. While both applicant and The Detroit Edison Company are parties to the MIIO agreement which has contractual provisions for generating and/or transmission planning functions, these provisions have not been implemented. Applicant and The Detroit Edison Company are also parties to the East Central Area Reliability (ECAR) agreement which provides for the coordination and exchange of information on bulk power supply and electric reliability and review and evaluation of bulk power supply by ECAR committees. Neither applicant nor The Detroit Edison Company plan generating and transmission additions in conjunction with the other MIIO and ECAR companies.

5. State applicant's minimum installed reserve criterion (as a percentage of load)<sup>1/</sup> for the period when the subject unit will first come on line. If applicant shares reserves with other systems, identify the other systems and provide minimum installed reserve criterion (as a percentage of load)<sup>1/</sup> by contracting parties or pool for the period when the proposed unit will first come on line.

Applicant and The Detroit Edison Company (The Michigan Electric Power Pool), jointly, have established a minimum installed reserve criterion for the period under consideration (on a percentage of load basis) of 17-18% at time of peak load. During off peak periods of the year the additional reserve is used for maintenance.

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<sup>1/</sup> Indicate whether loads other than peak loads are considered.

6. Describe methods used as a basis to establish, or as a guide in establishing the criteria for applicant's and/or applicant's pool's minimum amount of installed reserves. [e.g., (a) single largest unit down, (b) probability methods such as loss of load one day in 20 years, loss of capacity once in 5 years, (c) other methods and/or (d) judgment. List contingencies other than risk of forced outage that enter into the determination.]

The basis for establishing minimum installed reserve criteria is probability analysis and is equivalent to loss of load once in twenty years. Other contingencies that enter into the determination other than risk of forced outage are: .

- (a) System Regulation
- (b) Load Forecast Band
- (c) Maintenance Requirements
- (d) Interconnection Support

7. Indicate whether applicant's system interconnections are credited explicitly or implicitly in establishing applicant's installed reserves.

Applicant and The Detroit Edison Company (The Michigan Electric Power Pool), operate their system as a coordinated unit and as stated above have a minimum reserve calculated on a pool basis. Over the course of time, the two individual systems attempt to equalize their individual reserves so as to maintain proportional contributions to reserves from each system. Because interconnections between the two systems are free flowing ties and the sum reserves of each part of the

pool are available to each party to the pool, these interconnections are credited neither explicitly nor implicitly in establishing applicant's installed reserves.

The installed reserve criterion for the Michigan Electric Power Pool recognizes that there may be infrequent times when emergency support may be required from neighboring systems interconnected by ties with the two members of the Michigan Electric Power Pool. An implicit value is used in the establishment of installed credit of such interconnections.

8. List rights to receive emergency power and obligations to deliver emergency power, rights or obligations to receive or deliver deficiency power or unit power, or other coordinating arrangements, by reference to applicant's Federal Power Commission (FPC) rate schedules (i.e., ABC Power & Light Co., FPC Rate Schedule No. 15 including supplement 1-5)<sup>2/</sup> and also by reference to applicant's state commission filings. Where documents are not on file with the FPC, supply copies, or where not reduced to writing describe arrangements. Identify for each such arrangement the participating parties other than applicant. Provide one line electrical and geographic diagrams of coordinating groups or power pools (with generation or transmission planning functions) of which applicant's generation and transmission facilities constitute a part.

The following table, pp. 6-1 through 6-5, and map, p. 6-6, contain the requested information.

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<sup>2/</sup> List separately and identify certificates of concurrence.

VOLUME I

LOAD PROJECTIONS AND RESOURCE PLANNING

A Report by ECAR Bulk Power Members  
To the Federal Power Commission  
Pursuant To Docket R-362, Order 383-2

April 1972

THE MICHIGAN POOL

LOAD AND RESOURCE PROJECTIONS

1972-1981

Consumers Power Company  
The Detroit Edison Company

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II.	Michigan Pool Net Demonstrated Capability as of December 31, 1971	2
III.	Michigan Pool Capability Additions and Removals 1972-1981	4
IV.	Michigan Pool Monthly Loads and Resources 1972-1973	6
V.	Michigan Pool Seasonal Loads and Resources 1974-1981	7

[Exhibit I-L]

I. MICHIGAN POOL PEAK LOAD PROJECTIONS  
1972 - 1981

A. Native Load

	Summer - MW			Winter - MW		
	<u>Load</u>	<u>Increase</u>	<u>%</u>	<u>Load</u>	<u>Increase</u>	<u>%</u>
1972	10305	-	-	10055	-	-
1973	11115	810	7.86	10785	730	7.26
1974	11945	830	7.47	11535	750	6.95
1975	12840	895	7.49	12330	795	6.89
1976	13785	945	7.36	13135	805	6.53
1977	14845	1060	7.69	14045	910	6.93
1978	16075	1230	8.29	15065	1020	7.26
1979	17295	1220	7.59	16060	995	6.60
1980	18580	1285	7.43	17070	1010	6.29
1981	19840	1260	6.78	18270	1200	7.03

B. Internal Load (1)

1972  
1973  
1974  
1975  
1976  
  
1977  
1978  
1979  
1980  
1981

(1) Internal Load Equals Native Load Plus Interruptible Load  
Michigan Pool Serves No Interruptible Load

II. MICHIGAN POOL NET DEMONSTRATED CAPABILITY-MW  
As of December 31, 1971

CONSUMERS POWER COMPANY

A. Steam

Weadock	1	42	
	2	42	
	3	62	
	4	62	
	5	72	
	6	72	
		<u>332</u>	(Boiler Limited)
	7	162	
	8	165	
		<u>659</u>	(Boiler Limited)
Campbell	1	275	
	2	372	
		<u>647</u>	
Karn	1	275	
	2	275	
		<u>550</u>	
Cobb	1	68	
	2	68	
	3	68	
	4	162	
	5	165	
		<u>531</u>	
Whiting	1	106	
	2	106	
	3	133	
		<u>345</u>	
Morrow	1	41	
	2	41	
	3	60	
	4	68	
		<u>210</u>	
Saginaw River	3	34	
	4	46	
	5	41	
		<u>80</u>	(Boiler Limited)

THE DETROIT EDISON COMPANY

A. Steam

St. Clair	1	167
	2	171
	3	171
	4	167
	5	315
	6	326
	7	527
		<u>1839</u>
Trenton Channel	1	54
	2	54
	3	54
	4	54
	5	54
	6	54
	7	139
	8	119
	9	530
		<u>1112</u>
River Rouge	1	270
	2	270
	3	328
		<u>859</u>
Connors Creek	4	35
	8	34
	9	34
	10	34
	12	63
	13	63
	14	63
	15	145
	16	145
		<u>616</u>
Delray	11	54
	12	54
	13	54
	14	54
	15	54
	16	54
		<u>414</u>
Monroe	1	783



II. MICHIGAN POOL NET DEMONSTRATED CAPABILITY-MW (contd)  
As of December 31, 1971

<u>CONSUMERS POWER COMPANY</u>		<u>THE DETROIT EDISON COMPANY</u>	
A. <u>Steam (contd)</u>		A. <u>Steam (contd)</u>	
Big Rock Point	71	Marysville	2 32
Elm Street	32		3 13
Kalamazoo	23		4 31
Wealthy Street	23		5 31
			6 52
			7 88
			8 88
			<u>334</u>
		Fermi 1	162
		Harbor Beach 1	116
		Pennsalt	37
		Wyandotte North	41
		South	16
		Beacon	22
		Port Huron Paper	6
			<u>6357</u>
<u>TOTAL STEAM</u>	<u>3171</u>	<u>TOTAL STEAM</u>	<u>6357</u>
B. <u>Other</u>		B. <u>Other</u>	
Thetford 5-9	114	St. Clair 12	6
Thetford 1-4	176	Putnam	14
Hydro	134	Northeast 13	48
Gaylord	101	Hancock 11 & 12	194
Morrow A&B	40	Northeast 11	80
Straits	28	Superior 11	80
Campbell A	21	Fermi 11	77
Weadock A'	21	Placid 11	14
Whiting A	21	Placid 12	14
Allegan	1	St. Clair 11	21
		Colfax	14
		Monroe	14
		Oliver	14
		Slocum	14
		Wilmot	14
		River Rouge	11
		Dayton	10
		Connors Creek	6
		Port Huron Paper	6
		Harbor Beach	4
		Northeast 12	26
			<u>681</u>
<u>TOTAL OTHER</u>	<u>657</u>	<u>TOTAL OTHER</u>	<u>681</u>
<u>GRAND TOTAL</u>	<u>3828</u>	<u>GRAND TOTAL</u>	<u>7038</u>

111. MICHIGAN POOL CAPABILITY ADDITIONS AND REMOVALS  
1972 - 1981

<u>Service Date</u>	<u>Company</u>	<u>Unit Designation</u>	<u>Type</u>	<u>Net Demonstrate Capability</u>
1st Qtr. 1972	CP	Saginaw River	Coal	
2nd Qtr. 1972	CP	Wealthy Street	Coal	-30
2nd Qtr. 1972	DE	Monroe 2	Coal	-23
2nd Qtr. 1972	CP	Palisades 1 (Partial)	Nuclear	789
4th Qtr. 1972	DE	Marysville 2-5 (Partial 6)	Coal	-90
4th Qtr. 1972	DE	Conners 4	Coal	-128
4th Qtr. 1972	CP	Palisades 1 (Uprate)	Coal	-35
4th Qtr. 1972	CP	Kalamazoo	Coal	300
			1972 TOTAL	-23
				<u>1200</u>
1st Qtr. 1973	DE	Monroe 3	Coal	
1st Qtr. 1973	MP	Ludington 1	PS	789
1st Qtr. 1973	MP	Ludington 2	PS	312
2nd Qtr. 1973	CP	Elm Street	Coal	312
2nd Qtr. 1973	MP	Ludington 3	PS	-32
3rd Qtr. 1973	MP	Ludington 4	PS	312
3rd Qtr. 1973	MP	Ludington 5	PS	312
4th Qtr. 1973	DE	Conners 8 & 9	Coal	312
4th Qtr. 1973	DE	Trenton 1-4	Coal	-68
4th Qtr. 1973	MP	Ludington 6	PS	-216
4th Qtr. 1973	CP	Palisades (Derate)		312
4th Qtr. 1973	CP	Palisades (Uprate)		-14
			1973 TOTAL	100
				<u>2431</u>
1st Qtr. 1974	DE	Monroe 4	Coal	
4th Qtr. 1974	DE	Trenton 5 & 6	Coal	786
			1974 TOTAL	-108
				<u>678</u>
1st Qtr. 1975	CP	Karn 3	Oil	
4th Qtr. 1975	DE	Conners 10,12,13,14	Coal	680
4th Qtr. 1975	DE	Delray 11,12,13	Coal	-223
			1975 TOTAL	-182
				<u>278</u>
1st Qtr. 1976	DE	Greenwood 1	Oil	
1st Qtr. 1976	CP	Karn 4	Oil	800
3rd Qtr. 1976	DE	Fermi 2	Nuclear	680
			1976 TOTAL	1180
				<u>2538</u>
2nd Qtr. 1977	CP	Midland 1	Nuclear	
			1977 TOTAL	486
				<u>486</u>

III. MICHIGAN POOL CAPABILITY ADDITIONS AND REMOVALS (contd)  
1972 - 1981

<u>Service Date</u>	<u>Company</u>	<u>Unit Designation</u>	<u>Type</u>	<u>Net Demonstrate Capability</u>
2nd Qtr. 1978	Unknown	Undesignated	Oil	650
2nd Qtr. 1978	CP	Midland 2	Nuclear	815
			1978 TOTAL	<u>1465</u>
2nd Qtr. 1979	DE	Fermi 3	Nuclear	1150
			1979 TOTAL	<u>1150</u>
2nd Qtr. 1980	CP	Undesignated	Undetermined	1150
			1980 TOTAL	<u>1150</u>
2nd Qtr. 1981	DE	Undesignated	Undetermined	1150
			1981 TOTAL	<u>1150</u>

IV. MICHIGAN POOL MONTHLY LOADS AND RESOURCES

CALENDAR YEAR 1972

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
Net Demonstrated Capability - MW	10866	10786	10786	11552	11952	11952	11952	11952	11952	11789	11789	12066
Net Seasonal Cap - MW	10857	10777	10756	11486	11712	11610	11533	11548	11594	11672	11742	12059
Purchases - MW	60	60	360	360	60	260	260	260	260	60	60	60
Sales - MW	200	200	0	0	0	0	0	0	0	0	300	300
Available Cap - MW	10717	10637	11116	11846	11772	11870	11793	11808	11854	11732	11502	11819
Native Load - MW	9090	8830	8585	8515	9215	10285	10305	10305	10065	9060	9555	10055
Available Reserve - MW	1627	1807	2531	3331	2557	1585	1488	1503	1789	2672	1947	1764
- %	17.9	20.5	29.5	39.1	27.7	15.4	14.4	14.6	17.8	29.5	20.4	17.5
Internal Load (1) - MW												
Reserve - MW												
- %												

CALENDAR YEAR 1973

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
Net Demonstrated Capability - MW	12378	12378	13479	13479	13759	13759	14071	14071	14383	14099	14197	14497
Net Seasonal Cap - MW	12369	12369	13452	13416	13523	13430	13680	13684	14036	13988	14352	14468
Purchases - MW	60	60	60	60	60	160	160	160	160	60	60	60
Sales - MW	300	300	0	0	0	0	0	0	312	512	824	600
Available Cap - MW	12129	12129	13512	13476	13583	13590	13840	13844	13884	13536	13588	13724
Native Load - MW	9695	9460	9185	9070	9840	11095	11115	11115	10855	9630	10155	10785
Available Reserve - MW	2434	2669	4327	4406	3743	2495	2775	2729	3029	3906	3425	2435
- %	25.1	28.2	47.1	48.6	38.0	22.5	24.5	24.6	27.9	40.6	37.7	27.3
Internal Load (1) - MW												
Reserve - MW												
- %												

1 Internal Load Equals Native Load Plus Interruptible Load  
Michigan Pool Serves No Interruptible Load

V. MICHIGAN POOL SEASONAL LOADS AND RESOURCES

1974 - 1981

	<u>SUMMER SEASON</u>							
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Net Demonstrated Cap - MW	15283	15835	16910	18519	19984	21134	22784	23434
Net Seasonal Cap - MW	14888	15444	16524	18158	19573	20723	21873	22023
Purchases - MW	60	60	60	60	60	60	60	60
Sales - MW	824	824	824	824	824	824	824	824
Available Cap - MW	14124	14880	15960	17594	19009	20159	21309	22459
Native Load - MW	11945	12840	13785	14845	16075	17295	18580	19840
Available Reserve - MW	2179	2040	2175	2749	2934	2864	2729	2619
- %	18.2	15.9	15.8	18.5	18.3	16.6	14.7	13.2
Internal Load (1) - MW								
Reserve - MW								
- %								

	<u>WINTER SEASON</u>							
	<u>1974-75</u>	<u>1975-76</u>	<u>1976-77</u>	<u>1977-78</u>	<u>1978-79</u>	<u>1979-80</u>	<u>1980-81</u>	<u>1981-82</u>
Net Demonstrated Cap - MW	15175	15450	18033	18519	19984	21134	22784	23434
Net Seasonal Cap - MW	15166	15441	18023	18509	19974	21124	22274	23424
Purchases - MW	60	60	60	60	60	60	60	60
Sales - MW	824	824	824	824	824	824	824	824
Available Cap - MW	14402	14877	17459	17945	19410	20560	21710	22860
Native Load - MW	11535	12330	13135	14045	15065	16060	17070	18270
Available Reserve - MW	2867	2547	4324	3900	4345	4500	4640	4590
- %	24.9	20.7	32.9	27.8	28.8	28.0	27.2	25.1
Internal Load (1) - MW								
Reserve - MW								
- %								

(1) Internal Load Equals Native Load Plus Interruptible Load  
Michigan Pool Serves No Interruptible Load

problem in that substitute capacity must be available whenever the unit is out of service due to emergency or maintenance conditions. Large units tend to suffer higher forced outage rates than small units and when added to a system composed of relatively small units, may dramatically increase the reserve requirement.<sup>72/</sup> (Chayavadhanangkur, PT p. 13). However, as both system size and the number of available units increase, the effect on reserve requirements posed by installation of large units diminishes.<sup>73/</sup> (Chayavadhanangkur, PT p. 13; Wolfe, Tr. 1635). Interconnections, which effectively increase total system size and make more units available, reduce percent reserve requirements.<sup>74/</sup> (Chayavadhanangkur, PT p. 13). Consumers Power Company, as a member of ECAR, is part of an interconnected system of 51,000 Mw of generation capacity.<sup>75/</sup> Absent this capacity, the utilization of 1300 Mw Midland Power Plant would have been extremely difficult. (Rogers, Tr. 5545; Wein, PT p. 64).

XII-16

Physically, the unit is an integral part of an interconnected interdependent generation and transmission system. Due to its large size, the

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<sup>72/</sup> 1970 NPS, p. II-1-56.

<sup>73/</sup> Ibid.

<sup>74/</sup> Ibid.

<sup>75/</sup> 1970 NPS, p. i-17-17.

nuclear plant often requires bulk power facilities of interconnected systems to be modified throughout, in order to accommodate increased power flows. (Rogers, Tr. 5529). Organizationally and economically, the unit frequently reflects the planning of a multisystem group. Consequently the capacity and output rights to the unit will be shared in bulk power markets.

3. Access to Nuclear Power Plants Requires Coordination

XII-17 On an individual basis, few very large electric systems appear able to utilize large-scale generation and transmission. Most systems must be able to join a coordinating group large enough to take full advantage of the efficient generating units and extra-high-voltage transmission.<sup>76/</sup> (Section XI-A-2, infra).

XII-18 Dominant utilities have engaged in extensive coordination (DJ-Exhibits 67, 72, 73, 73A, 74, 75, 76, 77 and 78). In the absence of formal pools, bilateral agreements among large private and public systems are the coordination mechanism. (Muller, PT p. 15).

XII-19 In contrast, small systems often operate in isolation and thus are precluded from installing large nuclear units. (Brush, Tr. 2292).

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<sup>76/</sup> 1970 NPS, pp. I-17-1, I-17-2, and I-17-27.

trend away from fossil-fired plants toward nuclear plants. (Aymond, Tr. 6351, 6353; Wolfe, Tr. 1721). In recent years nuclear fuel cost has not changed significantly, while fossil-fuel prices have significantly increased.<sup>67/</sup> This advantage of nuclear plants offsets the capital cost advantage of fossil-fueled plants such that the overall economies of scale are greater for nuclear plants.<sup>68/</sup> (Wolfe, Tr. 1721; Brush, Tr. 2302). In addition to lower fuel costs, nuclear plants offer better solutions to the industry's environmental problems.<sup>69/</sup> (Brush, Tr. 2302). In view of the prospect for future increases in fossil fuel prices, "there does not appear to be any reason to expect that the nuclear advantage will not be maintained or even increased as time goes on."<sup>70/</sup> (Chayavadhanangkur, PT p. 4). Accordingly, nuclear power plants are expected to represent

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<sup>67/</sup> Ibid., p. I-6-1.

<sup>68/</sup> Ibid., p. II-1-59.

<sup>69/</sup> Ibid., p. I-6-1.

<sup>70/</sup> Ibid., p. II-1-59.



44 percent of all future additions to capacity during the 1970's, and 81 percent of total additions during the 1990's.<sup>71/</sup>

2. Intersystem Coordination and Nuclear Generation

XII-15

The introduction of large, nuclear units will maintain and likely increase the need for intersystem coordination. (Rogers, Tr. 5545; Chayavadhanangkur, PT p. 7; Brush, Tr. 2347-2350; Fletcher, Tr. 4353; Section XIA, supra). Economically, a nuclear generating facility cannot be put in place as an independent producing unit. (Helman, PT p. 34). It is designed to function as part of an integrated and coordinated bulk power supply system. Invariably, nuclear generating units will be utilized for base load operation (Aymond, Tr. 6353), that is, continuous operation at full capacity, and must be supplemented by intermediate and peaking capacity in order to provide power at the lowest cost. (Chayavadhanangkur, PT p. 6; Mosley, Tr. 8617). The large size of the nuclear unit will usually exceed the utility's annual load growth. (Wein, PT p. 64). Therefore, the utility must sell or otherwise share the excess in order to minimize surplus capacity. Further, the operation of large generating units creates a reserve

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<sup>71/</sup> Office of Planning and Analysis, U.S. Atomic Energy Commission, Nuclear Power, 1973-2000, WASH-1139 (72), p.4 (See Appendix F).

BASE LOAD STATION A generating station which is normally operated to take all or part of the base load of a system and which, consequently, operates essentially at a constant output.

BETTERMENT A substantial enlargement or improvement of existing structures, facilities, or equipment by the replacement or improvement of parts without replacement of a complete unit of property, which has the effect of extending the useful life of the property, increasing its capacity, lowering its operating cost, or otherwise adding to its worth through the benefit it can yield.

BILLING DEMAND See DEMAND, BILLING.

BLOCK HOPKINSON DEMAND RATE See RATE SCHEDULE.

BLOCK METER RATE See RATE SCHEDULE.

BOND RATINGS Rating Systems which provide the investor with a simple series of gradation by which the relative investment qualities of bonds are indicated. Moody's Investor Service and Standard & Poor's Corporation are the principal bond rating agencies.

Rank	Moody's		Standard & Poor's	
	Rating	Quality Description	Rating	Quality Description
1st	Aaa	Best Quality	AAA	Highest Grade
2nd	Aa	High Quality	AA	High Grade
3rd	A	Higher Medium Quality	A	Upper Medium Grade
4th	Baa	Lower Medium Quality	BBB	Medium Grade
5th	Ba	Speculative Elements	BB	Lower Medium Grade
6th	B	Generally Lack Characteristics of the Desirable Investment	B	Speculative
7th	Caa	Poor Standing	CCC	Outright Speculations

TIMES FIXED CHARGES AND PREFERRED DIVIDENDS EARNED The ratio of (a) Income before Interest Charges to (b) the sum of Interest Charges and Dividends on Preferred Stock. Used as a measure of preferred dividend coverage or safety.

TOTAL CAPACITY AVAILABLE AT TIME OF ANNUAL MAXIMUM SYSTEM LOAD See CAPABILITY, GROSS SYSTEM.

TOTAL ELECTRIC UTILITY INDUSTRY See ELECTRIC UTILITY INDUSTRY OR ELECTRIC UTILITIES.

TOTAL FUEL EXPENSE (AFTER RESIDUAL CREDIT) Total cost (including freight and handling) of coal, oil, gas, nuclear, or other fuel used in the production of electric energy, less fuel portion of steam transfer credit, and residual credits, such as net credits from the disposal of ashes, cinders, and nuclear by-products.

TOTAL UNITED STATES SUPPLY (ELECTRIC) Total of electricity made available in the United States through Total Electric Utility generation, generation from Non-Utility sources, such as industrial power plants and railroad and railway power plants, and Net Imports of energy over international boundaries.

TOTAL UTILITY OPERATING EXPENSES See OPERATING EXPENSES.

TRANSFORMER An electromagnetic device for changing the voltage of alternating-current electricity.

TRANSFORMER, LINE A transformer classified as distribution line equipment, generally having a rated primary voltage of 2,300 to 15,000 volts. Such transformers usually are step-down transformers and either pole-type or underground.

TRANSMISSION The act or process of transporting electric energy in bulk from a source or sources of supply to other principal parts of the system or to other utility systems. Also a functional classification relating to that portion of utility plant used for the purpose of transmitting electric energy in bulk to other principal

## UNIFORM STATISTICAL REPORT—YEAR ENDED DECEMBER 31, 1973

(To American Gas Association, Edison Electric Institute and Financial Analysts)

Please submit the required pages, together with a copy of the Company's Annual Report to Stockholders, by April 1, to the American Gas Association and/or the Edison Electric Institute. A copy of the Company's Annual Report to Stockholders may be submitted after that date if not available at the time this report is mailed. If such report does not show capitalization by issues, furnish this information on a supplemental page.

All Energy and Dollar Amounts should be reported in Thousands. Because this report is frequently used in conjunction with the Company's Annual Report to Stockholders, the data included herein should agree with the comparable information in such Annual Report. To assure accuracy and consistency, numerous cross-ties and footnotes have been appended to the schedules so that the statistics for the same item shown on more than one schedule will be identical.

## Name and Address of Company

Consumers Power Company  
212 W Michigan Avenue  
Jackson, Michigan 49201

List Affiliated Companies and Indicate Relationship  
(Parent, Subsidiary, Associate, etc.)

- (1) Michigan Gas Storage Company - Wholly Owned Subsidiary
- (2) Northern Michigan Exploration Company - Wholly Owned Subsidiary
- (3) Michigan Utility Collection Service - Wholly Owned Subsidiary

## Individual Furnishing Information

Name J. W. Kluberg  
 Title Vice President and Controller  
 Telephone No. 517-788-0700

May 14, 1974  
 Date This Report Released

THIS REPORT HAS BEEN PREPARED FOR THE PURPOSE OF PROVIDING GENERAL AND STATISTICAL INFORMATION CONCERNING THE COMPANY AND NOT IN CONNECTION WITH ANY SALE, OFFER FOR SALE OR SOLICITATION OF AN OFFER TO BUY ANY SECURITIES.

Company

Consumers Power Company

SCHEDULE XVIII—GENERATING STATION STATISTICS (a)

NAME AND LOCATION OF STATION (b)	TYPE (c)	DEC. 31 RATING IN NET KILOWATTS		HEAT RATE (BTU per Kwhr net generation)	NET GENERATION Kwhr (thousands)
		Nameplate (d)	Capability (e)		
J. H. Campbell - West Olive	SC	650,000	647,000	9,082	4,103,736
J. C. Weadock - Essexville	SC	614,500	659,000	10,594	2,662,443
D. E. Karn - Essexville	SC	530,000	550,000	9,124	3,438,210
B. C. Cobb - Muskegon	SC	510,500	531,000	10,582	3,449,766
J. R. Whiting - Near Erie	SC	325,000	345,000	9,906	2,211,734
B. E. Morrow - Comstock	SC	186,000	210,000	12,939	659,543
*Elm Street - Battle Creek	SC	(30,000)	(32,000)	15,435	62,183
Total Conventional Steam Plants		2,816,000	2,942,000	9,933	16,587,680
Big Rock Point - Charlevoix	SN	75,000	71,000		422,713
Palisades - Covert	SN	811,700	700,000		2,411,336
Total Nuclear Plants		886,700	771,000		2,834,049
Thatford - Flint	GT	237,000	190,000		324,746
Gaylord - Gaylord	GT	90,600	101,000		220,874
Morrow - Comstock	GT	35,000	40,000		85,292
Straits 1 - Mackinaw City	GT	25,000	28,000		62,432
Campbell A - West Olive	GT	20,600	21,000		24,189
Weadock A - Essexville	GT	20,600	21,000		27,560
Whiting A - Near Erie	GT	20,600	21,000		27,945
Total Gas Turbine Plants		449,400	322,000		773,038
Hardy	H	30,000	32,400		100,978
Tipry	H	20,000	21,000		55,985
Others (11 Other)	H	80,600	80,200		296,726
Total Hydro Plants		130,600	133,600		453,690
**Lewington	PS	1,009,200	994,500		969,181
Sub-Total		5,291,900	5,363,100		21,617,635
** Less: Energy Input for Pumped Storage					1,380,519
Total - All Stations Operated		5,291,900	5,363,100		20,237,119

(a) In addition to listing all stations operated, show separately below stations owned but leased to others.  
None

(b) Group by type and show totals for each type. Indicate by an (L) stations leased from others and a (J) stations jointly-owned with others.

(c) Insert symbol: SC - Steam, Conventional; SN - Steam, Nuclear; H - Hydro; PS - Pumped Storage; I - Internal Combustion; GT - Gas Turbine; GEO - Geothermal; CC - Combined Cycle.

(d) Give manufacturer's maximum nameplate rating of the turbine-generator set.

(e) For Company's largest unit give capability 700,000, date of installation May 1973 and name of station Palisades.

(f) Amount of firm capability (including net firm purchases from other companies) at December 31 6,001,600.

(g) Should equal total net generation on Line 10, Schedule XVI - page E-16.

\*Bracketed ratings are for units retired as of 12/31/73 and not included in totals.

\*\*This plant is owned jointly by The Detroit Edison Company (40%) and Consumers Power Company

**UNIFORM STATISTICAL REPORT—YEAR ENDED DECEMBER 31, 1973**

Company \_\_\_\_\_

Consumers Power Company

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**SCHEDULE XXI—GENERATING UNITS RETIRED, ADDED, UNDER CONSTRUCTION, OR AUTHORIZED DURING YEAR**

NAME AND LOCATION OF STATION (a)	TYPE (b)	RATING IN NET KILOWATTS (a)		Retired (d)	NEW UNITS			Date In Service (f)
		Nameplate (c)	Capacity		Added (d)	Under Const. (d)	Authorized (d) (e)	
*Ludington - Near Ludington								
Unit No. 1	PS	168,200	165,750		X			Jan 18, 1973
Unit No. 2	PS	168,200	165,750		X			Mar 19, 1973
Unit No. 3	PS	168,200	165,750		X			Apr 30, 1973
Unit No. 4	PS	168,200	165,750		X			June 11, 1973
Unit No. 5	PS	168,200	165,750		X			Aug 7, 1973
Unit No. 6	PS	168,200	165,750		X			Oct 1, 1973
Elm Street - Battle Creek	SC	30,000	32,000	X				
Midland - No. 1 - Midland	SN	526,400	486,000			X		Mar 1980
Midland - No. 2 - Midland	SN	854,900	815,000			X		Mar 1979
Quanicassee - No. 1 - Essexville	SN	1,150,000	1,150,000				X	Aug 1981
Quanicassee - No. 2 - Essexville	SN	1,150,000	1,150,000				X	Aug 1983
Karn - Essexville - Unit 3	SC	605,000	644,000			X		Oct 1974
Karn - Essexville - Unit 4	SC	632,000	663,000			X		Oct 1975
Campbell - West Olive	SC	800,000	800,000			X		Dec 1977

(a) For jointly owned units or stations, so note under name and report information for company portion only.

(b) Insert symbol: SC—Steam, Conventional; SN—Steam, Nuclear; H—Hydro; PS—Pumped Storage; I—Internal Combustion; GT—Gas Turbine; GEO—Geothermal; CC—Combined Cycle.

(c) Give manufacturers maximum nameplate rating.

(d) Insert X in the appropriate columns.

(e) But not under construction.

(f) For units added, show exact date of commercial operation. For units under construction or authorized, estimate the month and year.

**NOTES & REMARKS**

\*This plant is owned jointly by The Detroit Edison Company and Consumers Power Company. Consumers Power Company's share of the plant's capability is 51% and that of Detroit Edison is 49%.

PAGE E-20

Company Consumers Power Company

TOTAL COMPANY X OR STATE OF Michigan

For EEI only - Furnish a separate page for each State in which Company has facilities.

SCHEDULE XXII—MILES OF ELECTRIC LINE OPERATED AND OTHER PHYSICAL DATA

MILES OF ELECTRIC LINE OPERATED

DESIGN LINE VOLTAGE - KV	OVERHEAD LINES		UNDERGROUND LINES	
	Pole Miles	Circuit Miles	Conduit Bank Miles	Cable Miles
<b>Transmission</b>				
22 Kv and over:				
345 Kv	814.25	1,421.75		
138 Kv	3,020.31	3,338.74		
120 Kv	20.93	23.59		
46 Kv	4,011.25	4,198.30	7.27	7.27
41.6 Kv	10.52	12.45	0.24	0.24
23 Kv	49.71	68.85	2.11	8.00
Under 22 Kv				
<b>Total Transmission</b>	<u>7,926.97</u>	<u>9,063.68</u>	<u>9.62</u>	<u>15.61</u>
<b>Distribution</b>				
22 Kv and over:				
Under 22 Kv		XXXXXXXXXXXX		
<b>Total Distribution</b>	<u>43,970.30</u>	XXXXXXXXXXXX	<u>62.80</u>	<u>3,069.17</u>
<b>GRAND TOTAL (T&amp;D)</b>	<u>51,897.24</u>	XXXXXXXXXXXX	<u>72.42</u>	<u>3,084.78</u>

OTHER PHYSICAL DATA

	Number	Capacity (Kva)
1. Distribution Substations (Includes Utility Owned Industrial Substations)		
2. Line Transformers (Includes Network Transformers)	350,354	7,521,831

## UNIFORM STATISTICAL REPORT—YEAR ENDED DECEMBER 31, 1972

(To American Gas Association, Edison Electric Institute and Financial Analysts)

Please submit the required pages, together with a copy of the Company's Annual Report to Stockholders, by April 1, to the American Gas Association and/or the Edison Electric Institute. A copy of the Company's Annual Report to Stockholders may be submitted after that date if not available at the time this report is mailed. If such report does not show capitalization by issues, furnish this information on a supplemental page.

All Energy and Dollar Amounts should be reported in Thousands. Because this report is frequently used in conjunction with the Company's Annual Report to Stockholders, the data included herein should agree with the comparable information in such Annual Report. To assure accuracy and consistency, numerous cross-ties and footnotes have been appended to the schedules so that the statistics for the same item shown on more than one schedule will be identical.

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 Owned Subsidiary
- (2) Northern Michigan Exploration -  
 Wholly Owned Subsidiary
- (3) Michigan Utility Collection Service -  
 Wholly Owned Subsidiary

## Individual Furnishing Information

Name J. W. Kluberg  
 Title Vice President and Controller  
 Telephone No. 517-788-0700

May 9, 1973  
 Date This Report Released



Company Consumers Power Company

**SCHEDULE XVIII—GENERATING STATION STATISTICS (a)**

NAME AND LOCATION OF STATION (b)	TYPE (c)	DEC. 31 RATING IN NET KILOWATTS		HEAT RATE BTU per Kwhr net generation (e)	NET GENERATION Kwhr (thousands)
		Nameplate (d)	Capability (d)		
J. H. Campbell - West Olive	SC	650,000	647,000	9,053	3,971,345
J. C. Weadock - Essexville	SC	614,500	659,000	10,848	3,358,146
D. E. Karn - Essexville	SC	530,000	550,000	9,151	3,489,559
B. C. Cobb - Muskegon	SC	510,500	531,000	10,729	2,874,306
J. R. Whiting - Near Erie	SC	325,000	345,000	9,925	1,921,176
B. E. Morrow - Comstock	SC	186,000	210,000	13,161	761,233
Elm Street - Battle Creek	SC	30,000	32,000	14,972	88,317
*Kalamazoo - Kalamazoo	SC	(20,000)	(23,000)	20,197	31,578
*Wealthy St - Grand Rapids	SC	(20,000)	(23,000)	17,643	33,709
*Saginaw River - Zilwaukee	SC	(100,000)	(80,000)	20,748	7,056
<u>Total Conventional Steam Plants</u>		<u>2,845,000</u>	<u>2,974,000</u>	<u>10,095</u>	<u>15,536,732</u>
Big Rock Point - Charlevoix	SN	75,000	71,000		360,439
Palisades - Covert	SN	811,700	585,000		1,764,812
<u>Total Nuclear Plants</u>		<u>886,700</u>	<u>656,000</u>		<u>2,125,251</u>
Thetford - Flint	GT	237,000	290,000		383,079
Gaylord - Gaylord	GT	90,600	101,000		252,633
Morrow - Comstock	GT	35,000	40,000		79,345
Straits 1 - Mackinaw City	GT	25,000	28,000		63,537
Campbell A - West Olive	GT	20,600	21,000		15,040
Weadock A - Essexville	GT	20,600	21,000		28,721
Whiting A - Near Erie	GT	20,600	21,000		17,645
<u>Total Gas Turbine Plants</u>		<u>449,400</u>	<u>522,000</u>		<u>840,360</u>
Hardy	H	30,000	32,400		81,920
Tippy	H	20,000	21,000		56,028
Others (11 Other)	H	80,600	80,200		272,279
<u>Total Hydro Plants</u>		<u>130,600</u>	<u>133,600</u>		<u>410,227</u>
Allegan	I	-	-		2,065
Sub-Total		4,312,700	4,285,600		19,914,805
Less: Energy Input for Pumped Storage					
<u>Total - All Stations Operated</u>		<u>4,312,700</u>	<u>4,285,600</u> (f)		<u>19,914,805</u> (g)

(a) In addition to listing all stations operated, show separately below stations owned but leased to others.  
None

(b) Group by type and show totals for each type. Indicate by an (L) stations leased from others and a (J) stations jointly-owned with others.

(c) Insert symbol: SC - Steam, Conventional; SN - Steam, Nuclear; H - Hydro; PS - Pumped Storage; I - Internal Combustion; GT - Gas Turbine; GEO - Geothermal; CC - Combined Cycle.

(d) Give manufacturers maximum nameplate rating of the turbine-generator set.

(e) For Company's largest unit give capability 585,000; date of installation Dec 1972; and name of station Palisades

(f) Amount of firm capability (including net firm purchases from other companies) at December 31 4,680,600

(g) Should equal total net generation on Line 10, Schedule XVI - page E-15.

\*Bracketed ratings are for units retired as of 12/31/72 and not included in totals.

**UNIFORM STATISTICAL REPORT—YEAR ENDED DECEMBER 31, 1972**

Company Consumers Power Company

**SCHEDULE XXI—GENERATING UNITS RETIRED, ADDED, UNDER CONSTRUCTION, OR AUTHORIZED DURING YEAR**

NAME AND LOCATION OF STATION (a)	TYPE (b)	RATING IN NET KILOWATTS (a)		Retired (d)	NEW UNITS			Date In Service (f)
		Nameplate (c)	Capability		Added (d)	Under Const. (d)	Authorized (d) (e)	
Palisades Unit 1 - Covert Township	SN	811,700	585,000*		X			Dec 31, 1972
Saginaw River - Zilwaukee	SC	100,000	80,000	X				
Kalamazoo - Kalamazoo		20,000	23,000	X				
Wealthy Street - Grand Rapids	SC	20,000	23,000	X				
Allegan Diesel - Allegan	I	2,485	2,450	X				
Ludington - Near Ludington	PS	955,000	955,000			X		Nov 1973**
Midland - No 1 - Midland	SN	526,400	486,000			X		MAR 1980
Midland - No 2 - Midland	SN	854,900	815,000			X		FEB 1981
Quanicassee - No 1 - Essexville	SN	1,150,000	1,150,000			X		MAR 1979
Quanicassee - No 2 - Essexville	SN	1,150,000	1,150,000			X		AUG 1982
Karn - Essexville - Unit 3	SC	605,000	644,000			X		OCT 1974
Karn - Essexville - Unit 4	SC	632,000	663,000			X		OCT 1975
Campbell - West Olive	SC	800,000	800,000				X	DEC 1977

- (a) For jointly owned units or stations, so note under name and report information for company portion only.
- (b) Insert symbol: SC—Steam, Conventional; SN—Steam, Nuclear; H—Hydro; PS—Pumped Storage; I—Internal Combustion; GT—Gas Turbine; GEO—Geothermal; CC—Combined Cycle.
- (c) Give manufacturer's maximum nameplate rating.
- (d) Insert X in the appropriate columns.
- (e) But not under construction.
- (f) For units added, show exact date of commercial operation. For units under construction or authorized, estimate the month and year.

**NOTES & REMARKS** \*As of December 31, 1972, this plant was restricted by A.E.C. license to 585,000 kW.  
 \*\*This plant will be owned jointly by The Detroit Edison Company and Consumers Power Company.  
 Consumers Power Company's share of the plant's capability will be 51% and that of Detroit Edison will be 49%.

Company Consumers Power Company

TOTAL COMPANY X OR STATE OF \_\_\_\_\_

For EEI only - Furnish a separate page for each State in which Company has facilities.

**SCHEDULE XXII—MILES OF ELECTRIC LINE OPERATED AND OTHER PHYSICAL DATA**

MILES OF ELECTRIC LINE OPERATED

DESIGN LINE VOLTAGE - KV	OVERHEAD LINES		UNDERGROUND LINES	
	Pole Miles	Circuit Miles	Conduit Bank Miles	Cable Miles
<b>Transmission</b>				
22 Kv and over:				
345 Kv	499.02	964.28		
138 Kv	2,937.08	3,217.60		
120 Kv	20.93	23.59		
46 Kv	3,959.49	4,137.31	5.91	5.91
41.6 Kv	10.52	12.45	0.24	0.24
23 Kv	76.88	93.65	2.68	8.66
Under 22 Kv .....				
<b>Total Transmission .....</b>	<b>7,503.92</b>	<b>8,448.88</b>	<b>8.83</b>	<b>14.81</b>
<b>Distribution</b>				
22 Kv and over:				
Under 22 Kv .....		XXXXXXXXXXXXXX		
<b>Total Distribution .....</b>	<b>43,414.50</b>	XXXXXXXXXXXXXX	<b>66.80</b>	<b>2,484.10</b>
<b>GRAND TOTAL (T&amp;D) .....</b>	<b>50,918.42</b>	XXXXXXXXXXXXXX	<b>75.63</b>	<b>2,498.91</b>

OTHER PHYSICAL DATA

	Number	Capacity (Kva)
1. Distribution Substations (Includes Utility Owned Industrial Substations) .....		
2. Line Transformers (Includes Network Transformers) .....	347,579	6,892,161

# UNIFORM STATISTICAL REPORT—YEAR ENDED DECEMBER 31, 1971

(To American Gas Association, Edison Electric Institute and Financial Analysts)

Please submit the required pages, together with a copy of the Company's Annual Report to Stockholders, by April 1, to the American Gas Association and/or the Edison Electric Institute. A copy of the Company's Annual Report to Stockholders may be submitted after that date if not available at the time this report is mailed. If such report does not show capitalization by issues, furnish this information on a supplemental page.

All Energy and Dollar Amounts should be reported in Thousands. Because this report is frequently used in conjunction with the Company's Annual Report to Stockholders, the data included herein should agree with the comparable information in such Annual Report. To assure accuracy and consistency, numerous crossites and footnotes have been appended to the schedules so that the statistics for the same item shown on more than one schedule will be identical.

## Name and Address of Company

Consumers Power Company  
212 West Michigan Avenue  
Jackson, Michigan 49201

## List Affiliated Companies and Indicate Relationship (Parent, Subsidiary, Associate, etc.)

(1) Michigan Gas Storage Company - Wholly Owned  
Subsidiary

(2) Northern Michigan Exploration Company - Wholly  
Owned Subsidiary

## Individual Furnishing Information

Name J. W. Kluberg  
Title Vice President and Controller  
Telephone No. 517-788-0700

May 5, 1972  
Date This Report Released

THIS REPORT HAS BEEN PREPARED FOR THE PURPOSE OF PROVIDING GENERAL AND STATISTICAL INFORMATION CONCERNING THE COMPANY AND NOT IN CONNECTION WITH ANY SALE, OFFER FOR SALE OR SOLICITATION OF AN OFFER TO BUY ANY SECURITIES.

Company Consumers Power Company

**SCHEDULE XVIII—GENERATING STATION STATISTICS (a)**

NAME AND LOCATION OF STATION (b)	TYPE (c)	DEC. 31 RATING IN NET KILOWATTS		HEAT RATE (BTU per Kwhr net generation)	NET GENERATION Kwhr (thousands)
		Nameplate (d)	Capability (e)		
J. H. Campbell - West Olive	SC	650,000	647,000	9,005	3,316,781
J. C. Woodcock - Essexville	SC	614,500	659,000	11,024	3,179,743
D. E. Karn - Essexville	SC	530,000	550,000	9,076	3,454,141
R. C. Cobb - Mackayon	SC	510,500	531,000	9,887	3,211,443
J. R. Whiting - Near Erie	SC	325,000	345,000	9,925	2,199,871
B. E. Morrow - Comstock	SC	186,000	210,000	12,974	952,509
Saginaw River - Milwaukee	SC	100,000	80,000	21,886	95,308
Elm Street - Battle Creek	SC	30,000	32,000	14,902	98,381
Kalamazoo - Kalamazoo	SC	20,000	23,000	18,114	143,844
Wealthy St - Grand Rapids	SC	20,000	23,000	17,214	146,411
Total Conventional Steam Plant		2,956,000	3,100,000	10,243	16,780,151
Big Rock Point - Charlevoix	SN	75,000	71,000		368,853
Palisades - Covert	SN	-	-		135,000
Total Nuclear Steam Plant		75,000	71,000		503,853
Thetford - Flint	GT	237,050	290,000		318,000
Gaylord - Gaylord	GT	90,600	101,000		223,653
Morrow - Comstock	GT	35,000	40,000		71,280
Campbell A - West Olive	GT	20,600	21,000		17,600
Woodcock A - Essexville	GT	20,600	21,000		27,132
Whiting A - Near Erie	GT	20,600	21,000		25,193
Straits I - Mackinaw City	GT	25,000	25,000		31,000
Total Gas Turbine Plants		454,450	522,000		142,100
Allegan	I	2,485	2,450		2,501
Hardy	H	30,000	32,400		91,051
Tippy	H	20,000	21,000		59,000
Others (11 Others)	H	80,550	80,200		227,631
Total Hydro Plants		130,550	133,600		477,682
Sub-Total		XXXXX XXX XXX XX	XXX XXX XXX XX	XXXXXX XX	XXXXXX XX
Less: Energy Input for Pumped Storage		XXXXX XXX XXX XX	XXXXX XXX XXX XX	XXXXX XXX XX	XXXXX XXX XX
Total - All Stations Operated		3,643,485	3,829,050 (f)		18,273,101 (g)

- (a) In addition to listing all stations operated, show separately below stations owned but leased to others.  
None
- (b) Group by type and show totals for each type. Indicate by an (L) stations leased from others and a (J) stations jointly-owned with others.
- (c) Insert symbol: SC - Steam, Conventional; SN - Steam, Nuclear; H - Hydro; PS - Pumped Storage; I - Internal Combustion; GT - Gas Turbine; GEO - Geothermal; CC - Combined Cycle.
- (d) Give manufacturers maximum nameplate rating of the turbine-generator set.
- (e) For Company's largest unit give capability 372,000; date of installation July 1967; and name of station J. H. Campbell 2
- (f) Amount of firm capability (including net firm purchases from other companies) at December 31 4,262,550
- (g) Should equal total net generation on Line 10, Schedule XVI - page E-16.

\*Commercial generation of power was achieved in testing operations in December 1971; however, unit was not declared in commercial operations.

**UNIFORM STATISTICAL REPORT—YEAR ENDED DECEMBER 31, 1971**

Company Consumers Power Company

**SCHEDULE XXI—GENERATING UNITS RETIRED, ADDED, UNDER CONSTRUCTION, OR AUTHORIZED DURING YEAR**

NAME AND LOCATION OF STATION (a)	TYPE (b)	RATING IN NET KILOWATTS (a)		Retired (d)	NEW UNITS			Date In Service (f)
		Nameplate (c)	Capacity		Added (d)	Under Const. (d)	Authorized (d) (e)	
Cascade Hydro, Units 1 & 2, Kent County	H	2,560	2,900	X				
Allegha No 1 & No 4, City of Allegha	I	2,110	2,960	X				
Thetford No 5, 6, 7, 8 & 9, Flint	GT	88,050	114,000		X			7/3/71
(1) Palisades - Covert Township - Unit 1	SN	811,700	811,700			X		Nov 1972
(2) Ludington - Near Ludington	PS	955,000	955,000			X		Nov 1973
Midland No 1 - Midland	SN	526,400	486,000			X		MAY 1978
Midland No 2 - Midland	SN	854,900	815,000			X		MAY 1978
Kara - Unit 3 - Essexville	SC	605,000	605,000			X		OCT 1974
Kara - Unit 4 - Essexville	SC	632,000	632,000			X		OCT 1975

- (a) For jointly owned units or stations, so note under name and report information for company portion only.
- (b) Insert symbol: SC—Steam, Conventional; SN—Steam, Nuclear; H—Hydro; PS—Pumped Storage; I—Internal Combustion; GT—Gas Turbine; GEO—Geothermal; CC—Combined Cycle.
- (c) Give manufacturers maximum nameplate rating.
- (d) Insert X in the appropriate columns.
- (e) But not under construction.
- (f) For units added, show exact date of commercial operation. For units under construction or authorized, estimate the month and year.

- NOTES & REMARKS**
- (1) Authorized at 20% of thermal capacity in November 1971 and at 60% of thermal capacity in March 1972.
  - (2) This plant will be owned jointly by The Detroit Edison Company and Consumers Power Company. Consumers Power Company's share of the plant's capability will be 51% and that of Detroit Edison will be 49%.

Company Consumers Power Company

TOTAL COMPANY X OR STATE OF \_\_\_\_\_

For EEI only - Furnish a separate page for each State in which Company has facilities.

SCHEDULE XXII—MILES OF ELECTRIC LINE OPERATED AND OTHER PHYSICAL DATA

MILES OF ELECTRIC LINE OPERATED

DESIGN LINE VOLTAGE - KV	OVERHEAD LINES		UNDERGROUND LINES	
	Pole Miles	Circuit Miles	Conduit Bank Miles	Cable Miles
<b>Transmission</b>				
22 Kv and over:				
345 Kv	396.89	787.08		
138 Kv	2,915.38	3,188.46		
120 Kv	20.93	23.59		
46 Kv	3,881.46	4,052.45	5.51	5.51
41.6 Kv	10.76	12.93	.24	.2-
23 Kv	95.49	118.50	2.27	9.0-
Under 22 Kv				
<b>Total Transmission</b>	<u>7,320.91</u>	<u>8,183.04</u>	<u>8.02</u>	<u>14.72</u>
<b>Distribution</b>				
22 Kv and over:				
Under 22 Kv	42,731.90	XXXXXXXXXXXX	60.03	1,809.50
<b>Total Distribution</b>	<u>42,731.90</u>	XXXXXXXXXXXX	<u>60.03</u>	<u>1,809.50</u>
<b>GRAND TOTAL (T&amp;D)</b>	<u>50,052.81</u>	XXXXXXXXXXXX	<u>68.05</u>	<u>1,824.22</u>

OTHER PHYSICAL DATA

	Number	Capacity (Kva)
1. Distribution Substations (Includes Utility Owned Industrial Substations)		
2. Line Transformers (Includes Network Transformers)	329,514	6,045,000

**ELECTRICAL  
WORLD**

**Directory**

**of**

**Electrical  
Manufacturers**

**and  
Installers**



# MICHIGAN

- 2 Wholesale Generating Companies
- 6 Investor-Owned Companies
- 19 Municipal Systems
- 15 Rural Electric Cooperatives

## INVESTOR OWNED SYSTEMS

**ALPENA POWER CO.**  
110 North 2nd Ave., Alpena, Mich 49707  
Tel: 356-2211, Area Code: 517

Mgr \_\_\_\_\_ J Gibson

Plt Emps (Full Time Year End) 47  
Plt Emps (Part Time) 10,000

Gen Exp: 121,000,000 (Approx)

**ALPENA PLANT**  
1,000 to 10,000

**CONSUMERS POWER CO.**  
212 W. Michigan Ave., Jackson, Mich 49201  
Tel: 788-0550, Area Code 517

Plt. Controls Operates the following Companies: Michigan Gas Storage Co.,  
1100 Michigan Avenue, Jackson, Michigan 49201

Michigan Light & Power Co., 212 West Michigan Avenue Jackson, Michigan  
49201

Dirk Board & Pres \_\_\_\_\_ A H Arnold  
SVP Gen Dir \_\_\_\_\_ H R Wall  
SVP Gen Dir \_\_\_\_\_ J B Simpson  
SVP Const & Pln \_\_\_\_\_ R C Youngquist  
VP Mgt \_\_\_\_\_ J G Campbell  
VP Gen \_\_\_\_\_ J W Hubert  
VP Dir Opn & Cust Ser \_\_\_\_\_ W A Hoogwerf  
VP Dir \_\_\_\_\_ R C Breeding  
VP Gen Dir \_\_\_\_\_ J C Fisher  
VP P & F \_\_\_\_\_ E R Wheeler  
VP Bus Power \_\_\_\_\_ W J Mosley  
VP Fin, Corp & Governmental Affs \_\_\_\_\_ W F Stone  
VP P & Gen Counsel \_\_\_\_\_ H P Groves  
VP \_\_\_\_\_ P A Perry  
VP \_\_\_\_\_ H J Phares  
VP Mgr. Bulk Pow Supply \_\_\_\_\_ R A Lanney  
VP Dir Pow Supply \_\_\_\_\_ R B Ableson  
VP Dir Finance Act \_\_\_\_\_ R A Webb  
VP Mgt \_\_\_\_\_ S T Cross  
VP Dir Enrgy \_\_\_\_\_ A C Fagerlund  
VP Mgr. Gas Enrgy & Custor \_\_\_\_\_ D E Anderson  
VP P & Stores \_\_\_\_\_ H T Reicher  
VP Gen Dir \_\_\_\_\_ S Grand - Grant, Jr.  
VP Cust Dir \_\_\_\_\_ J R Bunch  
VP Dir \_\_\_\_\_ W N McCubbin  
VP Mgt \_\_\_\_\_ R A London  
VP Gen Management \_\_\_\_\_ J E Price

Mgr. Dir & Const \_\_\_\_\_ D W West  
Exec Mgr. Gas Dir \_\_\_\_\_ E B Higgins  
Exec Mgr. Elec & Gas Pl Const \_\_\_\_\_ S H Howell  
Dir. Per. Dir \_\_\_\_\_ D W Mansfield  
Dir. Sales & Const \_\_\_\_\_ W J Jefferson  
Mgr. P & W & Land Dept \_\_\_\_\_ W L Reed  
Mgr. Dir. Transm & Dist \_\_\_\_\_ H J Janson  
Mgr. System Protection & Lab Serv \_\_\_\_\_ F S Rittenhouse  
Dir. Mktg \_\_\_\_\_ J H Oaker  
Dir. Government Relations \_\_\_\_\_ F B Perry, Jr.  
Gen. Adv. Serv. \_\_\_\_\_ R G Raut  
Librarian \_\_\_\_\_ D W Robinson

Sable Creek Dir - 49016  
Dir Mgr \_\_\_\_\_ G W Howard

Bay City Dir - 48706  
Dir Mgr \_\_\_\_\_ L L Stewart

Central Dir - 48801  
Dir Mgr \_\_\_\_\_ E Hahn

Fleet Dir - 48501  
Dir Mgr \_\_\_\_\_ J L Galle

Grand Rapids Dir - 49508  
Dir Mgr \_\_\_\_\_ G L Carson

Jackson Dir - 49201  
Dir Mgr \_\_\_\_\_ A F Brewer

Kalamazoo Dir - 49001  
Dir Mgr \_\_\_\_\_ W A Holmgren

Lansing Dir - 48901  
Dir Mgr \_\_\_\_\_ C F Brown

Marion Dir - E. Center - 49021  
Dir Mgr \_\_\_\_\_ G L Mayhew

Muskegon Dir - 49443  
Dir Mgr \_\_\_\_\_ C T Reids

Northeast Dir - Traversa City - 49684  
Dir Mgr \_\_\_\_\_ S D Wiley

Pontiac Dir - 48056  
Dir Mgr \_\_\_\_\_ J G Gannon

Saginaw Dir - 48605  
Dir Mgr \_\_\_\_\_ S W James

St. Clair - Steel Cast - 48066  
Dir Mgr \_\_\_\_\_ W L Whitfield

W. Wayne - Livonia - 48151  
Dir Mgr \_\_\_\_\_ J P Thomas

Consumption Co. Dir & Gas  
Dir. Cust. Res. 994,529 Cons. 109,727 Ind. 7,572 Others 779 Total 1,112,607  
Gas Cust. 879,535  
Dir. Res. Cust. Avg. Rate 22.23/cu. ft. Use 4,487 mcf.  
Dir. Cust. Emps. (Full Time Year End) 7,196  
Plt. Emps. (Full Time Year End) 11,861



Plant Cost	\$ 17,000 kw	Unit 6 - 17,600 kw
Net Cst Gen (1971)	318,009,000 kw/hr	Unit 7 - 17,600 kw
Gas Turbine Cost	237,000 kw	Unit 8 - 17,600 kw
		Unit 9 - 17,600 kw
Plant Cost	\$ 17,000 kw	
Net Cst Gen (1971)	36,873,000 kw/hr	
Gas Turbine Cost	25,000 kw	

**TOWNS SERVED AND POPULATION**

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**DETROIT EDISON CO.**  
 2000 Secand Ave., Detroit, Mich 48226  
 Tel: 962-2100, Area Code 313

Chairman	W. C. Coker
President	W. G. Meece
VP & Chief Exec Officer	C. F. Dymally
VP - Gen'l Mgr.	R. W. Harbeck
VP - Mktg.	G. L. Lindholm
VP - Engg.	J. C. Reardon
VP	R. E. Schwab
VP	J. P. McCormick
VP	R. W. Linsinger
VP	G. P. Gertz

**MICHIGAN**

VP	J. R. Hanson
VP	P. A. Duvall
Sec.	H. R. Symes
Treas.	J. C. Kennedy
Cont'r.	R. O. Wagner
Gen. Mgr.	J. W. Johnson
Gen. Auditor	A. J. Jones
Asst. V.P. & Mgr. Cust. Serv.	W. R. Kirby
Asst. V.P. & Mgr. Adm. & Tech. Serv.	J. D. Elliott
Asst. VP & Mgr. Const.	C. M. Hendel
Asst. V.P. & Mgr. Engrg.	W. J. McCarthy, Jr.
Asst. VP	A. P. Carroll
Mgr. Taxes	C. P. Adams
Mgr. Plan. & Real Estate	J. F. Anderson
Mgr. Organization Dev.	W. M. Dull
Exec. Engr.	D. E. Hart
Mgr. Dir.	E. Hines
Mgr. Insp. Dir.	M. J. Kay
Mgr. Union Relations	A. L. Spangmeyer
Librarian	(Miss) M. J. Weber

Ann Arbor Monroe Mktg. Div. Ann Arbor, Mich 48103	Dir. Mgr.	R. H. Wertz
Detroit Wayne Mktg. Div. Detroit, Mich 48225	Dir. Mgr.	D. Fiore
Macomb Mktg. Div. Mt. Clemens, Mich 48043	Dir. Mgr.	W. R. Holand
Takings Mktg. Div. Pontiac, Mich 48053	Dir. Mgr.	R. S. Howard
Tuamlet Area Mktg. Div. Port Huron, Mich 48060	Dir. Mgr.	K. J. Mada

Sec. Cust. Res. 1,437,720 Com. 116,098 Ind. 1,612 Others 1,283 Total 1,556,713  
 Net Res. Cust. Avg. Rate 02 Cts./Year, Use 6.183 kWh.  
 Tel. No./Employees (Full Time/Year End) 11,309

**MAJOR INTERCONNECTIONS**

Utility	Max. Tie Size	Tie Voltage
Consumers Power Corp.	4,000,000	120/345 kv
The Hydro-Electric Power Commission - Ontario	750,000	120/345 kv
Tennessie Edison		120/345 kv
Ohio Power		120/345 kv
*Various Multiple Ties		

Heat Rate For Entire System 10,500 BTU/kwh.  
 1971 Net Sys. Invest. 33,396,689,500 kw/hr.  
 1972 Power Purchased 99,178,900 kw/hr.  
 1971 Sales, Elec. 20,574,462,827 kw/hr.  
 No. Bulk Power Substa. 56 Tot. Inv. 11,571,750  
 No. Dist. Substa. 498 Tot. Inv. 8,484,650  
 Transmission Lines 69 kv 120 kv 138 kv 245 kv Cr. Miles 2,159  
 Transmission Lines 22 kv 24 & 40 kv Cr. Miles 2,616  
 Dist. Lines 4.8 - 13.2 kv Pole Miles 38,158  
 Underground Cable Miles 1,291 Prim. Dist. 1,364 Secondary 1,544  
 Total Gen. Cost as of Jan. 1, 1972 5,563,275 kw (NIP)  
 Net Capacity 6,538,500 kw  
 Total Sys. Peak Demand Summer 5,966,000 kw (Winter) 5,286,000 kw

## MICHIGAN

### MCYON STREET, 535 Madison, Detroit, Mich.

Plant Supt. \_\_\_\_\_ R F Anger  
 Net Sta Gen (1971) \_\_\_\_\_ 90,435,000 kw/hr  
 Steam Turbine Gen Cap \_\_\_\_\_ 22,150 kw  
 Unit 25 - 18,150 kw Unit 32 - 3,000 kw

### ST CLAIR, 4961 Pointe St., Belle Isle, Mich.

Plant Supt. \_\_\_\_\_ R W Berts  
 Net Sta Gen (1971) \_\_\_\_\_ 12,647,575,000 kw/hr  
 Steam & Comp. Turbine Gen Cap \_\_\_\_\_ 1,801,700 kw

Coal  
 Unit 1 - 156,250 kw 9,240 BTU/kwhr  
 Unit 2 - 156,250 kw 9,580 BTU/kwhr  
 Unit 3 - 156,250 kw 9,480 BTU/kwhr  
 Unit 4 - 156,250 kw 9,000 BTU/kwhr  
 Unit 5 - 325,000 kw 9,210 BTU/kwhr  
 Unit 6 - 325,000 kw 8,930 BTU/kwhr  
 Unit 7 - 900,000 kw 9,140 BTU/kwhr  
 Oil  
 CG 11 - 21,200 kw CG 12 - 5,500 kw

### IVER HOUGE, 90 Cookage Ave., River Rouge, Mich.

Plant Supt. \_\_\_\_\_ H J Hupler  
 Net Sta Gen (1971) \_\_\_\_\_ 5,235,295,000 kw/hr  
 Steam Turb & Diesel Eng Gen Cap \_\_\_\_\_ 852,500 kw

Coal  
 Unit 1 - 260,000 kw 9,730 BTU/kwhr  
 Unit 2 - 260,000 kw 9,780 BTU/kwhr  
 Unit 3 - 321,500 kw 9,480 BTU/kwhr  
 Oil  
 CG 11 - 11,000 kw

### CONNERS CREEK, 200 Lycause Ave., Detroit, Mich.

Plant Supt. \_\_\_\_\_ R F Anger  
 Net Sta Gen (1971) \_\_\_\_\_ 7,752,644,000 kw/hr  
 Steam Turb & Diesel Eng Gen Cap \_\_\_\_\_ 540,500 kw

Coal  
 Unit 4 - 45,000 kw Unit 13 - 60,000 kw  
 Unit 8 - 30,000 kw Unit 14 - 60,000 kw  
 Unit 9 - 30,000 kw Unit 15 - 110,000 kw  
 Unit 10 - 30,000 kw Unit 16 - 110,000 kw  
 Unit 12 - 60,000 kw

### BENTON CHANNEL, 4,695 W Jefferson, Trenton, Mich.

Plant Supt. \_\_\_\_\_ D A Wells  
 Net Sta Gen (1971) \_\_\_\_\_ 9,602,381,700 kw/hr  
 Steam Turb & Diesel Eng Gen Cap \_\_\_\_\_ 1,013,750 kw

Coal  
 Unit 1 - 50,000 kw Unit 6 - 50,000 kw  
 Unit 2 - 50,000 kw Unit 7 - 100,000 kw  
 Unit 3 - 50,000 kw Unit 8 - 100,000 kw  
 Unit 4 - 50,000 kw Unit 9 - 500,000 kw  
 Unit 5 - 50,000 kw Unit 9 - 8,980 BTU/kwhr  
 Oil  
 CG 11 - 13,750 kw

### DEARBY, 6910 W Jefferson, Detroit, Mich.

Plant Supt. \_\_\_\_\_ R S Bertsche  
 Net Sta Gen (1971) \_\_\_\_\_ 1,961,182,000 kw/hr  
 Steam Turbine Gen Cap \_\_\_\_\_ 375,000 kw

Coal  
 Unit 11 - 50,000 kw Unit 14 - 75,000 kw  
 Unit 12 - 50,000 kw Unit 15 - 75,000 kw  
 Unit 13 - 50,000 kw Unit 16 - 75,000 kw

### MARYSVILLE, 301 Grand Blvd., Marysville, Mich.

Plant Supt. \_\_\_\_\_ H F Shaw  
 Net Sta Gen (1971) \_\_\_\_\_ 1,253,233,000 kw/hr  
 Steam Turbine Gen Cap \_\_\_\_\_ 300,000 kw

### Coal

Unit 2 - 30,000 kw Unit 6 - 50,000 kw  
 Unit 3 - 10,000 kw Unit 7 - 75,000 kw  
 Unit 4 - 30,000 kw Unit 8 - 75,000 kw  
 Unit 5 - 30,000 kw

### PENNSALT, 4655 Biddle, Wyandotte, Mich.

Plant Supt. \_\_\_\_\_ D A Wells  
 Net Sta Gen (1971) \_\_\_\_\_ 78,707,000 kw/hr  
 Steam Turbine Gen Cap \_\_\_\_\_ 37,000 kw

### Coal

Unit 11 - 2,500 kw Unit 16 - 7,500 kw  
 Unit 12 - 3,000 kw Unit 17 - 7,500 kw  
 Unit 14 - 6,000 kw Unit 18 - 2,500 kw  
 Unit 15 - 6,000 kw

### WYANDOTTE NORTH, 60 Mulberry St., Wyandotte, Mich.

Plant Supt. \_\_\_\_\_ D A Wells  
 Net Sta Gen (1971) \_\_\_\_\_ 110,267,000 kw/hr  
 Steam Turbine Gen Cap \_\_\_\_\_ 52,500 kw

### Coal

Unit 1 - 2,500 kw Unit 6 - 7,500 kw  
 Unit 2 - 2,500 kw Unit 7 - 7,500 kw  
 Unit 3 - 2,500 kw Unit 8 - 7,500 kw  
 Unit 5 - 10,000 kw Unit 9 - 12,500 kw

### WYANDOTTE SOUTH, 2719 Biddle, Wyandotte, Mich.

Plant Supt. \_\_\_\_\_ D A Wells  
 Net Sta Gen (1971) \_\_\_\_\_ 75,714,000 kw/hr  
 Steam Turbine Gen Cap \_\_\_\_\_ 18,500 kw

### Coal

Unit 1 - 4,000 kw Unit 4 - 2,500 kw  
 Unit 2 - 4,000 kw Unit 5 - 4,000 kw  
 Unit 3 - 4,000 kw

### PORT HURON, 1705 Washington, Port Huron, Mich.

Plant Supt. \_\_\_\_\_ H F Shaw  
 Net Sta Gen (1971) \_\_\_\_\_ 27,622,000 kw/hr  
 Steam Turb & Diesel Eng Gen Cap \_\_\_\_\_ 11,750 kw

### Coal

Unit 2 - 2,500 kw Unit 3 - 1,750 kw  
 Oil  
 CG 11 - 5,500 kw

### ENRICO FERRIS, 5303 Pointe Aux Peaux Rd., Farmington Twp., Mich.

Plant Supt. \_\_\_\_\_ H F Shaw  
 Net Sta Gen (1971) \_\_\_\_\_ 577,390,000 kw/hr  
 Comp. Turb & Turb Gen Cap \_\_\_\_\_ 212,000 kw

### Nuclear or Oil

Oil Only  
 Unit 1 - 150,000 kw CG 11 - 42,000 kw

### HARBOR BEACH, 755 Huron Ave., Harbor Beach, Mich.

Plant Supt. \_\_\_\_\_ M A Coonin  
 Net Sta Gen (1971) \_\_\_\_\_ 213,139,000 kw/hr  
 Steam Turb & Diesel Eng Gen Cap \_\_\_\_\_ 125,000 kw

### Coal

Unit 1 - 121,000 kw

### Oil

CG 11 - 4,000 kw

### DAYTON, 50550 Barnes Rd., Romulus Twp., Mich. (Jettisoned)

Net Sta Gen (1971) \_\_\_\_\_ 24,782,000 kw/hr  
 Diesel Gen Cap \_\_\_\_\_ 10,000 kw

### Oil

CG 11 - 10,000 kw

### NORTHEAST, 6401 E Eight Mile Rd., Warren, Mich. (Jettisoned)

Net Sta Gen (1971) \_\_\_\_\_ 128,405,000 kw/hr

MICHIGAN

	Cable Turb Gen Cap	121,500 kw
CG	CTG 11-42,000 kw	
Gas	CTG 12 - 20,150 kw (Commissioned 4-26-71)	
	CTG 13 - 29,400 kw (Commissioned 5-15-71)	
SUPROR	6000 First St. Superior Twp., Mich. Unaffiliated	
	Net Sta Gen (1971)	100,077,000 kw-hr
	Cable Turb Gen Cap	62,000 kw
CG	CTG 11-42,000 kw	
HANCOCK	1781 Haggerty Rd. Commerce Twp., Mich.	
	Plant Size	Unaffiliated
	Net Sta Gen (1971)	161,136,000 kw-hr
	Cable Turb Gen Cap	158,800 kw
Gas	CTG 11 - 55,500 kw	
	CTG 11 - 24,500 kw	
	CTG 12-78,000 kw	
WENONAH	2500 E. Front St. Wenonah, Mich.	
	Plant Size	P J Murphy
	Net Sta Gen (1971)	2,233,208,000 kw-hr
	Steam Turb & Diesel Eng Gen Cap	766,025 kw
Gas	Unit 1 - 752,275 kw (Commissioned 6-24-71)	
CG	CG 11-13,750 kw	
COLFAX	4025 Gregory Rd. Hards Twp., Mich.	
	Net Sta Gen (1971)	75,921,000 kw-hr
	Diesel Gen Cap	13,750 kw
CG	CG 11 - 13,750 kw	
WILMOT	5977 Stevens Rd., E. Keweenaw, Mich.	
	Net Sta Gen (1971)	15,155,000 kw-hr
	Diesel Gen Cap	13,750 kw
CG	CG 11-13,750 kw	
PLACED	4912 Lodge Rd., Springfield Twp., Mich.	
	Net Sta Gen (1971)	44,354,000 kw-hr
	Diesel Gen Cap	77,500 kw
CG	CG 11-13,750 kw	
	CG 12-13,750 kw	
OLIVER	346 Caperton Rd., Oliver Twp., Mich.	
	Net Sta Gen (1971)	31,423,000 kw-hr
	Diesel Gen Cap	13,750 kw
CG	CG 11-13,750 kw	
POTOMAC	5660 Merritt, Fremont Twp., Mich.	
	Net Sta Gen (1971)	11,824,000 kw-hr
	Diesel Gen Cap	13,750 kw
CG	CG 11 - 13,750 kw (Commissioned 6-11-71)	

TOWNS SERVED AND POPULATION

Alpena 3,684 Allen Park 40,747, Antrim 1,834, Ann Arbor 99,797, Ardenwick 1,112, Bad Axe 7,098, Battle Creek 2,406, Berkley 21,879, Berne Hills 13,598, Birmingham 26,170, Bloomfield Hills 3,872, Brighton 2,457, Brown City 1,142, Cass 1,279, Cassopolis 1,503, Caro 3,701, Cass City 1,974, Center Line 10,379, Charlevoix 1,234, Clawson 17,617, Dearborn 184,499, Dearborn Heights 80,769, Detroit 1,729, Detroit 1,312,893, Dundee 2,472, East Detroit 45,920, Ecorse

17,515, Farmington 10,329, Ferndale 30,850, Fair Rock 5,643, Fentonville 1,978, Frankfort 3,344, Fraser 11,868, Garden City 3,842, Gibraltar 3,325, Grasse Pointe 6,637, Grasse Pointe Farms 11,701, Grasse Pointe Park 15,585, Grasse Pointe Shores 2,907, Grasse Pointe Woods 21,878, Hamtramck 27,245, Harbor Beach 2,134, Harbor Woods 20,186, Hazel Park 23,784, Highland Park 35,444, Howell 5,274, Huronville Woods 8,538, Ingham City 1,360, Ingham 38,595, Kearsy Harbor 3,042, Lake Orion 2,921, Lapeer 6,214, Lathrup Village 4,676, Lincoln Park 52,984, Livonia 110,109, Madison Heights 38,599, Marine City 4,567, Marlette 1,706, Marquette 2,610, Meridianville 13,862, Meridianville 1,121, Milan 3,997, Milford 4,699, Milledgeville 1,091, Monroe 23,894, Mt. Clemens 20,475, New Baltimore 4,132, New Haven 1,855, Northville 5,400, New River 9,550, Oak Park 26,762, Orchard Lake 1,487, Orford 2,586, Paterburg 1,227, Pelee 1,174, Pleasant Ridge 1,989, Ploverton 1,758, Port Huron 35,794, Reese 1,050, Richmond 2,234, River Rouge 15,947, Roseville 11,242, Rochester 7,054, Rockwood 1,275, Romeo 4,012, Romulus 22,879, Roseville 40,529, Royal Oak 85,238, St. Clair 4,770, St. Clair Shores 88,093, Sable 4,811, Sault Ste. Marie 2,071, Southfield 69,298, Southgate 33,909, South Lyon 1,675, Southfield 1,477, Sterling Heights 61,265, Taylor Lake 2,219, Taylor 70,020, Tawas 24,127, Troy 39,419, Utica 3,504, Washtenaw 2,802, Washtenaw 3,759, Warren 179,260, Wayne 21,054, Westland 1,251, Williamston 2,600, Wixom 2,010, Wolverine Lake 4,301, Woodstock Farms 1,090, Woodhaven 3,566, Ypsilanti 1,505, Ypsilanti 29,538

EDISON SAULT ELECTRIC COMPANY  
725 E Portage Ave., Sault Ste. Marie, Mich 49783  
Tel: 632-2221, Area Code 906

Chairman	W O Posen, 100 Orinville Bldg
Genl. Mgr.	Edna, Mich 48102
V. Chairman	R C Kline, Jr., 311 Central Savings Bank Bldg, Sault Ste. Marie, Mich. 49783
Pres.	R F Burnett
VP. Pur.	J P Hartz
VP. & Ch. Eng.	R O King
VP. Adm.	L E Stronker
Exec. VP.	W R Gregory
Sec. & Pub. Rel. Dir.	S T Moran
Asst. Sec. & Treas.	H E McCullagh
Controller	D R Hubbard
Consul. Eng.	Gordon Malcolm
Tech. Assis. Engrg. Dept.	T Stealy
Supv. Engr.	P M Warner
Supv. Transm. & Dist.	C T Bennett
Supv. Meter Dept.	C J Seibert
Supv. Maint.	G E Mattison
Supv. Sales	J Graham

St. Ignace Div., St. Ignace, Mich 49781	M M Utter
Dir. Mgr.	
Marquette Div., Marquette, Mich 49854	G H Jones
Dir. Mgr.	
Macquoket Island Div., Macquoket Island, Mich 49757	J B Blawieck
Dir. Mgr.	

Exec. Cust. Res. 11,292, Gen. 2,031, Ind. 3, Others 11, Total 13,337  
Exec. Min. Cust. Avg. Rate 01.91¢/kwhr., Use 7,468 kw-hr.  
Tot. No. Employees (Full Time, Year End) 144

MAJOR INTERCONNECTIONS

Utility	Max. Tie Size	Tie Voltage
Consumers Power Co.	30,000	44 kv
1971 Net Sta. Invest.	416,880,562 kw-hr	
1971 Power Purchased	165,946,079 kw-hr	
1971 Sales/Exec.	389,564,119 kw-hr	

**MICHIGAN**

Net/Bulk Power Sales 4 Tot kw 84,000  
 No/Over Substa 17 Tot kw 56,456

Tranm Hvt Above 22 kv 44 kv & 99 kv Cr Miles 277  
 Dist-Prim Hvt 2.4, 2.4/4.16, 4.8, 7.62, 13.2 kv. Prim Miles 379  
 Underground Cable Miles Prim 9.64, Secondary 5

Total Gen Cap as of Jan 1, 1972 84,011 kw  
 Total Sys Peak Demand Summer 62,916 kw. (Winter) 68,026 kw

**SALAT STE WARE, Michigan**

Co Eng \_\_\_\_\_ R O King  
 Net Sta Gen (1971) \_\_\_\_\_ 245,250,483 kw  
 Hydro Plant \_\_\_\_\_ 41,295 kw

Water 19 Units - 480 kw 55 Units - 585 kw

**ST. IGNACE, Mich**

Plant Supt \_\_\_\_\_ M Ulter  
 Net Sta Gen (1971) \_\_\_\_\_ 693,560 kw  
 Diesel \_\_\_\_\_ 2,340 kw

**MANISTIQUE, Mich**

Plant Supt \_\_\_\_\_ G Jenks  
 Net Sta Gen (1971) \_\_\_\_\_ 1,002,620 kw  
 Diesel \_\_\_\_\_ 2,000 kw

**MACONIC ISLAND, Mich**

Plant Supt \_\_\_\_\_ J Borewick  
 Net Sta Gen (1971) \_\_\_\_\_ (12,180) kw  
 Diesel \_\_\_\_\_ 1,176 kw

**CI**

Unit 1 - 136 kw Unit 3 - 800 kw  
 Unit 2 - 240 kw  
 United States Hydro Plant Leased 20,000 kw  
 Consumers Electric Co-ops (CEA) 9,000 kw  
 Consumers Power Co. 7,500 kw  
 Feds Power Contract \_\_\_\_\_

**TOWNS SERVED AND POPULATION**

Marquette 4,324, Sault Ste. Marie 15,136, St. Ignace 2,892

**INDIANA & MICHIGAN POWER CO**

P.O. Box 458, Bridgman, Mich 49106  
 Tel: 465-5501, Area Code 616

Subsidiary of Indiana & Michigan Electric Co. which is a subsidiary of American Electric Power Co. Inc., 2 Broadway, NY, NY 10004

Pres \_\_\_\_\_ Donald C Cook  
 Exec VP \_\_\_\_\_ R W Acoper  
 VP \_\_\_\_\_ H B Cole  
 VP \_\_\_\_\_ G P Maloney  
 VP \_\_\_\_\_ G V Patterson  
 VP \_\_\_\_\_ J Thompson  
 Sec \_\_\_\_\_ J B Henry  
 Treas \_\_\_\_\_ R O Whisman

NOTE: Company was incorporated in the state of Michigan, Sept 23, 1971 and is a wholly owned subsidiary of Indiana & Michigan Electric Co. Company owns and will operate the Donald C Cook Nuclear Plant currently under construction and is expected to be in commercial operation in July 1973

**DONALD C COOK NUCLEAR, Bridgman, Michigan**

Plant Mgr \_\_\_\_\_ R W Jurgensen

**Nuclear**

Unit 1 - 1,100,000 kw (under construction)  
 Unit 2 - 1,100,000 kw (under construction)

**Capacity**

Expected commercial date 1 Unit - Oct 1973  
 Expected commercial date 2 Unit - Jan 1975

**MICHIGAN POWER COMPANY**

100 S Main St, Three Rivers, Mich 49093  
 Tel: 279-5261, Area Code: 616

Subsidiary of American Electric Power Co. Inc., 2 Broadway, NY, NY 10004

Pres \_\_\_\_\_ Donald C Cook 2 B'way, NY, NY 10004  
 Exec VP \_\_\_\_\_ R W Samson  
 VP \_\_\_\_\_ H B Cole 2 B'way, NY, NY 10004  
 VP \_\_\_\_\_ G V Patterson 2 B'way, NY, NY 10004  
 VP \_\_\_\_\_ G P Maloney  
 Treas \_\_\_\_\_ R O Whisman 2 B'way, NY, NY 10004  
 Sec \_\_\_\_\_ J B Henry 2 B'way, NY, NY 10004  
 Asst Treas & Asst Sec \_\_\_\_\_ G R Fox  
 Station & Meter Supt \_\_\_\_\_ W Hochstetler  
 Safety & Prot Supt \_\_\_\_\_ R E Morrison  
 Ind St Supt, Elec \_\_\_\_\_ W Hall  
 Line Supt \_\_\_\_\_ J Pearson  
 Stores & Transp Supt \_\_\_\_\_ D E Grover  
 Gas Sales Supt \_\_\_\_\_ B J Masson  
 Mgr Util Facilities (Gas) \_\_\_\_\_ C P Murray  
 Gas Supt \_\_\_\_\_ J J Donnelly  
 Heating & Hot Wt Supt \_\_\_\_\_ R Hitz  
 Super Transm & Dist \_\_\_\_\_ G G Miller

Three Rivers Area - (Gas & Elec) Three Rivers, Mich  
 Gen Foreman \_\_\_\_\_ R Dunsen

Donagay Area - (Gas & Elec) Donagay, Mich  
 Gen Foreman \_\_\_\_\_ J Dines

Lewiston Area - (Electric) Lewiston, Mich  
 Gen Foreman \_\_\_\_\_ R Johnson

West District - (Gas) West, Mich  
 Dist Mgr \_\_\_\_\_ R Capron

Holland District - (Gas) Holland, Mich  
 Dist Mgr \_\_\_\_\_ W Kubisek

Northern Division - (Gas) Marquette, Mich  
 Area Mgr \_\_\_\_\_ F W Carrasco

Consumption Co. Elec & Gas Elec Cust. Res 21,474 Com 2,352 Ind 128 Others 257  
 Total 24,261  
 Gas Cust 47,499  
 Elec Res Cust Avg Rate 01.93¢/kwhr Use 6,653 mwhr  
 Elec Dist Employees (Full Time Year End) 119  
 Tot No Employees (Full Time Year End) 245  
 Gas Employees Only 126

**MAJOR INTERCONNECTIONS**

Other \_\_\_\_\_ Tie Voltages  
 Ind & Mich Elec Co\* \_\_\_\_\_ 138 kv  
 \*Associated Co

1971 Net Sys Inflow 435,132,920 kw-hr  
 1971 Power Purchased 472,665,920 kw-hr  
 1971 Sales, Elec 406,191,214 kw-hr  
 Net/Transm Substa 5 Tot kw 76,320  
 No/Over Substa 18 Tot kw 66,142

Traverse Hill 59 in. Cr Miles 63.58  
 Travers Hill Above 22 in to 69 in. Cr Miles 148.07  
 Total Cap-McIntyre Turbine Gen 2,968 kw

**CONSTANTINE, Constantine, Mich**  
 Net Sta Gen (1971) 4,824,000 kw-hr  
 Hydro-Turbine Gen Cap 1,200 kw  
 Unit 1 300 kw Unit 2 300 kw  
 Unit 3 300 kw Unit 4 300 kw

**MOTTVILLE, Mottville, Mich**  
 Net Sta Gen (1971) 6,560,000 kw-hr  
 Hydro-Turbine Gen Cap 1,600 kw  
 Unit 1 400 kw Unit 2 400 kw  
 Unit 3 400 kw Unit 4 400 kw

**PORTAGE, Three Rivers, Mich**  
 Net Sta Gen (1971) 83,000 kw-hr  
 Hydro-Turbine Gen Cap 158 kw  
 Unit 1 158 kw

**TOWNS SERVED AND POPULATION**

**GAS ONLY**

Barret 1,142, Buchanan 4,752, Carleton-Cr 1,968, Hancock 4,931, Harvey 1,200,  
 Holland 25,942, Houghton 5,207, Ishpeming 9,435, L'Anse 2,596, Marquette  
 22,171, Negaunee 4,749, New Buffalo 7,540, Tawas 1,228, Urenstromer 2,468,  
 Three Oaks 1,790, White Pine 1,246, Zionsville 4,734

**ELECTRIC & GAS SERVICE**

Cassopolis 2,153, Constantine 1,776, Deweese 6,583, Edwardsburg 1,128, Three  
 Rivers 7,525, White Pigeon 1,497

**ELECTRIC ONLY**

Lewistown 1,388, Marquette 1,165, Marquette 1,569, Port Pelee 1,140, Schoolcraft  
 1,308, Vicksburg 2,190, Doctor 1,804

**UPPER PENINSULA POWER CO.**

Integrated System & Iron River  
 616 Sheldon Ave, Houghton, Mich 49931  
 Tel: 482-0220, Area Code: 906

- Chair, Board & Pres \_\_\_\_\_ R F Hoover
- VP \_\_\_\_\_ C F Rogers
- VP Admin \_\_\_\_\_ W Weaver
- VP Fin, Inv, Treas. \_\_\_\_\_ D M Dvorak
- Asst Sec & Asst Treas \_\_\_\_\_ R Weaver
- Asst Treas \_\_\_\_\_ R Purn
- Gen Supt \_\_\_\_\_ E Aegerman
- Supt, Prod. \_\_\_\_\_ J E Slinger
- Supt, Eng \_\_\_\_\_ G Galkersonne
- Supt, Transm \_\_\_\_\_ R J Malacko
- Transm Eng \_\_\_\_\_ M G Malacko
- Dir. Inv. & Safety \_\_\_\_\_ J O Leavitt
- Asst Dir. Inv. & Safety \_\_\_\_\_ J W Kloss
- Gen. Inv. Mgr \_\_\_\_\_ D Dymally
- Mgr. Pur. & Stores \_\_\_\_\_ G H Ersk
- Mgr. Data Process \_\_\_\_\_ D Dvorak
- Mgr. Adv \_\_\_\_\_ R S Smith
- Supt. Substa \_\_\_\_\_ J A Hiltner
- Master Sub \_\_\_\_\_ J R Williams
- Substa Eng \_\_\_\_\_ K Strom-Holmberg, Mich
- Substa Eng \_\_\_\_\_ K Strom-Holmberg, Mich
- Substa Eng \_\_\_\_\_ P L Hermanson-Mich. Dir

**MICHIGAN**

- State Hydro Pkts \_\_\_\_\_ C Johnson
- Dir. Mgr \_\_\_\_\_ C Fisher
- Gen. General Acctg \_\_\_\_\_ W Morris
- Gen. Plant Acctg \_\_\_\_\_ M Knight
- Comm. Eng \_\_\_\_\_ G Galkersonne
- Mgr. Environmental \_\_\_\_\_ G Romanien
- Mgr. Real Estate & Transp \_\_\_\_\_ R L State

**Western Div - Houghton 49931**  
 Dir. Mgr \_\_\_\_\_ G H Barlow  
 Dist. Mgr. Cassopolis \_\_\_\_\_ L T Barnes  
 Dist. Supt. Houghton & Calumet \_\_\_\_\_ F R Devos  
 Dist. Mgr. Iron River \_\_\_\_\_ C Tansford

**Eastern Div - Ishpeming 49849**  
 Dir. Mgr \_\_\_\_\_ R H Carlson  
 Dist. Supt. Ishpeming \_\_\_\_\_ J R Kuncak  
 Dist. Mgr \_\_\_\_\_ G Goto  
 Dist. Supt. \_\_\_\_\_ D Turvey  
 Dist. Supt. Genoa \_\_\_\_\_ K Cones  
 Office Mgr \_\_\_\_\_ R D Francis-Escanaba

Elec. Cost Res 31,765 Cms & Invt (Small) 4,373 Cms & Invt (Large) 4 Others 180  
 Total 36,322  
 Elec. Res Cost Avg Rate 02.79¢/kwhr, Use 5,547 kwhr  
 Tot. No. Employees (Full Time, Year End) 730

**MAJOR INTERCONNECTIONS**

Utility	Max. Tr. Area	Tie Voltage
Edison Sault	1,000 (Pur. for	
Cher Co	100,000 (24 only)	69 kv*
Wes. Mich. Power Co (Marquette)	60,000	138 kv

\*Normal open bus, available on short notice

Heat Rate for Eastern System 11,659 BTU/kwhr

1971 Net Gen. Hour 618,538,000 kw-hr. (Excludes 2,008,000 kw-hr. of Marquette)  
 1971 Power Purchased 307,855,000 kw-hr.  
 1971 Sales-Elec. 569,586,000 kw-hr. (Excludes 2,008,000 kw-hr. of Marquette)  
 Net/Bus Power Substa 4 Tot kw 123,750  
 Net/Bus Substa 148 (Dist) Tot kw 574,740  
 Travers Hill Above 22 in to 69 in. Cr Miles 138 in, Cr Miles 648  
 Dist. From Hill 0.4 - 4.16 - 7.2 - 12.47 - 6.9 - 12.0 in, Pole Miles 2,035 (Dist)  
 Underground Cable Miles Secondary 10.88

Total Gen. Cap. as of Jan 1, 1972 124,900 kw  
 Total 10+ Peak Demand Summer 96,439 kw. (Winter) 107,961 kw

**ESCANABA STEAM STA (1), Escanaba, Mich**  
 Sta Supt \_\_\_\_\_ E R Hutchens  
 Sta Ch. Eng \_\_\_\_\_ H Bernborg  
 Net Sta Gen (1971) 122,016,000 kw-hr  
 Steam Turbine Gen Cap 25,300 kw (1971)

(1) Escanaba Municipal Steam Sta, Escanaba, Mich  
 Coal  
 Unit 1 - 12,650 kw Unit 2 - 12,650 kw

**JOHN H. WARDEN STEAM STA, L'Anse, Mich**  
 Sta Supt \_\_\_\_\_ R Malo  
 Sta Ch. Eng \_\_\_\_\_ D Lanchot  
 Net Sta Gen (1971) 112,336,000 kw-hr  
 Steam Turbine Gen Cap 15,625 kw (1971)  
 Coal & Gas  
 Unit 1 - 15,625 kw

## MICHIGAN

### PRESQUE ISLE STEAM STA (2) Marquette, Mich

Sta Supt \_\_\_\_\_ S C Rowle  
 Asst Supt \_\_\_\_\_ D Lunsford  
 Results Supt \_\_\_\_\_ W E Kluwerth  
 Net Sta Gen (1977) \_\_\_\_\_ 1,286,791,000 kw-hr  
 Steam Turbine Gen Cap \_\_\_\_\_ 143,000 kw (NP)

#### (2) Upper Peninsula Generating Co, Marquette, Mich

Coal  
 Unit 1 - 22,000 kw Unit 3 - 44,000 kw  
 Unit 2 - 33,000 kw Unit 4 - 44,000 kw

### RICKEY HYDRO STA, Pellis, Mich

Net Sta Gen (1977) \_\_\_\_\_ 10,215,000 kw-hr  
 Hydro-Turbine Gen Cap \_\_\_\_\_ 2,200 kw (NP)  
 Unit 1 - 1,100 kw Unit 2 - 1,100 kw

### VICTORIA HYDRO STA, Rockland, Mich

Net Sta Gen (1977) \_\_\_\_\_ 68,491,000 kw-hr  
 Hydro-Turbine Gen Cap \_\_\_\_\_ 2,000 kw (NP)  
 Unit 1 - 6,000 kw Unit 2 - 6,000 kw

### WOODVILLE DIESEL STA, Doughtenville, Mich

Net Sta Gen (1977) \_\_\_\_\_ 533,000 kw-hr  
 Diesel Engine \_\_\_\_\_ 4,000 kw (NP)  
 Unit 2 - 2,000 kw Unit 3 - 2,000 kw

#### TOWNS SERVED AND POPULATION

Calumet 1,007, Cassan 1,165, Hancock 4,810, Houghton 6,067, Iron River 7,634,  
 Ishpeming 8,245, Lake Linden 1,214, Laurium 2,866, Munising 3,677, Ontonagon  
 2,432, Stambaugh 1,458

### WOLVERINE POWER CO. Edenville, Mich 48420

A Wholesale Generating Co., has begun plans related to Consumers Power Co.

#### Asst Supt \_\_\_\_\_

Bus Mgr & Pur Agt \_\_\_\_\_ B J Wilson  
 H A Kuhn

Elec Cust Res 11,675 Com 1,205 Ind 80 Others 201 Total 13,111  
 Use Res Cust Avg Rate 2.14 kw/kwhr Use 4,286 kw-hr

1970 Power Purchased 177,582,000 kw-hr  
 1970 Sales/Elec 119,811,439 kw-hr  
 Dist Press Volt 2.4 - 5.32 - 13.2 kv Pole Miles 248.7  
 Total Sys Peak Demand Summer 19,570 kw (Winter) 19,434 kw  
 Tot Sys incoming Substa Cap (nameplate maximum) 34,000 kw

#### TOWNS SERVED AND POPULATION

Bay City 51,604

### BESSEMER LIGHT UTILITY

City Hall, Bessemer, Mich 49911  
 Tel: 667-6811, Area Code: 906

#### Mgr & Pur Agt \_\_\_\_\_

By Harold \_\_\_\_\_ E Lake

Elec Cust Res 869 Com 53 Ind 3 Others 2 Total 927  
 Use Res Cust Avg Rate 0.10 kw/kwhr Use 300 kw-hr

1971 Sales/Elec 8,175,000 kw-hr  
 Dist Press Volt 4.8 kv Pole Miles 36  
 Power Purchased None

#### BESSEMER PLANT

Tot Gen Cap \_\_\_\_\_ 5,342 kw  
 Diesel Engine  
 Unit 2 - 375 kw Unit 5 - 1,130 kw  
 Unit 3 - 875 kw Unit 6 - 2,070 kw  
 Unit 4 - 1,130 kw

#### TOWNS SERVED AND POPULATION

Serves part / Bessemer 2,708

## MUNICIPAL SYSTEMS

### BARAGA MUNIC LIGHT PLANT Baraga, Mich 49908

Supt \_\_\_\_\_ J H Ross  
 Clerk \_\_\_\_\_ J Shanahan

1971 Power Purchased 2,450,000 kw (Est)  
 1971 Sales/Elec 3,100,000 kw (Est)  
 Power Purchased From Upper Peninsula Power Co.

#### TOWNS SERVED AND POPULATION

Baraga 951

### BAY CITY UTILITIES DEPT City Hall Bay City, Mich 48706 Tel: 893-7511, Area Code 517

Sect Mgr \_\_\_\_\_ J T Fleming  
 Dir. Engrg \_\_\_\_\_ R G Harris

### CHARLEVOIX MUNICIPAL UTILITIES 210 State St, Charlevoix, Mich 49720 Tel: 547-2510, Area Code: 616

Supt, Eng Pur Agt \_\_\_\_\_ T Hanna  
 Supt, Dist & Transm \_\_\_\_\_ H Hutchinson

Elec Cust Com 1,652 Com 382 Ind 9 Total 2,043  
 Use Res Cust Avg Rate 0.75 kw/kwhr Use 1,000 kw-hr

1971 Power Purchased 21,500,000 kw-hr (Est)

Elec Res Cust Avg Rate 2.380 kw, Winter 2.180 kw  
 Transm Volt Above 22 kv - 26 kv Cr Miles 32  
 Dist Press Volt 4.16 - 2.4 kv Pole Miles 43  
 Power Purchased From Consumers Power Co.

#### TOWNS SERVED AND POPULATION

Charlevoix 3,519

### CLINTON MUNIC LIGHT DEPT. Clinton, Mich 49236

Supt \_\_\_\_\_ R W Shaw



MICHIGAN

TOWNS SERVED AND POPULATION

Crystal 1,877

**COLDWATER BOARD OF PUBLIC UTILITIES**  
21 S Monroe St, Coldwater Mich 49036  
Tel: 279-9531, Area Code 517

Asst Dir & Pur Agt \_\_\_\_\_ J R Endicott  
Asst Eng \_\_\_\_\_ D Woodman  
Supt. Dist & Transm \_\_\_\_\_ H Poyntel  
Gen Mgr \_\_\_\_\_ G Parnis

Elec. Cost. Ret. 3,842 Con. 670 Ind. 15 Others 192 Total 4,719  
Elec. Res. Cost. Avg. Rate 92.33¢/kwhr., Use 5.633 kwhr.

1971 Net Sys. Input 71,095,250 kwhr.  
1971 Power Purchased 12,748,800 kwhr.  
1971 Sales/Elec. 56,121,813 kwhr.  
Dist. Perm. Volt. 8.32 kv. Pole Miles 53  
Total Sys. Peak Demand Summer 14,400 kw. (Winter) 13,400 kw.  
Total Sys. Incoming Substa. Cap. (nameplate-maximum) 5,000 kw.  
Power Purchased From Consumers Power Co.

**COLDWATER WIND POWER PLANT, Bennett St.**

Plant Supt. \_\_\_\_\_ H Fee, Jr.  
Tot. Gen. Cap. 16,625 kw  
Steam Turbine  
Unit 1 - 1,000 kw Unit 3 - 5,000 kw  
Unit 2 - 1,125 kw  
Diesel Engine  
Unit 1 - 1,000 kw Unit 2 - 1,000 kw  
Unit 3 - 1,500 kw

TOWNS SERVED AND POPULATION

Coldwater 8,880

**CROSWELL MUNICIPAL LIGHT & POWER DEPT.**  
120 E Sanborn Av., Crosswell, Mich. 48422  
Tel: 679-2120, Area Code: 313

Mgr \_\_\_\_\_ P G Rose

Elec. Cost. Ret. 756 Con. 152 Ind. 8 Total 916  
Elec. Res. Cost. Avg. Rate 92.2¢/kwhr., Use 12,000 kwhr.

1971 Power Purchased 16,333,920 kwhr.  
1971 Sales/Elec. 5,517,274 kwhr.  
Dist. Perm. Volt. 4.8 - 8.32 kv.  
Total Sys. Peak Demand Summer 2,856 kw. (Winter) 3,240 kw.  
Total Sys. Incoming Substa. Cap. (nameplate-maximum) 15,000 kw.  
Power Purchased From Detroit Edison Co.

TOWNS SERVED AND POPULATION

Crosswell 2,000

**CRYSTAL FALLS LIGHT & POWER DEPT.**  
401 Superior Ave., Crystal Falls, Mich 49920  
Tel: UP 5-6650

Mgr \_\_\_\_\_ W E Hoagland  
Supt. Dist & Transm \_\_\_\_\_ J Ononis  
Pur Agt \_\_\_\_\_ A Trencoso

Elec. Cost. Ret. 1,156 Con. 44 Ind. 3 Others 17 Total 1,320

Elec. Res. Cost. Avg. Rate 1.6¢/kwhr., Use 4,422 kwhr.

1970 Net Sys. Input 11,010,200 kwhr.  
1970 Power Purchased 5,431,000 kwhr.  
1970 Sales/Elec. 9,750,000 kwhr.  
Total Sys. Peak Demand Summer 1,775 kw. (Winter) 1,950 kw.  
Total Sys. Incoming Substa. Cap. (nameplate-maximum) 1,200 kw.  
Dist. Perm. Volt. 2.4 kv. Pole Miles 40.  
Power Purchased From: Mich. Mech. Power Co.

**CRYSTAL FALLS PLANT**

Plant Supt. \_\_\_\_\_ A Barozzoni  
Tot. Gen. Cap. 1,000 kw  
Hydro Turbine  
Unit 1 - 200 kw Unit 3 - 450 kw  
Unit 2 - 350 kw

TOWNS SERVED AND POPULATION

Crystal Falls 2,000, and part of Crystal Falls Twp.

**DAGGETT ELECTRIC DEPT.**  
Daggett, Mich 49821

Elec. Eng. \_\_\_\_\_ F Stock

TOWNS SERVED AND POPULATION

Daggett 366

**DETROIT PUBLIC LIGHTING COMMISSION**  
174 East Alhwater St Detroit, Mich. 48226  
Tel: 962-6329, Area Code 313

Gen Supt. \_\_\_\_\_ C H Bradford  
Asst Gen Supt. \_\_\_\_\_ C F Kryszulka  
Elec. Eng. \_\_\_\_\_ A Sandberg  
Supt. Prod. \_\_\_\_\_ J W Ebb  
Supt. Dist & Transm \_\_\_\_\_ W F Gaughan  
Supt. OH & UG Lines \_\_\_\_\_ S Handelman  
Adm. Asst. \_\_\_\_\_ V C Lawson  
Pur Agt \_\_\_\_\_ City of Detroit

Fiscal Yr. Ending June 30, 1971

Interconnection with the Detroit Edison Company Normal Capacity 40,000 kw.

Net Sys. Year Rate 10,846 BTU/kwhr.  
1971 Net Sys. Input 582,138,500 kwhr.  
1971 Sales/Elec. 619,660,533 kwhr.  
Transmission Above 22 kv. 24 kv. Circuit Miles 261  
Dist. Perm. Volt. 2.4, 4.8 & 7.2 kv. Pole Miles 1,302  
Total Sys. Peak Demand Summer 119,000 kw. (Winter) 110,000 kw.  
Total Sys. Incoming Substa. Cap. (nameplate-maximum) 154,750 kw.

**MISTERSKY STATION, 5425 W. Jefferson Avenue**

Plant Supt. \_\_\_\_\_ J W Ebb  
Tot. Gen. Cap. 174,000 kw  
Steam Turbine  
Unit 1 - 20,000 kw Unit 4 - 20,000 kw  
Unit 2 - 20,000 kw Unit 5 - 44,000 kw  
Unit 3 - 20,000 kw Unit 6 - 50,000 kw  
Unit 6 - 9,477 BTU/kwhr. (Dist.)

TOWNS SERVED AND POPULATION

This is a municipal system operated by the City of Detroit to serve its street lighting.

**MICHIGAN**

traffic signals, public buildings, water and sewage systems, etc., and buildings of other governmental agencies.

**DOWAGIAC ELECTRIC & WATER DEPT.**  
203 Chestnut St., Dowagiac, Mich 49047  
Tel: 782-8200, Area Code: 616

Director \_\_\_\_\_ J. J. Roberts  
Plat. Eng. \_\_\_\_\_ J. J. Roberts

Elec. Cost: Res. 1,880 Conn. 221 Ind. 36 Government-42 Total 2,178  
Elec. Res. Cost Avg. Rate 02.14/kwhr. Use 4,885 kwhr.

1971 Net Sys. Input 27,250,300 kwhr  
1971 Power Purchased 21,329,000 kwhr  
1971 Sales/Elec. 22,700,000 kwhr (Est)  
Total Sys. Peak Demand Summer 5,500 kw, Winter 5,020 kw  
Total Sys. Incoming Substa. Cap. (transmission-incl) 5,500 kw  
Dist. Pres. Volt. 4.16 kv. Pole Miles 48.85 | Wire Trans. Line 34,500 Vols. 1  
Sub-Station 5,500 kw.  
Power Purchased From: Michigan Power Co.

**DOWAGIAC PLANT**  
Plant Supt. \_\_\_\_\_ J. C. Calk  
Tot. Gen. Cap. \_\_\_\_\_ 1,961 kw  
Diesel Engines  
Unit 2 564 kw Unit 5 1,050 kw  
Unit 4 1,125 kw  
Gas Turbine  
Unit 1 1,136 kw

**TOWNS SERVED AND POPULATION**  
Dowagiac 7,208

**ESCANABA MUNICIPAL ELECTRIC UTILITY**  
120 No. 8th St., Escanaba, Mich. 49829  
Tel: 786-0061, Area Code 906

Supt. \_\_\_\_\_ W. J. Van Pelt

Elec. Cost: Res. 3,053 Conn. 977 Ind. 8 Others 1,701 Total 7,689  
Elec. Res. Cost Avg. Rate 02.91/kwhr. Use 4,322 kwhr.

1971 Power Purchased 77,582,000 kwhr.  
1971 Sales/Elec. 74,617,332 kwhr.  
Dist. Pres. Volt. 2.3-7.2 | 12.4 kv. Pole Miles 60  
Total Sys. Peak Demand Summer 4,630 kw (Winter) 15,514 kw  
Total Sys. Incoming Substa. Cap. (transmission-incl) 25,000 kw.  
Power Purchased From: Upper Peninsula Power Co.

**ESCANABA MINE GEN. PLANT, Wells, Mich.**  
Plant Supt. \_\_\_\_\_ F. Hutchins  
Tot. Gen. Cap. \_\_\_\_\_ 25,000 kw  
Steam Turbine  
Unit 1 - 12,500 kw Unit 2 - 12,500 kw

**TOWNS SERVED AND POPULATION**  
Escanaba 15,791

**GLADSTONE LIGHT UTILITY**  
Gladstone, Mich 49837

Dist. Supt. \_\_\_\_\_ L. W. Young  
Plant Supt. \_\_\_\_\_ C. W. Sherman

Power Purchased From Upper Peninsula Power Co. for Peak Loads. We have our own Steam Generating Plant.

**GRAND HAVEN BOARD OF LIGHT & POWER**  
Washington St., Grand Haven, Mich 49417  
Tel: 842-3210, Area Code: 616

Director \_\_\_\_\_ A. I. Edwards  
Dist. Eng. & Plat. Eng. \_\_\_\_\_ A. I. Edwards, PE  
Use Forecast \_\_\_\_\_ R. Van Asselt

Elec. Cost: 6,220 Conn. 938 Ind. 17 Total 7,175  
Elec. Res. Cost Avg. Rate 01.94/kwhr. Use 6,147 kwhr.

1971 Net Sys. Input 135,000,000 kwhr (Est)  
1971 Power Purchased 796,800 kwhr  
1971 Sales/Elec. 124,200,741 kwhr  
Total Sys. Peak Demand Summer 23,000 kw (Winter) 22,600 kw  
Total Sys. Incoming Substa. Cap. 10,000 kw  
Dist. Pres. Volt. 12.2-2.4 kv. Pole Miles 56

**ISLAND STEAM PLANT, No. 3rd Street**  
Plant Supt. \_\_\_\_\_ H. Waterhouse  
Tot. Gen. Cap. \_\_\_\_\_ 20,000 kw  
Steam Turbine Gen. Cap. \_\_\_\_\_ 20,000 kw  
Unit 1 - 10,000 kw Unit 2 - 10,000 kw

**ISLAND POWER PLANT, Harbor Avenue**  
Plant Supt. \_\_\_\_\_ H. Waterhouse  
Tot. Gen. Cap. \_\_\_\_\_ 18,630 kw  
Unit 1 - 1,600 kw Unit 6 - 2,715 kw  
Unit 2 - 2,715 kw Unit 7 - 5,000 kw  
Unit 3 - 800 kw Unit 8 - 1,000 kw  
Unit 4 - 800 kw Unit 9 - 1,000 kw  
Unit 5 - 1,000 kw

**TOWNS SERVED AND POPULATION**  
Serves Ferrisburg & Grand Haven 11,863

**HARBOR SPRINGS ELECTRIC DEPT.**  
Harbor Springs, Mich 49740

City Mgr. & Plat. Eng. \_\_\_\_\_ A. C. Yeager  
Supt. & Dist. Eng. \_\_\_\_\_ D. V. Porter

Elec. Cost: Res. 1,332 Conn. 150 Ind. 8 Others 8 Total 1,498  
Elec. Res. Cost Avg. Rate 10.6/kwhr. Use 150,300 approx kwhr.

1971 Power Purchased 12,411,200 kwhr.  
1971 Sales/Elec. 10,176,337 kwhr.  
Total Sys. Peak Demand Summer 2,765 kw (Winter) 2,547 kw  
Total Sys. Incoming Substa. Cap. (transmission-incl) 1,500 kw.  
Dist. Pres. Volt. 4.16 kv. Pole Miles 35  
Power Purchased From: Consumers Power Inc.

**TOWNS SERVED AND POPULATION**  
Harbor Springs 1,662

**HART-HYDRO ELECTRIC DEPT.**  
100 Water St., Hart, Mich 49420  
Tel: 873-2488, Area Code: 616

City Mgr. & Plat. Eng. \_\_\_\_\_ G. H. Van Orsk  
Supt. \_\_\_\_\_ J. Lambert

MICHIGAN

Dec Cust. Res 700 Com 300 Ind 100 Others 100 Total 1,200

1970 Net Sys Inlet 17,000,000 kw-hr  
 1970 Power Purchased 4,000,000 kw-hr  
 1970 Sales/Elec 14,000,000 kw-hr  
 Total Sys Peak Demand Summer 1,960 kw Winter 1,870 kw  
 Dist. Press Volt 2.4 kv and 4.18 kv

**HART-HOPKIN PLANT**  
 Plant Supt \_\_\_\_\_ F Lomax  
 Tot Gen Cap \_\_\_\_\_ 1,950 kw  
 Diesel Engine  
 Unit 1 - 250 kw Unit 3 - 760 kw  
 Unit 2 - 450 kw Unit 4 - 2,190 kw  
 Hydro Turbine  
 Unit 1 - 150 kw Unit 2 - 150 kw

TOWNS SERVED AND POPULATION

Hart 2,139

**HILLSDALE MUNIC BOARD OF PUBLIC WORKS**  
 Hillsdale, Mich 49244  
 Tel: 437-7314 Area Code: 517

Supt. Pres \_\_\_\_\_ A J Wicker  
 Supt. Dist \_\_\_\_\_ A Meyer  
 Dir. Eng \_\_\_\_\_ Cushman & Barnard, Inc. Ann Arbor Mich  
 Com. Mgr \_\_\_\_\_ W E Lutz

Dec. Cust. Res 1,675 Com 700 Ind 25 Total 4,400  
 Dec. Res Cust Avg Rate Use 275 kw-hr

1971 Net Sys Inlet 47,500,000 kw-hr  
 1971 Power Purchased 4,874,400 kw-hr  
 1971 Sales/Elec 43,200,711 kw-hr  
 Total Sys Peak Demand Summer 3,000 kw Winter 1,500 kw (winter)  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 10,000 kw  
 Transm Volt Above 22 kv Cr Miles 107  
 Dist. Press Volt 4.16 - 7.2 kv & 13.2 kv Pole Miles 132  
 Power Purchased From: Consumers Power Co.

**90 P.B. HKS PWR HOUSE, Saw Densie Line - Hillsdale**  
 Tot Gen Cap \_\_\_\_\_ 10,950 kw  
 Diesel Engine  
 Unit 1 - 1,500 kw Unit 3 - 1,200 kw

TOWNS SERVED AND POPULATION

Hillsdale 7,629

**HOLLAND BOARD OF PUBLIC WORKS**  
 11th & River Ave - City Hall Holland, Mich 49423  
 Tel: 396-4628, Area Code 616

Supt & Pres Mgr \_\_\_\_\_ G E Bell  
 Supt. Dist & Transm \_\_\_\_\_ R Schemm

Dec. Cust. Res 10,082 Com 1,507 Ind 459 Total 12,048  
 Dec. Res Cust Avg Rate Use 02 05 kw-hr, Use 5,737 kw-hr

1971 Net Sys Inlet 202,033,400 kw-hr  
 1971 Power Purchased 211,000 kw-hr  
 1971 Sales/Elec 185,884,450 kw-hr  
 Dist. Press Volt 12.5, 2.4, 4.8 kv Pole Miles 176.54  
 Tot Sys Peak Demand Summer 150,200 kw (Winter) 147,000 kw

110,000 kw were being fed into Michigan Pool to Consumers Power Co.)

Tot Sys Incoming Substa Cap (nameplate-maximum) 10,000 kw  
 Power Purcha From Consumers Power Co.

**JAMES DE YOUNG STEAM PLANT, 3rd & Pine Ave**  
 Plant Supt \_\_\_\_\_ R Klein  
 Tot Gen Cap \_\_\_\_\_ 77,250 kw (NP)  
 Steam Turbine  
 Unit 1 - 7,500 kw Unit 4 - 22,000 kw  
 Unit 2 - 7,500 kw Unit 5 - 28,750 kw  
 Unit 3 - 11,500 kw

TOWNS SERVED AND POPULATION

Holland 38,312

**L'ANSE MUNICIPAL ELECTRIC DEPT.**  
 L'Anse, Mich 49946  
 Tel: 524-6116, Area Code: 906

Supt \_\_\_\_\_ R C Hermal

Dec. Cust. Total 954  
 Dec. Res Cust Avg Rate 05 Lw/kwhr, Use 250 kw-hr

1971 Power Purchased 7,084,800 kw-hr  
 1971 Sales/Elec 6,801,426 kw-hr  
 Total Sys Peak Demand Summer 1,134 kw (Winter) 1,452 kw  
 Dist. Press Volt 4.15 kv Pole Miles 14  
 Power Purchased From: Upper Peninsula Power Co.

TOWNS SERVED AND POPULATION

L'Anse 2,506

**LANSING BOARD OF WATER AND LIGHT**  
 123 W. Ottawa St. Lansing, Mich. 48903  
 Tel: 372-1885, Area Code: 517

Mgr \_\_\_\_\_ C R Erickson  
 Asst. Mgr \_\_\_\_\_ E F Finch  
 Dir. \_\_\_\_\_ Mrs O Semenska  
 Dir. Eng \_\_\_\_\_ A F Waterman  
 Dir. Elec Div \_\_\_\_\_ Vacant  
 Dir. Gen. Svc \_\_\_\_\_ C W Bellows

Dec. Cust. Res 58,402 Com 7,318 Ind 58 Others 5 Total 65,784  
 Dec. Res Cust Avg Rate 01.75 kw-hr, Use 6,495 kw-hr

1971 Net Sys Inlet 1,609,576,755 kw-hr  
 1971 Sales/Elec 1,601,223,319 kw-hr  
 Transm Volt 138 kv Cr Miles 3.0  
 Transm Volt 112 kv Cr Miles 207.01  
 Dist. Press Volt 2.4 - 4.16 kv Pole Miles 518.31  
 Dist. Press Volt 4.8 - 8.32 kv Pole Miles 38.69  
 Total Sys Peak Demand Summer 225,075 kw (Winter) 293,750 kw  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 30,000 kw  
 Power Purchased From: Consumers Power Co.

**OTTAWA STA., P.O. Box 570, Lansing, Mich**  
 Tot Gen Cap \_\_\_\_\_ 457,700 kw

Steam Turbine  
 Unit 1 - 75,000 kw Unit 4 - 4,000 kw  
 Unit 2 - 25,000 kw Unit 5 - 2,500 kw  
 Unit 3 - 25,000 kw

**MICHIGAN**

Hydro-Turbine  
Unit 1 - 500 kw  
Unit 2 - 500 kw  
Unit 3 - 200 kw

EDBERT STA. P.O. Box 570, Lansing, Mich.

Steam Turbine  
Unit 1 - 44,000 kw  
Unit 2 - 44,000 kw  
Unit 3 - 47,000 kw  
Unit 4 - 80,000 kw  
Unit 5 - 80,000 kw  
Unit 6 - 80,000 kw

**TOWNS SERVED AND POPULATION**

Lansing 131,254, East Lansing 47,540

**MARQUETTE BOARD OF LIGHT & POWER**

P.O. Box 40, Marquette, Mich 49855  
Tel: 226-3593, Area Code: 906

Dir & Pur Agt \_\_\_\_\_ W W Winick  
Office Mgr \_\_\_\_\_ R J Rosendal  
Elec Eng \_\_\_\_\_ G Beckman  
Supt, Dist & Transm \_\_\_\_\_ N Gustafson  
Asst \_\_\_\_\_ J Gelfinger  
Plant Prod Supt \_\_\_\_\_ E Pyska  
Asst Plant Supt \_\_\_\_\_ C Nelson

Elec Cust Res 8,289 Com 1,217 Ind 9 Others 247 Total 9,777  
Elec Res Cust Avg Rate 01.37/kwhr, Use 5,795 kwhr

1971 Net Sys Input 128,551,728 kwhr  
1971 Sales/Elec 119,857,909 kwhr  
Total Sys Peak Demand-Summer 21,000 kw (Winter) 25,000 kw  
Tot Sys Incoming Substa Cap (maximum) 9,300 kw  
Dist-Prsn Volt 7.2 - 12.47 kv, Pole Miles 240

**MARQUETTE GEN PLANT**

Tot Gen Cap \_\_\_\_\_ 57,880 kw  
Diesel Engine  
Unit 1 - 850 kw  
Unit 2 - 850 kw  
Unit 3 - 2,120 kw  
Unit 7 - 2,750 kw  
Unit 4 - 1,980 kw  
Unit 5 - 2,640 kw  
Unit 6 - 2,640 kw  
Unit 8 - 1,000 kw  
Hydro-Turbine  
Unit 1 - 1,000 kw  
Unit 2 - 1,500 kw  
Unit 3 - 1,500 kw  
Unit 4 - 750 kw  
Steam Plant 26,200 kw  
Unit 1 - 14,300 kw  
Unit 2 - 22,000 kw

**TOWNS SERVED AND POPULATION**

Marquette 19,824

**MARSHALL CITY WATER AND ELECTRIC WORKS**

109 E Michigan Ave Marshall, Mich 49068  
Tel: 781-3967 Area Code: 616

Supt \_\_\_\_\_ F H Wirtz  
Supt, Dist & Transm \_\_\_\_\_ W H White  
Com Mgr \_\_\_\_\_ R C Ashoben

Elec Cust Res 2,723 Com 296 Ind 36 Others 63 (Forms) Total 3,218  
Elec Res Cust Avg Rate 02.44/kwhr, Use 5,395 kwhr

1971 Net Sys Input 28,869,348 kwhr  
1971 Power Purchased 32,660,888 kwhr  
1971 Sales/Elec 25,222,845 kwhr  
Dist-Prsn Volt 2.4-4.16 kv

Total Sys Peak Demand-Summer 7,500 kw (Winter) 4,850 kw  
Tot Sys Incoming Substa Cap (maximum) 9,750 kw, as of 2/15/71  
Power Purchased From Consumers Power Co.

**MARSHALL POWER HOUSE, 906 S Marshall Ave**

Plant Supt \_\_\_\_\_ M Bernauer  
Tot Gen Cap \_\_\_\_\_ 5,299 kw  
Diesel Engine  
Unit 1 - 1,170 kw  
Unit 2 - 1,130 kw  
Unit 4 - 1,000 kw  
Unit 5 - 1,680 kw  
Hydro-Turbine, 2 units, total cap 319 kw

**TOWNS SERVED AND POPULATION**

Marshall 7,300

**NEGAUNEE ELECTRIC DEPT.**

Negaunee, Mich 49866  
Tel: 475-6241, Area Code: 906

City Mgr & Pur Agt \_\_\_\_\_ G L Dickson  
Supt \_\_\_\_\_ W Kaker

Elec Cust Res 1,768 Com 206 Total 1,974  
Avg Res Use 490 kwhr

1971 Power Purchased 14,596,800 kwhr  
1971 Sales/Elec 13,466,055 kwhr  
Total Sys Peak Demand-Summer 1,785 kw (Winter) 7,256 kw  
Dist-Prsn Volt 4.16 kv, Pole Miles 55  
Power Purchased From Upper Peninsula Power Co.

**TOWNS SERVED AND POPULATION**

Negaunee 5,248

**NEWBERRY WATER & LIGHT BOARD**

307 East McMillan, Newberry, Mich 49868

Supt \_\_\_\_\_ R Sawyer

Elec Cust Res 930 Com 56 Ind 3 Total 989  
Elec Res Cust Avg Rate 2.80/kwhr, Use 2,908 kwhr

1971 Power Purchased 15,108,000 kwhr  
1971 Sales/Elec 14,751,950 kwhr  
Dist-Prsn Volt 2.4 - 4.16 kv, Pole Miles 25  
Total Sys Peak Demand-Summer 2,500 kw (Winter) 3,000 kw  
Tot Sys Incoming Substa Cap (maximum) 5,000 kw  
Power Purchased From Cleveland Electric

**NEWBERRY LIGHT PLANT**

Tot Gen Cap \_\_\_\_\_ 1,450 kw  
Diesel Engine  
Unit 2 - 720 kw  
Unit 4 - 740 kw

**TOWNS SERVED AND POPULATION**

Newberry 2,612

**NILES BOARD OF PUBLIC WORKS**

602 E. Main St. Niles Mich 49120  
Tel: 683-4700 Area Code: 616

Mgr & Pur Agt \_\_\_\_\_ S A Smith  
Supt \_\_\_\_\_ L A Bomer  
Asst Mgr \_\_\_\_\_ B B Cize

MICHIGAN

OCEANA ELECTRIC COOPERATIVE  
24 N State St. Hart, Mich 49420  
Tel: 873-2155 Area Code: 616

Mgr \_\_\_\_\_ H Johnson  
Supt. Dist & Transm \_\_\_\_\_ W Tice

Elec. Cust. Res 3,384 Com 270 Ind 9 Others 2,544 (5x normal Cottages) Total 6,207  
Elec. Res. Cust. Avg. Rate 02.15¢/kwhr. Use 8,742 kwhr.

1971 Power Purchased 40,177,800 kwhr.  
1971 Sales/Elec 36,037,183 kwhr.  
Dist. Prem Volt 7.2 (2.45 kv. Pole Miles 850)  
Total Sys. Peak Demand Summer 5,172 kw (Winter) 3,226 kw  
Total Sys. Incoming Substa. Cap. (Nameplate-maximum) 13,500 kw.  
Power Purchased From: Wolverine Electric Corp.

RURAL SECTIONS SERVED

Ozark, Mason, Newaygo, Muskegon

THE ONTONAGON COUNTY R.E.A.  
511 J.K. Paul Street, Ontonagon Mich. 49953  
Tel: 884-2510, Area Code 906

Mgr \_\_\_\_\_ C M Clark

Elec. Cust. Res 1,748 Com 69 Others 860 Total 2,677  
Elec. Res. Cust. Avg. Rate 03.3¢/kwhr. Use 455 kwhr.

1971 Power Purchased 12,304,680 kwhr.  
1971 Sales/Elec 10,860,758 kwhr.  
Dist. Prem Volt 7.2 (2.125 kv. Pole Miles 726.6)  
Total Sys. Peak Demand Summer 2,106 kw (Winter) 2,769 kw  
Total Sys. Incoming Substa. Cap. (Nameplate-maximum) 4,266 kw.  
Power Purchased From: Upper Peninsula Power Co. 90% and Wisconsin - Michigan Power Co. 10%

RURAL SECTIONS SERVED

Ontonagon, Leighton, Bangor, & Anemone counties

PRESQUE ISLE ELECTRIC COOPERATIVE, INC.  
Onaway, Mich. 49765  
Tel: 733-8515, Area Code: 517

Mgr \_\_\_\_\_ H H Paul  
Supt. Dist & Transm \_\_\_\_\_ R Lonsdale  
Elec. Eng. & Pur. Agt. \_\_\_\_\_ W Frie  
Comm. \_\_\_\_\_ W O'Leary  
Office Mgr. \_\_\_\_\_ J Gode

Elec. Cust. Res 17,026 (includes seasonal) Com 788 Ind 35 Others 161 Total 17,000  
Elec. Res. Cust. Avg. Rate 02.99¢/kwhr. Use 5,004 kwhr.

1971 Power Purchased 99,210,363 kwhr.  
1971 Sales/Elec 77,826,189 kwhr.  
Dist. Prem Volt 7.2 (4.4 kv. Pole Miles 1,011)  
Total Sys. Peak Demand Summer 17,436 kw (Winter) 20,949 kw  
Power Purchased From: Northern Michigan Electric Cooperative, Inc.

RURAL SECTIONS SERVED

Presque Isle, Ontonagon, Mackinac, Alpena, Chaska, Alcona, Charlevoix, Mackinaw, Sturgis Counties

SOUTHEASTERN MICHIGAN RURAL ELEC.  
COOPERATIVE, INC.  
1610 E Maumee, Adrian, Mich 49221  
Tel: 263-1808, Area Code: 313

Mgr \_\_\_\_\_ J E Hedner

Elec. Cust. Res 2,529 Com 51 Seasonal 205 Total 2,785

1971 Power Purchased 27,226,962 kwhr.  
1971 Sales/Elec 23,752,989 kwhr.  
Total Sys. Incoming Substa. Cap. (Nameplate-maximum) 15,200 kw  
Dist. Prem Volt 7.2 (2.47 kv. Pole Miles 509)  
Power Purchased From: Detroit Edison Co. and Consumers Power Co. (Michigan Portion of System) Buckeye Power Cooperative (Ohio Portion of System)

RURAL SECTIONS SERVED

Serves rural sections in Lenawee county, Mich., Fulton & Williams counties, Ohio

THUMB ELEC COOPERATIVE OF MICHIGAN  
2231 Main St., Ubyly, Mich 48475

Gen. Mgr. \_\_\_\_\_ O Harford  
Supt. & Pur. Agt. \_\_\_\_\_ C Demaree

Elec. Cust. Rural Res 7,094 Com 6 Ind (Small) 95 Com 6 Ind (Large) 6 Others 208 Total 7,403

1971 Net Sys. Invest 66,313,700 kwhr.  
1971 Power Purchased 58,735,700 kwhr.  
1971 Sales/Elec 56,063,492 kwhr.  
Transm. Volt 44 kv. (Pole Miles (Est) 134.7)  
Dist. Prem Volt 7.2 kv. Pole Miles 1,562 v.  
Power Purchased From: Detroit Edison Co.

UBLY PLANT

Plant Supt. \_\_\_\_\_ J Glass  
Diesel Engine \_\_\_\_\_ 1,082 kw

CARD PLANT, Card, Mich

Plant Supt. \_\_\_\_\_ E Sobot  
Diesel Engine \_\_\_\_\_ 1,939 kw

RURAL SECTIONS SERVED

Huron, Sanilac and Tuscola Counties

TOP O'MICHIGAN RURAL ELECTRIC CO  
P.O. Box 70, 319 N. Lake St., Boyne City, Mich  
49712  
Tel: 582-6521, Area Code: 616

Mgr \_\_\_\_\_ R Westbrooks  
Mgr. Dist & Eng. \_\_\_\_\_ C Secum  
Plan. Eng. \_\_\_\_\_ W Sorens  
Line Supt. \_\_\_\_\_ J B Kirby  
Comm. \_\_\_\_\_ R Holtsch  
Supt. \_\_\_\_\_ R Laune  
Mgr. Pur. Dist. \_\_\_\_\_ A J Ernoth

Elec. Cust. Res 23,091 Com 272 Ind 13 Others 132 Total 23,578  
Elec. Res. Cust. Avg. Rate 03.23¢/kwhr. Use 4,689 kwhr.

1971 Power Purchased 110,552,400 kwhr.  
1971 Sales/Elec 96,210,807 kwhr.  
Dist. Prem Volt 7.2 kv. Pole Miles 1,658 Volt 7.2 kv (17 Miles 35

**MICHIGAN**

Total Sys Peak Demand Summer 22,349 kw (Winter) 24,648 kw  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 21,700 kw  
 Power Purchased From: Northern Michigan Electric Coop, Inc.

**RURAL SECTIONS SERVED**

Alcona, Charlevoix, Chelan, Charlevoix, Charlevoix, Emmet, Grand Traverse, Kalamazoo, Muskegon, Montmorency, Oceana, Oshtemo and Westland Counties

**TRI-COUNTY ELECTRIC COOPERATIVE**  
 P O Box 348, Portland, Mich 48875  
 Tel: 647-2911, Area Code 517

Mgr \_\_\_\_\_ J Smith  
 Supt. \_\_\_\_\_ H Fedewa

Elec Cust. Res: 1,887 Com: 204 Ind: 68 Others: 2,701 Total 11,860  
 Elec Res Cust Avg Rate 02.24/kwhr. Use 721 kwhr

1971 Power Purchased: 97,849,250 kwhr  
 1971 Sales Elec: 88,633,585 kwhr  
 Total Sys Peak Demand Summer 10,224 kw (Winter) 21,564 kw  
 Dist. Prim. Volt: 7.2 kv. Peak Miles: 2,092  
 Power Purchased From: Wolverine Elec. Coop.

**RURAL SECTIONS SERVED**

Serves rural sections in Aren, Clare, Clinton, Grand, Ingham, Ionia, Isabella, Jackson, Mecosta, Montcalm, Oscoda and Saginaw Counties

**WESTERN MICHIGAN ELECTRIC COOPERATIVE**  
 P. O. Box 248 Scottville, Mich. 49454  
 Tel: 757-4724, Area Code 616

Mgr \_\_\_\_\_ F P Anderson  
 Supt. \_\_\_\_\_ H W Doonan

Elec Cust. Res: 6,948 Com: 116 Others: 55 Total 7,117  
 Elec Res Cust Avg Rate 03.11/kwhr. Use 1,367 kwhr

1971 Power Purchased: 29,019,200 kwhr  
 1971 Sales Elec: 25,532,451 kwhr  
 Dist. Prim. Volt: 7.2 kv. Peak Miles: 1,957  
 Total Sys Peak Demand Summer 6,756 kw (Winter) 7,032 kw  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 12,000 kw  
 Power Purchased From: Wolverine Electric Coop.

**RURAL SECTIONS SERVED**

Mason, Lake, Manistee, Oscoda counties

**WOLVERINE ELECTRIC COOPERATIVE, INC.**  
 302 S. Warren Ave., Big Rapids, Mich 49307  
 Tel: 796-8649, Area Code: 616

Mgr \_\_\_\_\_ J N Keen

Supt. Dick & Tronson \_\_\_\_\_ S D King  
 Dist. Eng. \_\_\_\_\_ J & G Gowerman Co  
 Supt. Phil \_\_\_\_\_ J O Wood

Heat Rate for Entire System 9,674 BTU/kwhr

1971 Net Sys Input: 209,311,200 kwhr  
 1971 Power Purchased: 24,122,900 kwhr  
 1971 Sales Elec: 285,290,800 kwhr  
 Transm. Volt: 44 kv - 257.70 Cu Miles  
 Transm. Volt: 69 kv - 362.75 Cu Miles  
 Total Sys Peak Demand Summer 55,920 kw (Winter) 61,948 kw  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 73,500 kw

**GENERATING PLANTS**

Supt. Phil \_\_\_\_\_ J O Wood  
 Tot Gen Cap \_\_\_\_\_ 55,967 kw

**VAR DYKE, Clair, Mich**

Gas & Diesel  
 Unit 1 - 380 kw  
 Unit 2 - 380 kw  
 Unit 3 - 380 kw  
 Unit 4 - 645 kw  
 Unit 5 - 1,500 kw  
 Unit 6 - 13,000 kw

**JOHNSON, H., Ionia, Mich**

Gas & Diesel  
 Unit 1 - 700 kw  
 Unit 2 - 700 kw  
 Unit 3 - 1,165 kw  
 Unit 4 - 2,500 kw  
 Unit 5 - 2,500 kw  
 Unit 6 - 2,500 kw

**C WINDER, Portland, Mich**

Diesel Engine  
 Unit 1 - 1,000 kw  
 Unit 2 - 1,100 kw  
 Unit 3 - 1,000 kw  
 Unit 4 - 493 kw  
 Unit 5 - 493 kw

**VESTALBURG, Vestalburg, Mich**

Gas & Diesel  
 Unit 1 - 347 kw  
 Unit 2 - 347 kw  
 Unit 3 - 347 kw  
 Unit 4 - 700 kw  
 Unit 5 - 2,000 kw  
 Unit 6 - 2,000 kw

**SCOTTVILLE PLANT, Scottville, Mich**

Gas & Diesel  
 Unit 1 - 340 kw  
 Unit 2 - 340 kw  
 Unit 3 - 340 kw  
 Unit 4 - 1,100 kw  
 Unit 5 - 1,100 kw  
 Unit 6 - 1,850 kw

**RURAL SECTIONS SERVED**

Alcona, Clinton, Eaton, Ionia, Isabella, Ionia, Lake, Mason, Mecosta, Montcalm, Muskegon, Newaygo, Oceana, Oscoda, Otsego, Grand, Westland

MICHIGAN

**WAKEFIELD ELEC LIGHT DEPT.**  
Wakefield, Mich 49968  
Tel: 224-1241, Area Code: 906

City Mgr \_\_\_\_\_ L E Anderson  
Supt & Elec Eng \_\_\_\_\_ M Smouch

1971 Cust Res 931 Com 92 Ind 1 Total 1,024  
1971 Res Cust Avg Rate 02.91 kw/hr. Use 8,212 kw/hr

1971 Power Purchased 10,059,705 kw/hr  
1971 Sales Elec 9,197,840 kw/hr  
Total Sys Peak Demand Summer 1,300 kw (Winter) 1,770 kw  
Tot Sys Incoming Substa Cap (independent-maximum) 1,000 kw  
Dist From Volt 2.4 kv - 4.16 kv Pole Miles 50  
Power Purchased From Lake Superior District Power Co.

TOWNS SERVED AND POPULATION

Alpena 2,757

**WYANDOTTE MUNIC SERVICE COMMISSION**  
140 Elm St Wyandotte Mich 48192  
Tel: 282-7100 Area Code: 313

Gen Mgr \_\_\_\_\_ W P Strain  
Elec Eng \_\_\_\_\_ W P Strain  
Supt. Cust & Transm \_\_\_\_\_ J J Deminger  
Com Mgr \_\_\_\_\_ T Jostwa  
Pur Agr \_\_\_\_\_ A S Kowalski

1971 Cust Res 12,780 Com 1,010 Ind 393 Others 393 Total 14,576  
1971 Res Cust Avg Rate 02.26 kw/hr. Use 175 kw/hr

1971 Net Sys Input 163,074,530 kw/hr  
1971 Power Purchased 18,151,530 kw/hr  
1971 Sales Elec 163,074,530 kw/hr  
Dist From Volt 13.8 kv - 4.8 kv Pole Miles 115  
Total Sys Peak Demand Summer 30,500 kw (Winter) 25,000 kw  
Tot Sys Incoming Substa Cap (independent-maximum) 25,000 kw  
Power Purchased From Detroit Edison Co.

**WYANDOTTE STEAM PLANT, 2555 Van Aldine Blvd.**

Plant Supt \_\_\_\_\_ E R Stahl  
Tot Gen Cap \_\_\_\_\_ 94,500 kw  
Unit 2 - 4,000 kw Unit 5 - 10,000 kw  
Unit 3 - 6,000 kw Unit 6 - 15,000 kw  
Unit 4 - 11,500 kw Unit 7 - 7,500 kw

TOWNS SERVED AND POPULATION

Wyandotte 43,519

**ZEELAND BOARD OF PUBLIC WORKS**  
City Hall Zeeland Mich 49464  
Tel: 772-6212 Area Code: 616

Mgr Utilities \_\_\_\_\_ Martin Hehrle

1971 Cust Res 1,564 Com 754 Ind 56 Total 1,974  
1971 Res Cust Avg Rate 02.16 kw/hr. Use 1,261 kw/hr

1971 Net Sys Input 25,219,790 kw/hr  
1971 Power Purchased 4,198,430 kw/hr  
1971 Sales Elec 22,614,994 kw/hr  
Dist From Volt 7.2 kv - 4.16 kv Pole Miles 26  
Total Sys Peak Demand Summer 8,600 kw (Winter) 8,300 kw

Tot Sys Incoming Substa Cap (independent-max) 5,000 kw  
Power Purchased From None

**ZEELAND L&P PLANT, 347 E Washington Ave.**

Plant Supt \_\_\_\_\_ H Nemhus  
Tot Gen Cap \_\_\_\_\_ 13,998 kw  
Diesel Engine \_\_\_\_\_  
Unit 1 - 1,260 kw Unit 5 - 1,170 kw  
Unit 2 - 1,290 kw Unit 7 - 2,000 kw  
Unit 3 - 475 kw Unit 8 - 1,800 kw  
Unit 4 - 473 kw Unit 9 - 4,450 kw  
Unit 5 - 990 kw

TOWNS SERVED AND POPULATION

Zeeland 4,714

RURAL ELECTRIC COOPERATIVE SYSTEMS

**ALGER DELTA COOPERATIVE ELEC. ASSN.**  
426 N. 9th St. Gladstone, Mich 49837  
Tel: 425-2331, Area Code 906

Mgr \_\_\_\_\_ R Howeson  
Supt, Cust & Transm \_\_\_\_\_ E Englund  
Elec Eng \_\_\_\_\_ Stanley Engineering Co  
Pur Agr \_\_\_\_\_ E Westor and E Englund

1971 Cust Rural Res 2,177 Com 272 Ind 7 Others 772 Total 5,228  
1971 Res Cust Avg Rate 02.84 kw/hr. Use 6,246 kw/hr

1971 Power Purchased 23,226,881 kw/hr  
1971 Sales Elec 20,296,086 kw/hr  
Dist From Volt 7.2 & 14.4 kv Pole Miles 1,111  
Total Sys Peak Demand Summer 4,570 kw (Winter) 5,290 kw  
Tot Sys Incoming Substa Cap (independent-maximum) 6,718 kw  
Power Purchased From Mich. Pwr. Co., Upper Peninsula Power Co., City of Marquette Munic.

RURAL SECTIONS SERVED

Serves Rural Sections in Following Counties: Alger, Delta, Marquette, Menominee and Schoolcraft

**CHERRYLAND RURAL ELEC COOP. ASSOC.**  
1102 Cass St., P.O. Box 466, Traverse City, Mich 49684  
Tel: 947-5715, Area Code: 616

Mgr \_\_\_\_\_ R C Lambert  
Supt \_\_\_\_\_ L M Johnson  
Elec Eng \_\_\_\_\_ Governance Associates  
Com Mgr \_\_\_\_\_ G R Whar

1971 Cust Res 8,509 Com 432 Ind 15 Others 117 Total 9,073  
1971 Res Cust Avg Rate 02.86 kw/hr. Use 435 kw/hr

1971 Power Purchased 83,894,000 kw/hr  
1971 Sales Elec 57,194,042 kw/hr  
Dist From Volt 7.2 kv Pole Miles 1,286

## MICHIGAN

Total Sys Peak Demand Summer 11,073 kw (Winter) 14,583 kw  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 15,000 kw  
 Power Purchased From Northern Michigan Elec. Cooperative

### RURAL SECTIONS SERVED

Grand Traverse, Leelanau, Benzie, Antrim, Montmorency counties

**CLOVERLAND ELECTRIC COOPERATIVE**  
 Highway M-28 Daffler, Mich 49724  
 Tel: 635-1561, Area Code 906

Mgr \_\_\_\_\_ J F Hoff  
 Supt, Dist & Transm \_\_\_\_\_ F Tolentino

Elec. Cust. Res 4,014 Com 528 Ind 1 Others 4,623 Total 9,166  
 Elec Res Cust Avg Rate 02.50¢/kwhr. Use 598 kwhr.

1971 Net Sys Input 63,531,000 kwhr minus 460,000 kwhr  
 1971 Sales/Elec 73,488,900 kwhr  
 Transm Volt Above 22 kv 69 kv. Circuit Miles 102.80  
 Dist-Prim Volt in kv 7.2/12.4/14.4/23.9 kv. Pole Miles 1,805.8  
 Total Sys Peak Demand Summer 15,100 kw (Winter) 16,300 kw  
 Power Purchased From: Edison Sault Electric Co.

### DAFFLER PLANT, Daffler, Mich.

Plant Supt \_\_\_\_\_ V Hunter  
 Tot Gen Cap \_\_\_\_\_ 9,000 kw  
 Diesel Engine  
 Unit 1 - 1,000 kw                      Unit 4 - 1,000 kw  
 Unit 2 - 1,000 kw                      Unit 5 - 1,000 kw  
 Unit 3 - 1,000 kw

### RURAL SECTIONS SERVED

Chippewa, Mackinac, Lapeer, Schoolcraft

**FRUIT BELT ELECTRIC COOPERATIVE**  
 Box 127 Cassopolis, Mich 49031  
 Tel: 445-2477 Area Code: 616-

Mgr \_\_\_\_\_ C O Hestinger  
 Supt \_\_\_\_\_ F M Bowersman  
 Elec. Eng \_\_\_\_\_ E Spencer  
 Supt, Dist & Transm \_\_\_\_\_ P Junge  
 Pur Agt \_\_\_\_\_ F M Bowersman  
 Const Supt \_\_\_\_\_ E Farnsworth

Elec. Cust. Rural 13,279 Com 217 Ind 33 Others 78 Total 13,607  
 Elec Res Cust Avg Rate 02.02¢/kwhr. Use 9,588 kwhr.

1971 Power Purchased 149,111,625 kwhr.  
 1971 Sales/Elec 143,000,000 kwhr.  
 Dist-Prim Volt in kv 7.2 - 12.47 kv Pole Miles 1,825  
 Total Sys Peak Demand Summer 25,598 kw (Winter) 34,539 kw  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 38,500 kw.  
 Power Purchased From: Indiana & Michigan Elec. Co.

### RURAL SECTIONS SERVED

Cass, St. Joseph, Kalamazoo, Van Buren & Benzie in Mich; St. Joseph & Elkhart in Indiana

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**NORTHERN MICHIGAN ELECTRIC COOP INC.**  
 P.O. Box 138, Boyne City, Mich 49712  
 Tel: 582-6572, Area Code: 616

Mgr & Pur Agt \_\_\_\_\_ A E Steinhilber  
 Supt, Prod \_\_\_\_\_ J R Cars  
 Supt, Transm \_\_\_\_\_ R Chappell

### Elec. Cust. Total 3 (wholesale)

1971 Net Sys Input 296,241,500 kwhr.  
 1971 Power Purchased 25,633,300 kwhr.  
 1971 Sales/Elec 277,995,800 kwhr.  
 Transm Volt Above 22 kv 44 & 69 kv. Cir Miles 461  
 Total Sys Peak Demand Summer 57,200 kw (Winter) 66,120 kw  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 120,875 kw  
 Power Purchased From: Consumers Power Co., Wolverine Elec. Coop., Cities of Traverse & Grand Haven Tot Gen Cap \_\_\_\_\_ 66,109 kw

### ADVANCE STEAM PLANT

Tot Gen Cap \_\_\_\_\_ 40,000 kw  
 Steam Turbine  
 Unit 1 - 7,500 kw                      Unit 2 - 7,500 kw  
 Unit 3 - 25,000 kw

### TOWER & KLEBER HYDRO PLANTS

Tot Gen Cap \_\_\_\_\_ 1,700 kw  
 2 Units 2 Units TOWER INTERNAL COMBUSTION PLANT  
 Tot Gen Cap \_\_\_\_\_ 23,939 kw  
 3 Diesel Units 1 Gas Turbine BEAVER ISLAND DIESEL PLANTS  
 Tot Gen Cap \_\_\_\_\_ 470 kw (5 units)

### RURAL SECTIONS SERVED

Supplies wholesale power to rural areas (over one-third of Lower Peninsula interconnected with Light & Power Dept. of Traverse City, City of Grand Haven and Wolverine Electric Cooperative and connection with Consumers Power Co.

### O & A ELECTRIC COOPERATIVE

Division & Quarterline Newaygo, Mich 49337  
 Tel: 652-9361, Area Code: 616

Mgr \_\_\_\_\_ K G Burnstead  
 Supt \_\_\_\_\_ D Jewett  
 Elec. Eng \_\_\_\_\_ Geveman Associates  
 Com Mgr \_\_\_\_\_ R Frickman  
 Pur Agt \_\_\_\_\_ W Diamond

Elec. Cust. Res 16,257 Com 358 Ind 71 Others 143 Total 16,781  
 Elec Res Cust Avg Rate 02.49¢/kwhr. Use 7,309 kwhr.

1971 Power Purchased 88,210,985 kwhr.  
 1971 Sales/Elec 78,080,949 kwhr.  
 Dist-Prim Volt 7.2 kv. Pole Miles 2,664  
 Total Sys Peak Demand Summer 14,147 kw (Winter) 18,347 kw  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 27,750 kw.  
 Power Purchased From: Wolverine Elec. Coop.

### RURAL SECTIONS SERVED

Allegan, Barry, Clare, Kent, Lake, Mecosta, Missaukee, Pioskegon, Montcalm, Newaygo, Ottawa, Oshtemo, Washtenaw counties



MICHIGAN

City Mgr \_\_\_\_\_ Y M Gulochentler  
 Elec Cost Res 4,982 Com 624 Ind 12 Others 317 Total 5,935  
 Elec Res Cost Avg Rate 01.76¢/kwhr Use 6,022 kwhr  
 1971 Net Sys Incol 32,905,100 kwhr  
 1971 Power Purchased 79,614,000 kwhr  
 1971 Sales/Elec 75,242,267 kwhr  
 Dist Prim Cost 4.16/2.4 kv and 7.12/4.7 kv Pole Miles 56.5  
 Total Sys Peak Demand Summer 17,109 kw (Winter) 14,322 kw  
 Tot Sys Incoming Substa Cap (nameplate-max) 36,144 kw  
 Transm Volt 34.5 kv Circuit Miles 9.5  
 Power Purchased From Indiana & Michigan Electric Co.

MILES HYDRO  
 Tot Gen Cap \_\_\_\_\_ 460 kw

TOWNS SERVED AND POPULATION  
 None 13,842

NORWAY LIGHT DEPT.  
 915 Brown St., Norway, Mich. 49870  
 Tel: 563-9641, Area Code: 906

Mgr & Pur Mgr \_\_\_\_\_ C Schmitt  
 Supt \_\_\_\_\_ U Schuchman

Elec Cost Res 1,433 Com 152 Ind 15 Others 1 Total 1,501  
 Elec Res Cost Avg Rate 1.31¢/kwhr Use 700 kwhr

1970 Net Sys Incol 21,597,750 kwhr  
 1970 Power Purchased 690,000 kwhr  
 1970 Sales/Elec 20,907,750 kwhr  
 Transm Volt 11.8 kv Circuit Miles 12  
 Dist Prim Cost 7.4/4.16 kv Pole Miles 39  
 Total Sys Peak Demand Summer 2,930 kw (Winter) 1,400 kw  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 4,000 kw  
 Power Purchased From Wisconsin Michigan Power Co.

STARBUCK FALLS HYDRO PLANT, Palco, Mich  
 Plant Supt \_\_\_\_\_ R Grandson  
 Tot Gen Cap \_\_\_\_\_ 1,500 kw  
 Unit 1 - 1,500 kw Unit 2 - 2,000 kw

TOWNS SERVED AND POPULATION  
 None 1,030

PAW PAW DEPT. OF PUBLIC WORKS  
 111 Berrien St., Paw Paw, Mich 49079

Supt \_\_\_\_\_ H L Bush

Power Purchased From Michigan Power Co.

TOWNS SERVED AND POPULATION  
 Paw Paw 1,160

PETOSKEY ELECTRIC DEPT.  
 200 Division St., Petoskey, Mich 49770  
 Tel: 347-9961 Area Code 616

City Mgr \_\_\_\_\_ R J Gorman  
 Dir. Pub. Wks. \_\_\_\_\_ F Plume (Elec. Utilities)  
 Supt. Dist. & Transm. \_\_\_\_\_ J Herms

Elec Cost Rural 2,650 Com 402 Ind 6 Others 9 Total 3,069

1971 Net Sys Incol 40,256,560 kwhr  
 1971 Power Purchased 40,266,560 kwhr  
 1971 Sales/Elec 36,428,328 kwhr  
 Total Sys Peak Demand Summer 7,750 kw (Winter) 7,600 kw  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 8,950 kw  
 Transm Volt Above 22 kv 46 kv Circuit Miles 4.5  
 Dist Prim Cost 4.16 kv Pole Miles 21  
 Power Purchased From Consumers Power Co.

PETOSKEY PLANT, 100 E. Lake St. (discontinued generation in MI - 1970)

TOWNS SERVED AND POPULATION  
 Petoskey 6,342

PORTLAND ELECTRIC DEPT.  
 259 Kent St., Portland, Mich 48875  
 Tel: 647-4041, Area Code: 517

City Mgr \_\_\_\_\_ L A Wernette  
 Supt \_\_\_\_\_ R Decker

Elec Cost Res 1,208 Com 179 Ind 3 Others 30 Total 1,500

Power Purchased From Consumers Power Co. & Ithaca Electric Cooperative

MUNICIPAL HYDRO PLANT, Lyons Rd on Grand River  
 Plant Supt \_\_\_\_\_ T E Hunt  
 Tot Gen Cap \_\_\_\_\_ 37.5 kw

R. JENKINS DIESEL PLANT, 722 Grand River Ave  
 Plant Supt \_\_\_\_\_ T E Hunt  
 Tot Gen Cap \_\_\_\_\_ 1,163 kw

TOWNS SERVED AND POPULATION  
 Portland 1,808

ST. LOUIS MUNICIPAL ELECTRIC  
 412 N Mill St., St. Louis, Mich 48883  
 Tel: 681-3351, Area Code: 517

Supt. Dist. & Transm. \_\_\_\_\_ W Starr

Elec Cost Res 1,232 Com 186 Total 1,418

1971 Power Purchased 10,500,000 kwhr (Est)  
 Total Sys Peak Demand Summer 1,900 kw (Winter) 2,300 kw  
 Tot Sys Incoming Substa Cap (nameplate-maximum) 2,400 kw  
 Power Purchased From Consumers Power Co.

ST. LOUIS POWER PLANT  
 Tot Gen Cap \_\_\_\_\_ 3,875 kw

Diesel Engine  
 Unit 1 - 1,260 kw Unit 2 - 1,015 kw  
 Unit 3 - 690 kw Unit 4 - 485 kw  
 Steam Turbine  
 Unit 1 - 180 kw Unit 2 - 180 kw

TOWNS SERVED AND POPULATION  
 St Louis 1,808

**MICHIGAN**

**SEBEWING MUNIC ELEC LIGHT PLANT**

Sebewing, Mich 48759

Dist \_\_\_\_\_ A/C Service

**TOWNS SERVED AND POPULATION**

Sebewing 2,053

**SOUTH HAVEN BOARD OF PUBLIC UTILITIES**

529 Phoenix St, (P.O. Box 507), South Haven, Mich 49090

Tel: 637-5211 Area Code: 616

Dist \_\_\_\_\_ A Power  
Subst, Dist & Transm \_\_\_\_\_ C Lines

Dist Cust Res 4,251 Com 157 Ind 173 Total 5,181  
Dist Res Cust Avg Rate 01.97/kwhr. Use 461 kwhr

1971 Peak Production 77,199,400 kwhr  
1971 Sales/Exp 67,594,833 kwhr  
Dist Prod Cost 12.5/c. Peak Rates 100  
Total Sys Peak Demand Summer 16,725 kw (Winter 16,257 kw)  
Total Sys Incoming Substa Cap (Interconnected) 70,000 kw  
Power Purchased from Indiana & Michigan Electric Co.

**TOWNS SERVED AND POPULATION**

South Haven 6,149

**STEPHENSON UTILITIES DEPT.**

Stephenson, Mich 49887

Dist \_\_\_\_\_ A City

Power Purchased from Wisconsin Public Service Corp.

**TOWNS SERVED AND POPULATION**

Stephenson 800

**STURGIS MUNICIPAL ELECTRIC PLANT**

P.O. Box 280 Sturgis Mich 49071  
Tel: 951-2321, Area Code: 616

Dist \_\_\_\_\_ A Board  
Subst, Dist & Transm \_\_\_\_\_ C Lines

Dist Cust Res 2,261 Com 525 Ind 101 Retail 1,288 Total 5,219  
Dist Res Cust Avg Rate 01.95/kwhr. Use 1,328 kwhr

1971 Net Sys Input 14,981,948 kwhr  
1971 Power Purchased 16,754,000 kwhr  
1971 Sales/Exp 98,710,330 kwhr  
Transm Cost Above 22/c. 59/c. Cr. When 15.75  
Dist Prod Cost 4.18/c. Peak Rates 45.25  
Total Sys Peak Demand Summer 18,212 kw (Winter 14,830 kw)  
Total Sys Incoming Substa Cap (Interconnected) 19,750 kw  
Power Purchased from Indiana & Michigan Electric Co.

**STURGIS DESIG PLANT**

Plant Subst \_\_\_\_\_ F Storage  
Total Gen Cap \_\_\_\_\_ 1,750 kw

Unit 1 - 1,000 kw Unit 4 - 800 kw  
Unit 2 - 1,000 kw Unit 5 - 800 kw  
Unit 3 - 1,750 kw

**TRAVERSE CITY PLANT**

Traverse City

580 kw

**TOWNS SERVED AND POPULATION**

Sturgeon 1,295

**TRAVERSE CITY LIGHT & POWER DEPT.**

Grand View Pkwy., Traverse City, Mich 49684  
Tel: 946-4800, Area Code: 616

Dist \_\_\_\_\_ C 10 Water  
Subst, Dist & Transm \_\_\_\_\_ A 4 Light  
Dist Eng \_\_\_\_\_ B 8 Sewer

Dist Cust Res 4,529 Com & Ind 1,265 Other 6 Total 5,800  
Dist Res Cust Avg Rate 02.02/kwhr. Use 3,713 kwhr

1971 Net Sys Input 101,438,000 kwhr  
1971 Sales/Exp 93,127,000 kwhr  
Total Sys Peak Demand Summer 16,600 kw (Winter 17,300 kw)  
Total Sys Incoming Substa Cap (Interconnected) 20,000 kw  
Transm Cost Above 19/c. Critical Rates 1.25  
Dist Prod Cost 4.18/c. (1.8/c. Peak Rates 40)  
Power Purchased Interconnected with Northern Michigan Dist., Casselman

**TRAVERSE CITY PLANT**

Traverse City

35,650 kw

Dist \_\_\_\_\_ A Water

Unit 1 - 1,500 kw Unit 3 - 1,500 kw  
Unit 2 - 1,500 kw Unit 4 - 20,000 kw  
Peak Production  
Unit 1 - 400 kw Unit 2 - 250 kw

**TOWNS SERVED AND POPULATION**

Traverse City 18,432

**UNION CITY MUNIC ELEC LIGHT WKY.**

N Broadview, Union City, Mich 49094  
Tel: PH 1-8591

Dist \_\_\_\_\_ A 1 Spence

Dist Cust Res 925 Com 60 Ind 5 Other 5 Total 999  
Net Energy for Load 02.57/kwhr

1961 Net Sys Input 5,742,870 kwhr  
1961 Power Purchased 3,580,000 kwhr  
1961 Sales/Exp 4,921,674 kwhr  
Total Sys Peak Demand Summer 1,200 kw (Winter 1,450 kw)  
Total Sys Incoming Substa Cap (Interconnected) 1,100 kw  
Dist Prod Cost 2.4 - 4.18/c. Peak Rates 23.5

**UNION CITY PLANT**

Plant Subst \_\_\_\_\_ A 1 Spence

1,218 kw

Dist \_\_\_\_\_ A 1 Spence

Unit 1 - 300 kw Unit 3 - 300 kw  
Unit 2 - 300 kw  
Peak Production  
Unit 1 - 250 kw Unit 2 - 168 kw