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ELECTRIC POWER RELIABILITY

GOVERNMENT

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HEARING BEFORE THE COMMITTEE ON COMMERCE UNITED STATES SENATE NINETIETH CONGRESS

FIRST SESSION

ON

S. 1934

AMENDING THE FEDERAL POWER ACT

AND

RELATED BILLS, S. 683, S. 1834, AND S. 2227

AUGUST 22, 1967

Serial No. 90-30

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ELECTRIC POWER RELIABILITY

TUESDAY, AUGUST 22, 1967

U.S. SENATE,
COMMITTEE ON COMMERCE,
Washington, D.C.

The committee met at 10:20 a.m. in room 5110, New Senate Office Building, Hon. Warren G. Magnuson (chairman of the committee), presiding.¹

The CHAIRMAN. The committee will come to order.

There will be other Senators attending, but these are busy days, because of the appropriations bills. Senator Cotton will be going to conference on the Health, Education, and Welfare appropriations and I am also a conferee, so I may have to leave a little later.

OPENING STATEMENT OF THE CHAIRMAN

This morning's hearing is on S. 1934, the proposed Electric Reliability Act of 1967. This Federal Power Commission bill is based, in part, on studies of the Northeast power failure in November 1965 and subsequent power disturbances throughout the United States.

While the committee's major interest and concern is S. 1934, it is also considering several other bills which relate to the same subjects which are included in S. 1934. These other bills are S. 683, by myself, relating to antitrust review; S. 1834 and S. 1835, by Senator Metcalf, from Montana, who is here, relating to extra-high voltage transmission; and S. 2227, by Senator Tydings, of Maryland, relating to the construction of transmission lines near national parks and certain other areas.

There are several bills in the committee that, as I say, relate to the same general subject and during the course of these hearings on the major bill, S. 1934, we hope to elicit some information and testimony on them.

The bills along with comments from various agencies will be placed in the record at this point.

¹ The staff man assigned to the hearings, Donald Brodie, has since left the committee to teach law at the University of Oregon. The staff director, Fred Lordan, and general counsel, Mike Pertschuk, are now handling this legislation.

(The above-mentioned bills and agency comments follow:)

[S. 1934, 90th Cong., first sess.]

A BILL To amend the Federal Power Act to facilitate the provision of reliable, abundant, and economical electric power supply, by strengthening existing mechanisms for coordination of electric utility systems and encouraging the installation and use of the products of advancing technology with due regard for the proper conservation of scenic and other natural resources

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Electric Power Reliability Act of 1967".

SEC. 2. In order to further the national policy declared by subsection 202(a) of the Federal Power Act, in favor of "assuring an abundant supply of electric energy throughout the United States with the greatest possible economy and with regard to the proper utilization and conservation of natural resources," a new part IV is added to the Federal Power Act, as amended (16 U.S.C. 791-825r), to read as follows:

"PART IV—REGIONAL COORDINATION

"APPLICATION AND OBJECTIVES OF PART; DEFINITIONS

"SEC. 401. (a) This part shall apply to all bulk power supply systems in the United States.

"(b) This part is intended to further the national policy declared by subsection 202(a) of the Federal Power Act, in favor of assuring an abundant supply of electric energy throughout the United States with the greatest possible economy and with regard to the proper utilization and conservation of national resources, by enhancing the reliability of bulk power supply; by strengthening existing and establishing new mechanisms for coordination in the electric utility industry; by encouraging the comprehensive development of the power resources of each area and region of the United States, to take advantage of advancing technology with due regard for the conservation of land, scenic and other limited resources; by providing that all utility systems and their customers shall have access to the benefits of coordination and advancing technology on fair and reasonable terms; by assuring to the extent feasible that extra-high-voltage facilities include sufficient capacity to meet area, regional, and interregional needs for transmission capacity, including reserve capacity for reliability; by respecting the territorial integrity of utility service to the extent consistent with the public interest; and by drawing upon the cooperation of all segments of the electric utility industry.

"(c) As used in this part, 'person' means a 'person', a 'municipality,' or a 'State' as defined in section 3 of the Federal Power Act, and any department, agency or instrumentality of the United States. The term includes privately, cooperatively, federally, and other publicly owned persons.

"(d) As used in this part, 'bulk power supply facilities' means facilities for generation or transmission which furnish power to points of distribution. In the exercise of its authority under section 413 the Commission may classify or exempt facilities which are not material to the objectives of this part.

"(e) As used in this part, 'extra-high-voltage facilities' means transmission lines and associated facilities designed to be capable of being operated at a nominal voltage higher than two hundred kilovolts between phase conductors for alternating current or between poles for direct current, the construction of which is commenced two years or more after the enactment of this part.

"RELATION TO OTHER PARTS

"SEC. 402. (a) This part supplements parts I, II, and III in order further to promote the reliability, abundance, and efficiency of bulk power supply in the United States. Nothing herein shall modify or abridge authority granted under parts I, II, or III unless specifically so provided.

"(b) The administrative, procedural, and enforcement provisions prescribed by other parts shall apply to this part.

"COOPERATION OF BULK POWER SUPPLY SYSTEMS

"SEC. 403. The purposes of this part should be achieved as far as possible by cooperation among all persons engaged in bulk power supply, whatever their nature.

"REGIONAL POWER COORDINATION ORGANIZATION"; ANTITRUST IMMUNITY

"Sec. 404. (a) After appropriate consultation held under procedures to be prescribed by the Commission, with persons engaged or interested in bulk power supply, appropriate Federal agencies and State commissions, the Commission shall secure the establishment of appropriate and effective regional organizations and procedures to carry out regional and interregional coordination. Each regional coordination organization (hereafter 'regional council') shall be open to membership, direct or indirect, by each electric system in the region whatever the nature of its ownership. Some electric systems may in appropriate case be admitted to more than one regional council. The Commission shall designate appropriate staff representatives, who shall participate in the work of the regional councils, except for the ultimate adoption of plans or any other council actions.

"(b) Under such rules as the Commission shall prescribe, each regional council shall file a statement of its organization with the Commission and any amendments thereto. Such statements will be available for public inspection. Within thirty days after adoption by the council, any regional or interregional plans developed by such regional councils shall be submitted to the Commission under such rules as the Commission shall prescribe and shall be made available by it for public inspection, and the Commission shall consider such plans in exercising its responsibilities under this Act, including parts I, II, III, and IV.

"(c) After notice and opportunity for hearing, the Commission may by order determine whether any statement filed under this section is consistent with the objectives of this part. If the Commission determines that the statement is not consistent with the objectives of this part it shall modify it or set it aside. If the Commission approves a statement, and finds further that the effect of the statement upon competition will be insubstantial or will be clearly outweighed by other public interest considerations, actions pursuant to such statement shall not be subject to suit under section 4 of the Clayton Act (15 U.S.C. 15).

"(d) After notice and opportunity for hearing, the Commission may determine whether any coordination plan submitted under this section is consistent with the objectives of this part. If the Commission so finds, and finds further that the effect of the plan upon competition will be insubstantial or will be clearly outweighed by other public interest considerations, actions pursuant to such plan shall not be subject to suit under section 4 of the Clayton Act (15 U.S.C. 15), while the Commission's approval remains in effect. If the Commission determines that the plan is not in the public interest it shall modify it or set it aside.

"(e) The Commission shall require annual reports from each regional council and such additional reports as it may deem necessary or appropriate to carry out the objectives of this part. The Commission shall annually report to the Congress on the effectiveness of the regional and interregional coordination efforts.

"(f) If the Commission, after notice and after opportunity for hearings, determines that any person engaged in the generation or transmission unreasonably refuses to participation in the creation of a regional council or in effective regional or interregional coordination it may require such person by order to participate in the creation and work of such regional council to the extent the Commission finds necessary to carry out the objectives of this part.

"NATIONAL ELECTRIC STUDIES COMMITTEE

"Sec. 405. The Commission, after consultation with regional councils, shall establish a national committee representative of all elements of the industry to facilitate interregional exchange of views and experience and to consolidate electric industry efforts to investigate major present and future problems in planning and operating of bulk power supply facilities. The committee shall seek to stimulate vigorous scientific and engineering interest in the challenges to achieving reliable and efficient bulk power supply for the United States.

"ADVISORY BOARDS

"Sec. 406. To assist it in considering matters coming before it under this part, the Commission may establish one or more advisory coordination review boards and provide for the appointment thereto of experts drawn from the electric utility industry, equipment manufacturers, the academic and research communities, and other persons, not employed by the Commission, drawn from the general public.

"COORDINATION" AGREEMENTS

"SEC. 407. Subject to such rules and regulations as the Commission may prescribe, a statement or copy of all oral or written agreements for coordinated planning or operation of bulk power supply facilities (including but not limited to agreements for joint ownership of such facilities) shall be lodged with the Commission by or on behalf of the persons participating in such agreement.

"RELIABILITY STANDARDS

"SEC. 408. Upon the recommendation of a regional council or upon its own motion, and after consultation with the regional council, and after public notice and opportunity to comment, the Commission may promulgate regulations setting forth reasonable criteria of national or regional applicability to enhance the reliable planning and operation of bulk power supply facilities in accordance with the objectives of this part, set forth in section 401 (b).

"EXTRA-HIGH-VOLTAGE FACILITIES; NOTICE OF PROPOSED CONSTRUCTION; SUSPENSION; EMINENT DOMAIN; RIGHTS-OF-WAY ON FEDERAL LAND

"SEC. 409. (a) Subject to such rules and regulations as the Commission may prescribe, any person proposing the construction of extra-high-voltage facilities shall file with the Commission, two years before it proposes to commence construction, or such other time as the Commission may prescribe, its proposal which shall include such information, including information as to the routing of the proposed line, as the Commission may require to enable it to determine to what extent the proposed construction and operation of such facilities is consistent with any plan developed by a regional council and is consistent with the objectives of this part. The filing shall state whether the proponent elects to seek right-of-way pursuant to subsection (e) of this section. Notice of such filing and any subsequent changes shall be given in the Federal Register and shall be served upon appropriate regional councils, Federal, State, and local agencies, and such other interested persons as the Commission shall require. The Commission shall afford to any interested persons at least sixty days in which to comment upon such filing.

"(b) No person may commence construction of extra-high-voltage facilities for six months after acceptance of any filing containing the information required pursuant to subsection (a) of this section and for such additional period during which a suspense order of the Commission remains in effect. The Commission shall issue a suspense order whenever the proponent elects to seek right-of-way pursuant to subsection (e) or when the Commission concludes, in its discretion, within six months after acceptance of any such filing, that the proposed construction and operation of such facilities is inconsistent with an approved plan developed by a regional council or otherwise appears not to be consistent with the objectives of this part. The suspense order shall summarize the Commission's reasons for its action and shall be effective for an initial period, to be fixed by the Commission in its discretion, of not more than twelve months. The effectiveness of an unexpired suspense order shall be extended by any order of the Commission recommending specific modifications in the proposal and setting forth conditions for its approval or scheduling formal hearings or both until ultimate disposition of the matter by the Commission: *Provided*, That the Commission may, after public notice and consideration of such comments as are received within thirty days of such notice, terminate the suspense order upon a finding that a construction proposal will be consistent with the objective of this part.

"(c) In reviewing extra-high-voltage facilities proposals, the Commission shall use informal procedures, including joint or separate conferences, to the fullest extent feasible. However, the Commission shall not finally disapprove a proposal or confer rights-of-way under this section except after notice and opportunity for hearing.

"(d) At or before the end of the period specified by the suspense order the Commission may issue an order recommending specific modifications in the proposal and setting forth conditions for its approval or setting the matter for hearing. If such modifications and conditions are accepted by the proponent, the Commission shall approve the proposal as modified and terminate the suspense

order forthwith. If the modifications and conditions are not accepted by the proponent or if the Commission schedules a formal hearing, the suspense order shall remain in effect until the Commission formally determines whether the proposal is consistent with the objectives of this part and issues a final order permitting or prohibiting the construction of the proposed facilities.

"(e) If the Commission at any time determines by order, after notice and opportunity for hearing, that the proposed construction of extra-high-voltage facilities is consistent with the objectives of this part, the proponent may secure necessary rights-of-way over Federal or other lands as provided below.

"(i) If the proponent thereafter cannot acquire by contract, or is unable to agree with the owner of property as to compensation to be paid for the necessary right-of-way or other property to construct, operate, and maintain such extra-high-voltage facilities, it may acquire the same by the exercise of the right of eminent domain in the district court of the United States for the district in which such property may be located, or in the State courts. In any such proceeding brought in a district court of the United States, the petitioner may file with the petition or at any time before judgment a declaration of taking in the manner and with the consequences provided by sections 258a, 258b, and 258d of title 40, United States Code, and the petitioner shall be subject to all of the provisions of said section which are applicable to the United States when it files a declaration of taking thereunder.

"(ii) The construction and operation of such extra-high-voltage facilities located partly or wholly within the lands or reservations of the United States is authorized subject, in addition to the applicable requirements of this part, to such reasonable land use conditions relating to nonpower matters as prescribed by the department or agency administering the lands or reservations affected which the Commission shall include in its order. The department or agency administering the lands or reservations affected by such order shall have a period of sixty days after its issuance to protest its terms on the grounds only that it fails to give due regard to the preservation of identified esthetic or historic values. Such protest shall have the effect of staying the order until the protest shall be withdrawn.

"(f) Whenever the Commission determines that emergency conditions so require, the Commission shall have authority, upon its own motion or complaint, with or without notice, hearing, or report, and upon such conditions as the Commission deems necessary or appropriate, to exempt persons from any requirements of this section. For purposes of this section, emergency conditions shall be deemed to exist by reason of a sudden increase in the demand for electric power or energy, shortage of electric power or energy, a shortage of facilities or materials for the generation or transmission of electric power or energy including a shortage of fuel or water for generating facilities, or other causes.

"REVIEW AS TO LAND USE

"SEC. 410. Whenever an issue arises, formally or informally, as to land use, including esthetic considerations, either in the regional planning process under section 404 or the review of extra-high-voltage facilities proposals under section 409, the Commission shall entertain written comments by Federal, interstate, State, and local agencies responsible for land use planning in the affected region. The Commission shall defer to the views of the responsible Federal, interstate, State, or local agency, if any, to resolve local land use matters unless the Commission determines that a particular resolution would be inconsistent with the objectives of this part. The Commission may use joint boards, as contemplated by section 209 of this Act, to resolve land use questions which come before it.

"COMPULSORY INTERCONNECTIONS

"SEC. 411. Whenever the Commission, after notice and hearing, had, upon its own motion, or upon complaint, finds such action necessary or appropriate to carry out the objectives of this part, it may by order direct any person engaged in the generation or transmission of electric energy (if the Commission finds that no undue burden will be placed upon such person thereby) to establish physical connection of its transmission facilities with the facilities of one or more other persons engaged in the generation, transmission, or sale

of electric energy, to sell energy to or exchange energy with such persons. The Commission may prescribe the terms and conditions of the arrangement to be made between the persons affected by any such order.

"ABANDONMENT

"Sec. 412. No person engaged in the generation or transmission of electric energy shall abandon or curtail any bulk power supply service, or abandon all or any part of its bulk power supply facilities if it would thereby effect the abandonment, curtailment, or impairment of bulk power supply service, without obtaining the advance approval of the Commission after notice and opportunity for hearing, upon a finding by the Commission that such abandonment or curtailment is consistent with the objectives of this part.

"AUTHORITY TO EXEMPT

"Sec. 413. In order to avoid excessive burdens upon persons engaged in bulk power supply, upon regional councils and upon the public, the Commission may by rule exempt from any requirement of this part or any rule or regulation prescribed thereunder, any facilities, activities, or persons, whenever it determines after public notice and opportunity for hearing that such exemption is necessary and appropriate to carry out the objectives of this part. The Commission may attach conditions to any exemption and may by order, after public notice and opportunity for hearing, revoke any such exemption."

[S. 683, 90th Cong., first sess.]

A BILL To facilitate the provision of adequate, economical, and dependable electric service for the present and future needs of the public and the proper and timely installation and use of the products of advancing technology in the generation or transmission of electric energy

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in section 202 of the Federal Power Act, add a new subsection 202(g) to read as set forth below:

"(g) To encourage voluntary interconnection and coordination in the interests of economy and dependability, the Commission, in addition to such authority as it may otherwise have over such contracts under sections 202 and 205-207 of the Act, shall, upon the motion of any party thereto or any interested entity or person and may upon its own motion, review any contract, and any amended contract, hereafter submitted to the Commission for filing pursuant to subsection 205(c) of this part which contract provides, or is one of several contracts which provide, for the sale or exchange of electric energy or the interconnection, pooling, or coordination of power systems or for the joint use of facilities for the generation or transmission of electric energy. After notice and opportunity for hearing, the Commission shall grant an order of approval of any such contract which it finds will not unduly restrain competition when considered in relation to the purposes of the Act; if it finds the contrary, it shall disapprove such contract and further performance thereof by a public utility shall be unlawful.

If the Commission grants an order of approval of any such contract, any public utility or other entity (including all persons and entities referred to in subsection 201(f) of this Act) which is a party thereto, and its officers, directors, agents, and employees shall be exempt and relieved from the operation of all Federal, State, and municipal antitrust laws in the negotiation and execution of such contract and in the performance thereof, as approved by the Commission. The authority conferred on the Commission by this subsection shall be exclusive and plenary, and all orders entered hereunder shall be final and conclusive as to all persons (including all persons and entities referred to in subsection 201(f) of this Act), subject only to review as provided in section 313 of this Act.

The Commission shall have authority to enforce the provisions of this subsection 202(g) by the imposition of any or all sanctions provided for in part III of this Act.

[S. 1834, 90th Cong., first sess.]

A BILL To amend the Federal Power Act so as to require Federal Power Commission authority for the construction, extension, or operation of certain facilities for the transmission of electric energy in interstate commerce

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 202 of the Federal Power Act, as amended (16 U.S.C. 824a), is amended by adding thereto the following new subsections:

"(g) No person shall engage in the transmission of electric energy, subject to the jurisdiction of the Commission, by means of transmission lines and associated facilities designed to be or capable of being operated at a normal voltage of two hundred and thirty or more kilovolts, or undertake the construction or extension of any lines or facilities intended to be operated at a normal voltage of two hundred and thirty or more kilovolts, or incorporate equipment or construction features designed for or usable in any possible future conversion of the facilities to operate at a normal voltage of two hundred and thirty or more kilovolts, or operate or maintain any such facilities or extensions thereof, unless and until there is in force a certificate of public convenience and necessity issued by the Commission authorizing such acts or operations: *Provided, however*, That the Commission shall, without requiring proof that public convenience and necessity will be served by such transmission, operation, or maintenance, issue such certificate to any person (A) who, or whose predecessor, was on the effective date of this subsection in good faith engaged and continued thereafter to be engaged in the transmission of electric energy at a normal voltage of two hundred and thirty or more kilovolts, or in the operation or maintenance of facilities for such transmission, over the route or routes or within the area for which application is made, and (B) who files application to the Commission for such certificate within ninety days after the effective date of this subsection; and pending the determination of any such application the continuance of such transmission, operation, or maintenance shall be lawful. In all other cases the Commission shall, after notice and opportunity for hearing, decide the application in accordance with the procedure provided in subsection (i) of this section and such certificate shall be issued or denied accordingly.

"(h) Application for certificates shall be made in writing to the Commission, be verified under oath, and shall be in such form, contain such information, and notice thereof shall be served upon such interested parties and in such manner as the Commission shall, by regulation, require.

"(i) Except in the case governed by the proviso in subsection (g) of this section, a certificate shall be issued to any qualified applicant therefor, authorizing the whole or any part of the construction, operation, extension, or maintenance covered by the application, if it is found that the applicant is able and willing properly to do the acts and to perform the service proposed and to conform to the provisions of the Act and the requirements, rules, and regulations of the Commission thereunder, and that the proposed construction, operation, extension, or maintenance, to the extent authorized by the certificate, is or will be required by the present or future public convenience and necessity; otherwise such application shall be denied. Any certificate issued under the provisions of this subsection authorizing the operation of transmission facilities shall be subject to the condition that any capacity of such facilities not required for the transmission of electric energy in the ordinary scope of such applicant's business shall be made available on a common carrier basis for the transmission of other electric energy. The Commission shall have the power to attach to the issuance of the certificate and to the exercise of the rights granted thereunder such other reasonable conditions and terms as the public convenience and necessity may require.

"(j) No public utility shall abandon or curtail any service subject to the jurisdiction of the Commission, or abandon all or any part of its facilities if it would thereby effect the abandonment, curtailment, or impairment of such service, without the permission and approval of the Commission first had and obtained, after notice and opportunity for hearing, upon a finding by the Commission that such abandonment or curtailment is consistent with the public interest."

[S. 1835, 90th Cong., first sess.]

A BILL To amend the Federal Power Act so as to require Federal Power Commission authority for the construction, extension, or operation of certain facilities for the transmission of electric energy in interstate commerce

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 202 of the Federal Power Act, as amended (16 U.S.C. 824a), is amended by adding thereto the following new subsections:

“(c) No person shall engage in the transmission of electric energy in interstate commerce subject to the jurisdiction of the Commission, by means of transmission lines and associated facilities designed to be or capable of being operated at a nominal voltage in excess of two hundred kilovolts, or undertake the construction, extension, or modification of any lines or facilities intended to be operated at a nominal voltage in excess of two hundred kilovolts, or incorporate equipment or construction features designed for or usable in any possible future conversion of facilities to operate at such voltage, or operate or maintain such facilities or extensions thereof, unless and until there is in force a certificate of public convenience and necessity issued by the Commission authorizing such acts and operations: *Provided, however*, That the Commission shall, without requiring proof that public convenience and necessity will be served by such transmission, operation, or maintenance, issue such certificate to any person (i) who, or whose predecessor, was on the effective date of this subsection bona fide engaged and continued thereafter to be engaged in the transmission of electric energy at a nominal voltage in excess of two hundred kilovolts, or in the operation or maintenance of facilities for such transmission over the route or routes or within the area for which application is made, and (ii) who files application to the Commission for such certificate within ninety days after the effective date of this subsection; and pending the determination of any such application the continuance of such transmission, operation, or maintenance shall be lawful.

“In all other cases the Commission shall, after notice and opportunity for hearing, decide the application in accordance with the procedure provided in subsection (e) of this section and such certificate shall be issued or denied accordingly.

“(d) Application for certificates shall be made in writing to the Commission and shall contain plans and specifications covering such construction, modification, extension, or operation in such form, contain such information, and notice thereof shall be served upon such interested parties and in such manner as the Commission shall, by regulation, require.

“(e) Except in the case governed by the proviso in subsection (c) of this section, a certificate shall be issued to any qualified applicant therefor, authorizing the whole or any part of the construction, modification, extension, operation, or maintenance covered by the application, if it is found that the applicant is able and willing properly to do the acts and to perform the service proposed and to conform to the provisions of the Act and the requirements, rules, and regulations of the Commission thereunder, and that the proposed construction, modification, extension, operation, or maintenance, to the extent authorized by the certificate, is or will be required by the present or future public convenience and necessity, is consistent with a comprehensive plan for the use and development of the power resources of the area for the purpose of making electric energy reliably available in ample amounts, on fair and reasonable terms, and includes therein to the extent financially feasible sufficient capacity to meet all needs within the affected area for transmission capacity, whether from public or private generation, including reasonable capacity for expansion to meet future loads; otherwise the application shall be denied. The Commission shall have the power to attach to the issuance of the certificate and to the exercise of the rights granted thereunder such reasonable terms and conditions as the public convenience and necessity may require.

“(f) When any person who has been issued a certificate of public convenience and necessity in conformity with subsection (e) above cannot acquire by contract, or is unable to agree with the owner as to the compensation to be paid for

the necessary right-of-way to construct, operate, and maintain a transmission line or transmission lines for the transportation of electric power, and the necessary land or other property, in addition to right-of-way, for the location of facilities or equipment necessary to the proper operation of such transmission line or transmission lines, it may acquire the same by the exercise of the right of eminent domain in the district court of the United States for the district in which such property is located, or in the State courts. In any such proceeding brought in a district court of the United States, the petitioner may file with the petition or at any time before judgment a declaration of taking in the manner and with the consequences provided by sections 258a, 258b, and 258d of title 40, United States Code, and the petitioner shall be subject to all of the provisions of said sections which are applicable to the United States when it files a declaration of taking thereunder.

"(g) As used in this section, the term 'person' shall include 'persons' and 'municipalities', as defined in section 3, and any department, agency, or instrumentality of the United States. The term 'two hundred kilovolts' means two hundred kilovolts between phase conductors for alternating current or between poles for direct current.

"(h) No public utility shall abandon or curtail any service subject to the jurisdiction of the Commission, or abandon all or any part of its facilities if it would thereby effect the abandonment, curtailment, or impairment of such service, without the permission and approval of the Commission first had and obtained, after notice and opportunity for hearing, upon a finding by the Commission that such abandonment or curtailment is consistent with the public interest."

Sec. 2. Subsections (c), (d), (e), and (f) of section 202 of such Act are redesignated (i), (j), (k), and (l), respectively.

[S. 2227, 90th Cong., first sess.]

A BILL To amend the Federal Power Act in order to provide for regulation of the construction of electric power transmission lines near national parks, national forests, national historic sites, and certain other areas in order to preserve the historical, recreational, or scenic character of such areas

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That part II of the Federal Power Act (16 U.S.C. 824-824h) is amended by adding at the end thereof the following new section:

"REGULATION OF TRANSMISSION LINES NEAR CERTAIN FEDERAL LANDS

"SEC. 210. (a) Within one hundred and eighty days after the date of enactment of this section and from time to time thereafter, the Secretary of the Interior shall, after consultation with appropriate officers, departments, and agencies of the United States, publish in the Federal Register a description (by metes and bounds) of lands and waters adjacent to lands owned by the United States which lands of the United States are determined by the Secretary of the Interior to have a historic, recreational, or scenic value to the people of the United States and which could be adversely affected by the construction of power transmission lines or associated facilities on such adjacent lands or over such adjacent waters.

"(b) No power transmission line or associated facility used or to be used for the transmission of electric energy or the sale of electric energy at wholesale in interstate or foreign commerce may be constructed on any lands described in the Federal Register pursuant to subsection (a) of this section, unless the Secretary of the Interior after notice and opportunity for a hearing determines that such construction would be in the public interest and grants a certificate permitting such construction."

SEC. 2. Section 201(f) of the Federal Power Act is amended by striking out "No provisions" and inserting in lieu thereof "Except as provided in section 210 of this part, no provision".

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF EMERGENCY PLANNING,
Washington, D.C., July 24, 1967.

HON. WARREN G. MAGNUSON,
Chairman, Committee on Commerce,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This is in reply to your request for comments on S. 1934, 90th Congress, a bill cited as the "Electric Power Reliability Act of 1967."

The Northeast power failure of 1965 and the recent mid-Atlantic power failure have demonstrated the need for better coordinated emergency planning efforts among the various electric utilities. Such efforts are essential if we are to maintain a strong electric power industry capable of responding to any national emergency.

The Office of Emergency Planning therefore favors enactment of this bill which is designed to strengthen coordination among electric utilities.

You are advised that the enactment of this bill would be in accord with the President's program.

Sincerely,

FARRIS BRYANT, *Director.*

FEDERAL POWER COMMISSION,
Washington, D.C., July 18, 1967.

HON. WARREN G. MAGNUSON,
Chairman, Committee on Commerce,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This is in response to your letter of June 14, 1967, requesting the Commission's comments on S. 1934, a bill to amend the Federal Power Act. The Commission fully supports enactment of this legislation, and we ask that you treat our letter of transmittal to the President of the Senate and our section-by-section analysis of the bill as our report. We believe that these documents cover all the points we would make in a report, except for a minor oversight which we should like to correct. Section 404(d) of the bill speaks only of immunity from antitrust suits under section 4 of the Clayton Act, whereas suits by private parties for injunctive relief are brought under section 16 of that statute (15 U.S.C. 26). This bill was intended to cover actions in equity as well as for treble damages; consequently the bill's language should read (at page 6, line 13): "under sections 4 and 16 of the Clayton Act (15 U.S.C. 15, 26)".

As we have previously noted, the Bureau of the Budget advises that enactment of the bill would be in accord with the program of the President.

We believe that the Electric Power Reliability Act would be a most valuable step forward for the protection of the American public. The Commission would of course welcome the opportunity to appear in support of the bill in hearings before the Committee, and in the meantime is ready to provide any further information or assistance you may desire.

Sincerely,

LEE C. WHITE,
Chairman.

OFFICE OF THE SECRETARY OF TRANSPORTATION,
Washington, D.C., July 27, 1967.

HON. WARREN G. MAGNUSON,
Chairman, Committee on Commerce,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This is in reply to your request for the views of this Department on S. 1934, a bill to amend the Federal Power Act to facilitate the provision of reliable, abundant, and economical electric power supply by strengthening existing mechanisms for coordination of electric utility systems and encouraging the installation and use of the products of advancing technology with due regard for the proper conservation of scenic and other natural resources.

The bill is designed to enhance the reliability and efficiency of electric power bulk systems by providing for the establishment of a National Electric Studies Committee and a network of regional power coordination organizations. The bill

further provides procedures governing the review of proposals for the establishment of extra-high-voltage (EHV) facilities, including transmission lines.

The Department supports FPC's objective of enhancing the reliability of electric power systems, and we defer to FPC as to the need for those provisions of the bill providing for the establishment of an organizational framework to promote regional and inter-regional coordination of power supply systems. Our most immediate concern is that provisions be made for consideration of the effect that the construction of EHV facilities may have on the safety of air navigation.

The Federal Aviation Administration, a component agency of this Department, has conducted for many years a program for the evaluation of proposed construction on aeronautical operations. In this connection, the principal interests FAA has in the construction of EHV facilities is that they not be so located that they interfere with, or cause a hazard to, aircraft operations, or that they derogate the performance of air navigational facilities. Power lines located in close proximity to an airport can endanger take-offs and landings from certain runways or preclude their use altogether. Power facilities located in close proximity to electronic navigational aids can seriously limit the usefulness of those aids.

We understand that the FPC will give consideration to the problem of air safety when approving the construction of power lines. The FPC will treat air space as one of the "limited resources" referred to in Section 104(b), the conservation of which is an issue the Commission is obligated to consider in administering the provisions of the bill. We will work with FPC to develop the procedures and to assure proper coordination between the FAA and the FPC in achieving consideration of air safety questions, when power line construction authorized by this Act is being evaluated by the Commission.

The Department of Transportation supports enactment of this legislation.

We have been advised by the Bureau of the Budget that there would be no objection to the submission of this report from the standpoint of the Administration's program.

Sincerely yours,

JOHN L. SWEENEY,
Assistant Secretary for Public Affairs.

The CHAIRMAN. S. 1934 comes to the committee with the strong backing of the administration. In his consumer message of February 16 President Johnson said:

It is becoming increasingly clear that greater coordination is needed among the various utilities to reap the benefits of reliability and economy inherent in huge generating units and extra-high-voltage transmission lines.

The mutual interests of the consumer and the industry are paramount. The scope of the concern over reliability ranges from the recent controversy concerning proposed power lines near the Antietam Battlefield to benefits to be derived from the increasing use of atomic powered generating plants. Reflecting this broad interest, today's hearing will serve as a prelude to hearings which the committee hopes to hold in various parts of the Nation. Details on these hearings will be announced within the next several weeks, before this session of Congress adjourns. We are hopeful to have in the different sections of the country—the Northeast, the Middle Atlantic, the Southeast, probably the Midwest, and the Pacific coast—hearings to elicit what information we can on this whole matter. Members of the committee will naturally look to the areas with which they are familiar, which they come from, to hold these hearings. They will be formal hearings and we will elicit as much information as we can on this problem, with the expectation that we can come back to the next session of Congress and be able to sit down and work out this legislation and the problem of reliability.

Our first witness this morning, who has taken a long interest in all of these matters, is our colleague from Montana, Lee Metcalf. We will be glad to hear from you at this time.

STATEMENT OF HON. LEE METCALE, U.S. SENATOR FROM THE STATE OF MONTANA

Senator METCALE. Thank you, Mr. Chairman. Members of the committee, I come before this committee, as I did last year, to testify in support of legislation to give the Federal Power Commission authority needed to supervise electric power interconnections. This authority is needed to improve reliability and to assure access of all types of power suppliers to the burgeoning extra-high-voltage systems, which can be likened to our Interstate Highway System.

I introduced two of the bills before the committee. One is S. 1834, which the late Senator Clair Engle, Congressman John Moss, and I had introduced in previous Congresses. The other is S. 1835, which I introduced last year as S. 2140. It was the proposal put forth by Commissioners Black and Ross of the Federal Power Commission. I have also cosponsored, with the distinguished chairman of this committee, S. 1934, the Electric Power Reliability Act of 1967.

During the past 2 years there have been a number—I can recall at least 18—of cascading power failures in the United States. These events have drawn attention to the tenuous ties of our largest and most vital industry. There have also been decisions by electric utilities to route long-distance transmission lines near or through historic and scenic areas. This has resulted in a realization that in many States there is no public control over the routing of these lines, at the local, State, or Federal level. Utilities have one of the most awesome powers of government, the right of eminent domain, without appropriate checks and balances. The transmission systems, some covering a number of States, are beyond the reach of local officials, or even of State officials. It is appropriate that the powers of regulation be vested in the Federal Power Commission, with procedures, as set forth in S. 1934, for considering the views of responsible Federal, State, and local agencies in land use matters.

I also endorse the concept in S. 1934 that the legislation apply equally to all bulk power systems in this country, whether owned by investors, municipalities, customers, or the Federal Government. A weak link ruins a good chain. Efficient reliability cannot be built into a grid with components that are not subject to the rules that govern the rest of the system. This concept would also protect the small systems which, in several instances lately, have been dealt out of the planning of neighboring investor-owned utilities, and sometimes denied access to wholesale power.

I have noticed several statements lately by utility spokesmen to the effect that it will cost a lot of money to achieve the kind of reliability that the FPC has suggested be built into the system. Perhaps it may even be necessary, according to these arguments, to increase the rates, or at least forestall rate reductions. That line of reasoning reminds me of the old story about the student who was like a blotter. He soaked everything up but got it backward.

It is the blackouts that are costly. Unreliability is costly. Reliability increases profitability. The Federal Power Commission's report to the President last month, on prevention of power failures, went into

that point, and I would like to read one summary paragraph in that report, which appears on page 88 of volume 1:

The added transmission which we believe is essential for improving reliability should have large reserve capacity to serve unforeseen requirements and opportunities. The nation's interconnected power systems now span a tremendous field of present and potential diversities—diversity in power demands including errors in forecasting, in fuel costs and the opportunities for economic energy exchanges, in water resources, in types of generation and their proper association to meet regional loads, in weather extremes and the threats of unprecedented localized loads, in air pollution and shifts in generation for relief under critical circumstances, and in the diversity of scheduled maintenance, forced outages of equipment and a wide variety of emergency power and transmission demands. The nature and magnitude of the benefits of increased transmission capability will be varied and extensive. Through meaningful coordination of utility systems throughout the Nation, improvements made for power system reliability can be associated with large economic benefits as well.

In conclusion, Mr. Chairman, I would like to relate an experience I had recently which I mentioned the last time I was before this committee. Not long ago I was touring the TVA area with Chairman Wagner. We were talking about the possibility of blackouts. He told me that in 1964—that was a year before the big blackout in the Northeast—generation at TVA's Paradise steamplant was separated from the system during a severe windstorm. High winds blew some sheet metal into the 161-kilovolt substation, causing a short circuit.

This created a massive equipment outage. The plant was generating a total of 1,250 megawatts as compared with a 1,500-megawatt load reversal at Niagara in the 1965 blackout. However, in the TVA crisis the system frequency declined only slightly. Loading on the interconnections with neighboring systems increased immediately from a zero level to 1,175 megawatts. Within 4½ minutes generation on TVA's own system picked up the total generation lost at Paradise. There was no interruption of service other than for a small amount of industrial load supplied directly from the Paradise switchyard.

The people at TVA may have some ideas and techniques that this committee would find of interest and value.

Congressman Moss of California is unable to be here this morning, because of a conflict with one of his committees. Therefore, at his request and with your permission, Mr. Chairman, and on his behalf, I would like to insert in the hearing record a statement which he made in the House last week on electric power reliability and the text of the bill he introduced on August 14, H.R. 12322.

THE CHAIRMAN. We will put that in the record in full.

Preceding Senator Metcalf's statement, we have in the record the contents of these various bills, so when we read the record, we will know what bill we are talking about, and what they say because the Chair wants it understood that these are all working papers, to arrive at some solution of this problem and see what we can do about the electric reliability. (Text continues on p. 27.)

(The above-mentioned materials follow:)

A. REVISED ELECTRIC POWER RELIABILITY BILL

Mr. Moss. Mr. Speaker, I have today introduced a bill to increase the reliability of electric power supply for this country. My bill is, in large measure, similar to the draft of the electric power reliability bill prepared by the Federal Power Commission.

In my opinion, the FPC bill offers a sound approach to the problem of reliability and adequacy of power supply in these days of high consumption of electric energy and almost nationwide interconnection of electric powerlines.

However, as I have studied the bill I have found a number of oversights or defects which should be corrected. I have, therefore, prepared the revised bill which I am introducing today.

The purpose of this legislation is not merely to prevent more cascading power failures, but to further the national policy, adopted in 1935, of assuring an abundant supply of electric energy throughout the United States with the greatest possible economy and with due regard to the proper utilization and conservation of natural resources. In addition, it would clarify the congressional mandate to the Federal Power Commission to consider esthetic and historic values in carrying out its regulatory duties concerning electric power.

This country's power supplies have reached proportions undreamed of 40 years ago, although they are barely keeping pace with demand. They promise to double or triple in the next decade. Furthermore, the advancing technology of the electric industry facilitates interconnection and long-distance transmission which was quite impossible even 10 years ago. However, despite these great strides, the fact is that the reliability of electric service has not improved proportionately.

Mr. Speaker, there have been 20 major power failures since the great Canuse blackout of November 9, 1965. Seventeen of them were cascading failures. The most recent was the PJM failure of June 5 of this year, which interrupted service to 13 million people in Pennsylvania, New Jersey, Maryland, and Delaware for periods varying from 1 to 10 hours.

The cause of each of the 17 cascading power failures was due to the fact that the interconnections were too weak to cope with the particular system disturbance. A few years ago a power failure involved only one town. Now, due to inadequacy of the very interconnections that were intended to provide standby for such local outages, it may block out four, five, or six of our most heavily populated States and even parts of Canada and Mexico.

Our great electric power industry, partly because of its lingering tradition of every local utility for itself, is like a spastic giant. Its very limbs must achieve better coordination; and they must do this while the giant is still growing.

We have a shockingly thin margin of reserve generation today in this and other areas of the country. The situation may get worse before it gets better. Twice within the last 6 weeks we have been solemnly warned on the floor of this House to get ready for more power failures. We have been told that we should equip elevators with pushout panels to prevent people from suffocating when the elevators stick between floors. We are told to turn off air conditioning in Government buildings whenever the electric power companies tell us to, in order to avoid drains on their inadequate generating capacity.

Mr. Speaker, the electric power industry's recent record of meeting its responsibilities to the public is not such as to inspire confidence. The solution to the blackouts cannot be achieved simply by placing more faith in the individual utilities.

The technology of reliability requires areawide and interregional planning by all bulk power suppliers and distributors thinking and working together, and the closest operational cooperation by diverse managements.

The day when company A does not speak to cooperative B, or Federal power marketing agency C to wholesale customer D, must come to an end. All segments of the industry must realize, or be made to realize, that their first responsibility is public service to the American people.

Under modern conditions this cannot be carried out by denouncing Government regulation and asking us to turn off our air conditioners. Reliable electric power service can be achieved only by regional and interregional coordination of planning, construction, and operation among all segments of the industry.

The FPC bill, as revised in the version I have introduced today, will further this urgent objective.

The FPC bill, and to a greater extent my revised version, views the electric power industry as one nationwide public utility, of which the local generating and transmission entities, both publicly and privately owned, are segments. Both bills would require the organization of the industry into regional councils to plan, coordinate, and provide the most adequate, efficient, reliable, and economic service to all the people of the region regardless of the particular distributor which serves them at retail, and to exchange, or coordinate power with neighboring regions.

Both bills seek to achieve these objectives by voluntary cooperation of the various managements within the regions. Both bills require that the regional councils be open to membership by all segments of the power industry so that all plans developed by the regional councils will be the product of all the power systems, including the public, private, and cooperative power networks within the same region.

My bill corrects an oversight in the FPC bill to provide for participation, on a voluntary basis, by State regulatory commissions as well as the utilities, in regional council work. Both bills empower the FPC to compel participation in council work by recalcitrant generating and transmission entities; however, my bill adds an explicit provision requiring such entities also to share reasonably in the council's expenses. Both bills provide that the FPC may review, and, if necessary, revise regional council plans; but both provide that the plans are to be developed in the first instance by the local utilities of the region.

The FPC bill provides that those who act pursuant to a regional plan shall be immune from suits for damages and injunctive relief under the antitrust laws by those who were hurt by such actions. I think such grant of immunity from suit under the antitrust laws would be a dangerous weakening of the protections against arbitrary monopoly actions. Furthermore, I believe the courts are a better forum than the FPC to resolve disputes under the antitrust laws. Hence, my bill does not authorize the FPC, by its approval of the plans of the regional councils, to confer antitrust immunity.

Both bills contemplate the establishment of mandatory reliability criteria by the FPC for bulk power supply facilities, which may be of nationwide or regional applicability. These criteria would be promulgated only after consultation with the regional councils, and may, in fact, be developed in the first instance by the councils. My bill differs in only two words from the FPC bill concerning reliability standards. I say the Commission "shall" promulgate regulations setting forth reliability criteria; and the FPC bill says it "may." Clearly, the criteria must be promulgated, and my bill explicitly so provides.

The FPC bill recognizes that the construction and operation of high-voltage lines will involve esthetic values. I want to provide increased protection to these values. The FPC bill would authorize the FPC to appoint advisory coordination review boards, but does not explicitly encourage the appointment of persons interested in conservation and esthetics to those advisory boards. My bill will do so.

In addition, my bill expressly prohibits the grant of rights-of-way or extra-high-voltage power lines in national parks, national monuments, national battlefields, historic sites, and all other areas administered by the National Park Service, except three types of areas. The excepted areas are national parkways, which are narrow strips hundreds of miles long, and two varieties of recreation areas which frequently surround existing power dams and do not have preservation of the natural environment as their primary purpose.

My bill also goes beyond the FPC bill by authorizing the administering agency of Federal land to veto a proposed EHV power line over Federal lands, not only on the ground that it would endanger esthetic or historic values but also identified species of flora or fauna. I have also added a provision to clarify that the Electric Power Reliability Act will not supersede the Wilderness Act in any way.

Both the FPC bill and my bill require review by the FPC before extra-high-voltage transmission lines may be built. One reason is to provide a forum for reviewing the esthetic consequences of proposals such as Potomac Edison's plan to run an EHV line near Antietam battlefield. The other reason is technological. The FPC will have an opportunity to determine whether the EHV line is adequate to do the job for which it is intended, whether it will increase the reliability of service at both its termini, as it should, or increase the chances of cascading failures, as it should not.

My bill goes another step beyond the FPC bill, and makes extra-high-voltage lines true public utilities, giving to every electric entity the right to increase the capacity of such lines, by whomever owned, at its own expense and subject to FPC regulation and technological review, and to participate in joint use of such lines. This addition to the bill is important both esthetically and economically, because it will reduce the need for unsightly and costly paralleling facilities. It recognizes the fact, which is far too frequently overlooked, that transmission lines are part of this Nation's transportation system.

I have revised greatly the FPC bill's provision for granting rights-of-way across Federal lands for EHV lines. Under my bill rights-of-way over Federal

land may be granted for a limited term, not in excess of 50 years; or for an unlimited duration. However, if the right-of-way is granted for an unlimited duration, then the FPC will have continuing jurisdiction at intervals of not less than 10 years to add to or change the conditions of the right-of-way grants.

The FPC bill makes no provision for payment to the United States for use of its land. Mine does.

The FPC bill completely overlooks Indian rights in Indian reservations. The Indians, rather than the Government, are the true owners of the reservations, many of which were set up by solemn treaty guaranteeing that no one would ever be permitted to reside or cross over them without the Indian's consent. My bill requires Indian consent before any EHV right-of-way can be granted through an Indian reservation, and, when consent is given, it requires the utility to pay the Indians for the use of their lands.

My bill, as does the FPC bill, authorizes the FPC, on its own motion, to compel interconnections between power systems—again giving priority to efficient public service to the consumers of a region. My bill, however, goes further, requiring each entity, public or private, to wheel power for other entities to the extent of excess capacity in its lines. For this service, it would, of course, be entitled to fair compensation.

I have added provisions to the FPC bill at several places to insure that the public receives notice of what is proposed and has access to information on file. Thus, when a statement of organization of a regional council, or a regional plan, is filed, my bill requires the FPC to give notice of the filing in the Federal Register. The FPC bill required such notice only in case of an EHV transmission line proposal. Furthermore, under my bill, all filings which are permitted or required to be made will be available for public inspection, including coordination, contracts, such as for joint ownership or operation of generators and transmission lines.

I have also included a new section in my bill directing the Federal Power Commission to survey existing and planned extra-high-voltage testing laboratories in the United States and to report to Congress within 1 year whether any action is needed to provide more laboratories and to make them available to all persons desiring to test their EHV facilities. At the present time there are only two laboratories in this country, in contrast to 20 abroad, able to test extra-high-voltage equipment under operating conditions. Both American laboratories are maintained by individual manufacturers for their own use. I need not stress the hazard that inadequately tested equipment presents to reliable service.

The Federal Power Commission's bill and explanation thereof appear at pages S7949-S7954 of the Congressional Record of June 12, 1967. I have prepared a copy of my bill showing my additions to, and deletions from the FPC bill, and a separate document explaining the differences. I am inserting these materials at this point in the Record:

LINE-BY-LINE COMPARISON OF H.R. 12322 WITH FPC BILL

A bill to amend the Federal Power Act to facilitate the provision of reliable, abundant, and economical electric power supply by strengthening existing mechanisms for coordination of electric utility systems and encouraging the installation and use of the products of advancing technology with due regard for the proper conservation of scenic and other natural resources

(Matter in black brackets to be stricken; new matter in italic)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Electric Power Reliability Act of 1967".

[Sec. 2. In order to further the national policy declared by subsection 202(a) of the Federal Power Act, in favor of "assuring an abundant supply of electric energy throughout the United States with the greatest possible economy and with regard to the proper utilization and conservation of natural resources," a new part IV is added to the Federal Power Act, as amended (16 U.S.C. 791-825r), to read as follows:]

Sec. 2. The Congress finds that increased reliability in the generation and transmission of electrical energy is essential to the national defense, the conservation of natural resources, the commercial life of the country, and the general welfare of the people of the United States; that the advancing technology of the electric industry and the larger scale of generating plants and transmission

facilities increases the need for greater electric power reliability and will demand increasing coordination of electric utility efforts within and between regions of the country; and that Part IV of the Federal Power Act as added by this Act, will serve to increase and improve such reliability and coordination.

Sec. 3. A new part IV is added to the Federal Power Act, as amended (16 U.S.C. 791-825r), to read as follows:

"PART IV—REGIONAL COORDINATION

"Application and Objectives of Part; Definitions

"SEC. 401. (a) This part shall apply to all bulk power supply systems in the United States.

"(b) This part is intended to further the national policy declared by subsection 202(a) of the Federal Power Act, in favor of assuring an abundant supply of electric energy throughout the United States with the greatest possible economy and with regard to the proper utilization and conservation of natural resources, by enhancing the reliability of bulk power supply; by strengthening existing and establishing new mechanisms for coordination in the electric utility industry; by encouraging the comprehensive development of the power resources of each area and region of the United States, to take advantage of advancing technology with due regard for the conservation of land, scenic and other limited resources; by providing that all utility systems and their customers shall have access to the benefits of coordination and advancing technology on fair and reasonable terms; by assuring to the extent feasible that extra-high-voltage facilities include sufficient capacity to meet area, regional, and interregional needs for transmission capacity, including reserve capacity for reliability; by respecting the territorial integrity of utility service to the extent consistent with the public interest; and by drawing upon the cooperation of all segments of the electric utility industry.

"(c) As used in this part, 'person' means a 'person', 'municipality', or a 'State' as defined in section 3 of the Federal Power Act, and any department, agency, or instrumentality of the United States. The term includes privately, cooperatively, federally, and other publicly owned persons.

"(d) As used in this part, 'bulk power supply facilities' means facilities for generation or transmission [which furnish power to points of distribution] of electric power and energy. In the exercise of its authority under section 413 the Commission may classify or exempt facilities which are not material to the objectives of this part.

"(e) As used in this part, 'extra-high-voltage facilities' means transmission lines and associated facilities designed to be capable of being operated at a nominal voltage higher than two hundred kilovolts between phase conductors for alternating current or between poles for direct current, the construction, extension, or modification of which is commenced two years or more after the enactment of this part.

"Relation to Other Parts

"SEC. 402. (a) This part supplements parts I, II, and III in order further to promote the reliability, abundance, and efficiency of bulk power supply in the United States. Nothing herein shall modify or abridge authority granted under part I, II, and III unless specifically so provided.

"(b) The administrative, procedural, and enforcement provisions prescribed by other parts shall apply to this part.

"Cooperation of Bulk Power Supply Systems

"SEC. 403. The purposes of this part should be achieved as far as possible by cooperation among all persons engaged in bulk power supply, whatever their nature.

"Regional Power Coordination Organizations

[Antitrust Immunity]

"SEC. 404. (a) After appropriate consultation, held under procedures to be prescribed by the Commission, with persons engaged or interested in bulk power supply, appropriate Federal agencies and State commissions, the Commission shall secure the establishment of appropriate and effective regional organizations and procedures to carry out regional and interregional coordination. Each re-

gional coordination organization (hereafter 'regional council') shall be open to membership, direct or indirect, by each electric system in the region whatever the nature of its ownership, or of its facilities. Some electric systems may in appropriate cases be admitted to more than one regional council. The Commission shall, and the State Commissions within the Region may, designate appropriate staff representatives, who shall participate in the work of the regional councils, except for the ultimate adoption of plans or any other council actions.

"(b) Under such rules as the Commission shall prescribe, each regional council shall file a statement of its organization with the Commission and any amendments thereto. The Commission shall promptly publish notice in the Federal Register of the filing of each such statement and each such amendment. Such statement[s] will and amendment shall be available for public inspection. Within thirty days after adoption by the council, any regional or interregional plans or amendments thereto developed by such regional councils shall be submitted to the Commission under such rules as the Commission shall prescribe [and]. The Commission shall promptly publish notice in the Federal Register of the filing of each such plan and amendment. Such plans and amendments shall be [made] available [by it] for public inspection[.]. [and t]The Commission shall consider such plans in exercising its responsibilities under this Act, including parts I, II, III, and IV.

"(c) After notice and opportunity for hearing, the Commission may by order determine whether any statement filed under this section is consistent with the objectives of this part. If the Commission determines that the statement is not consistent with the objectives of this part it shall modify it or set it aside. [If the Commission approves a statement, and finds further that the effect of the statement upon competition will be insubstantial or will be clearly outweighed by other public interest considerations, actions pursuant to such statement shall not be subject to suit under section 4 of the Clayton Act (15 U.S.C. 15).]

"(d) After notice and opportunity for hearing, the Commission may determine whether any coordination plan submitted under this section is consistent with the objectives of this part. [If the Commission so finds, and finds further that the effect of the plan upon competition will be insubstantial or will be clearly outweighed by other public interest considerations, actions pursuant to such plan shall not be subject to suit under section 4 of the Clayton Act (15 U.S.C.), while the Commission's approval remains in effect.] If the Commission determines that the plan is not [in the public interest] consistent with the objectives of this part it shall modify it or set it aside.

"(e) The Commission shall require annual reports from each regional council and such additional reports as it may deem necessary or appropriate to carry out the objectives of this part. The Commission shall annually report to the Congress on the effectiveness of the regional and interregional coordination efforts.

"(f) If the Commission, after notice and after opportunity for hearings, determines that any person engaged in [the] generation or transmission unreasonably refuses to participate in the creation of a regional council, to contribute toward its expenses, or to participate, in effective regional or interregional coordination it may require such person by order to participate in the creation and work of such regional council, and to contribute a reasonable share of the expenses thereof, to the extent the Commission finds necessary to carry out the objectives of this part.

"(g) The regional council, or the commission upon its own motion or upon complaint and after notice and opportunity for hearing, may from time to time amend any statement or plan. The Commission, if it determines, after notice and opportunity for hearing, that an amendment by the regional council is not consistent with the objectives of this part, shall modify or set aside such amendment.

"National Electric Studies Committee

"SEC. 405. The Commission, after consultation with regional councils, shall establish a national committee representative of all elements of the electric industry to facilitate interregional exchange of views and experience and to consolidate electric industry efforts to investigate major present and future problems in planning and operating of bulk power supply facilities. The committee shall seek to stimulate vigorous scientific and engineering interest in the challenges to achieving reliable and efficient bulk power supply for the United States.

"Advisory Boards

"Sec. 406. To assist it in considering matters coming before it under this part, the Commission may establish one or more advisory coordination review boards and provide for the appointment thereto of experts drawn from the electric utility industry, equipment manufacturers, the academic and research communities, and other persons, not employed by the Commission, drawn from the general public~~1~~, including persons interested in conservation and aesthetics.

"Coordination Agreements

"Sec. 407. Subject to such rules and regulations as the Commission may prescribe, a statement or copy of all oral or written agreements for coordinated planning or operation of bulk power supply facilities (including but not limited to agreements for joint ownership of such facilities) shall be lodged with the Commission by or on behalf of the persons participating in such agreement. *Each such statement or copy of agreement shall be available for inspection by the public.*

"Reliability Standards

"Sec. 408. Upon the recommendation of a regional council or upon its own motion, and after consultation with the regional councils, and after public notice and opportunity to comment, the Commission ~~may~~ shall promulgate regulations setting forth reasonable criteria of national or regional applicability ~~enhance~~ govern the reliable planning and operation of bulk power supply facilities in accordance with the objectives of this part, set forth in section 401(b).

"Extra-High-Voltage Facilities; Notice of Proposed Construction; Suspension; Eminent Domain; Rights-of-Way on Federal Land

"Sec. 409. (a) Subject to such rules and regulations as the Commission may prescribe, any person proposing the construction, *extension, or modification* of extra-high-voltage facilities shall file with the Commission ~~two~~ years before it proposes to commence construction, or such other time as the Commission may prescribe its proposal which shall include such information, including a map and other information as to the routing of the proposed line, as the Commission may require to enable it to determine to what extent the proposed construction ~~and~~, *extension or modification and the operation* of such facilities is consistent with any plan developed by a regional council and is consistent with the objectives of this part. The filing shall state whether the proponent elects to seek right-of-way pursuant to subsection (e) of this section. ~~Notice of such filing and any subsequent changes shall be given~~ *The Commission shall cause notice of each properly prepared proposal and any material changes thereto filed under this section to be promptly published in the Federal Register and to be* ~~shall~~ served upon appropriate regional councils, Federal, State and local agencies, and such other interested persons as the Commission shall require. The Commission shall afford to any interested person at least ~~sixty~~ ninety days in which to comment upon such filing.

"(b) No person may commence construction, *extension or modification* of extra-high-voltage facilities ~~for~~ until six months after ~~acceptance of any filing containing the information required pursuant to subsection (a) of this section~~ *notice of the proposal has been published in the Federal Register and for such additional period during which a suspense order of the Commission remains in effect. The Commission shall issue a suspense order whenever the proponent elects to seek right-of-way pursuant to subsection (e) or when the Commission concludes, in its discretion, within six months after* ~~acceptance of any such filing~~ *publication of the notice of the proposal, that the proposed construction, extension, or modification, and* or the operation of such facilities is inconsistent with ~~an approved plan developed by a regional council~~ *a plan appeared pursuant to section 404(d) or otherwise appears not to be consistent with the objectives of this part. The suspense order shall summarize the Commission's reasons for its action and shall be effective for an initial period, to be fixed by the Commission in its discretion, of not more than twelve months. The effectiveness of an unexpired suspense order shall be extended by any order of the Commission recommending specific modifications in the proposal and setting forth conditions for its approval or scheduling formal hearings or both until ultimate disposition of the matter by the Commission: Provided, That the Commission may*

after public notice and consideration of such comments as are received within thirty days of such notice, terminate the suspense order upon a finding that [a construction proposal] *the proposal* will be consistent with the objective of this part.

“(c) In reviewing extra-high-voltage facilities proposals, the Commission shall use informal procedures, including joint or separate conferences, to the fullest extent feasible. However, the Commission shall not finally disapprove a proposal or confer rights-of-way under this section except after notice and opportunity for hearing.

“(d) At or before the end of the period specified by the suspense order the Commission may issue an order recommending specific modifications in the proposal and setting forth conditions for its approval or setting the matter for hearing. If such modifications and conditions are accepted by the proponent, the Commission shall approve the proposal as modified and terminate the suspense order forthwith. If the modifications and conditions are not accepted by the proponent or if the Commission schedules a formal hearing, the suspense order shall remain in effect until the Commission formally determines whether the proposal is consistent with the objectives of this part and issues a final order permitting or prohibiting the construction, *extension, or modification* of the proposed facilities.

“(e) If the Commission at any time determines by order, after notice and opportunity for hearing, that the proposed construction, *extension, or modification* of extra-high-voltage facilities is consistent with the objectives of this part, the proponent may secure necessary rights-of-way over Federal or other lands as provided below.

“(i) If the proponent thereafter cannot acquire by contract, or is unable to agree with the owner of property as to compensation to be paid for the necessary right-of-way or other property to construct, operate, and maintain such extra-high-voltage facilities, it may acquire the same by the exercise of the right of eminent domain in the district court of the United States for the district in which such property may be located, or in the State courts. In any such proceeding brought in a district court of the United States, the petitioner may file with the petition or at any time before judgment a declaration of taking in the manner and with the consequences provided by sections 258a, 258b, and 258d of title 40, United States Code, and the petitioner shall be subject to all of the provisions of said section which are applicable to the United States when it files a declaration of taking thereunder.

【“(ii) The construction and operation of such extra-high-voltage facilities located partly or wholly within the lands or reservations of the United States is authorized subject, in addition to the applicable requirements of this part, to such reasonable land use conditions relating to nonpower matters as prescribed by the department or agency administering the lands or reservations affected which the Commission shall include in its order. The department or agency administering the lands or reservations affected by such order shall have a period of sixty days after its issuance to protest its terms on the grounds only that it fails to give due regard to the preservation of identified esthetic or historic values. Such protest shall have the effect of staying the order until the protest shall be withdrawn.】

“(ii) The Commission may grant rights-of-way over Federal lands as provided in this subparagraph. Such rights-of-way shall be granted either for a limited term not in excess of fifty years, or without limit as to duration. If granted for a limited term, the holder, during the two years prior to the expiration of the term, may apply for a renewal of the right-of-way under the same provisions applicable to the issuance of an initial right-of-way, and may continue use of the right-of-way while the application is pending. If the right-of-way is granted without limit as to duration, the Commission at intervals of not less than ten years, after notice and opportunity for hearing, may modify or add to the terms and conditions of the right-of-way as may reasonably be necessary in the public interest. No right-of-way shall be granted under this subparagraph without notice to the department or agency administering the lands affected, or, in the case of an Indian reservation, without the consent of the tribe having jurisdiction. If the department or agency files a protest against the proposed right-of-way on the ground that the grant would fail to give due regard to the preservation of identified esthetic or historic values or identified species of flora or fauna, or, in the case of military reservations, to the safe and efficient conduct of national defense operations, the right-of-way shall not be granted until the protest is withdrawn.

Every right-of-way granted under this subparagraph shall be subject to and the Commission shall include in its order provisions for, the following terms and conditions:

"(A) That the holder of the right-of-way shall pay reasonable annual charges, to be stated in the order, to the department or agency administering the land affected, or in case of an Indian reservation to the tribe having jurisdiction.

"(B) That the holder of the right-of-way shall promptly pay, in a lump sum, for special damages to the land, improvements, timber, and other crops on the lands affected by the right-of-way or by the activities of the holder of the right-of-way in the construction, operation, or maintenance of the facilities thereon whenever the same occur.

"(C) Such reasonable land use conditions relating to nonpower matters as the department or agency administering the lands affected, or, in the case of an Indian reservation, as the tribe having jurisdiction, may require.

"(D) Such other reasonable terms and conditions as the Commission may prescribe.

Annual charges shall be fixed by negotiation between the right-of-way proponent and the department or agency administering the lands affected, or, in the case of an Indian reservation, the tribe having jurisdiction. In the event of failure to reach agreement within a reasonable time, the Commission shall fix the charges after notice and opportunity for hearing. All such annual charges shall be subject to renegotiation or redetermination in similar manner at ten year intervals so long as the right-of-way remains in force. Special damages shall be fixed by negotiation between the administering agency or Indian tribe, or individual owner of the improvement, timber, or crop damaged, and the proponent or holder of the right-of-way, or in the event of failure to reach agreement within a reasonable time, by the Commission after notice and opportunity for hearing.

"(iii) As used in this section, the term 'Federal lands' includes public lands and reservations as defined in section 3 of the Federal Power Act, but does not include lands administered by the National Park Service other than National Parkways, National Recreation Areas, and recreation areas administered by the National Park Service pursuant to a cooperative agreement with another Federal agency.

"(iv) If the holder of a right-of-way granted under this section over Federal land, after notice of default in observance of any condition of the grant, fails to correct the same within a reasonable time, the Commission, after notice and opportunity for hearing, shall cancel the right-of-way.

"(v) Nothing herein shall be deemed to repeal or modify any part of the Wilderness Act (78 Stat. 890, 16 U.S.C. 1131-1136) or any statute implementing that Act.

"(f) The Commission shall include in any order issued under this section authorizing the construction, extension, or modification of extra high voltage facilities such conditions governing the use of any excess capacity (over and above reasonable reserves) of such facilities and the interconnected facilities of the proponent to transmit electric energy by displacement or otherwise, upon a demonstration of need for such use as it finds necessary and appropriate to the objectives of this Part. The Commission, after notice and opportunity for hearing and consistently with a plan approved pursuant to section 404(d) of this Act may authorize any person to enlarge such facilities at its own expense and to utilize the increased capacity for the transmission of electric power and energy upon such terms and conditions as the Commission may deem to be just, including, where appropriate, provisions for payment of additional compensation to the owners of the land underlying the rights-of-way affected. No such order shall issue earlier than 90 days following publication in the Federal Register of notice of filing of the proposal therefor, during which time any interested person may comment thereon. The Commission shall determine any disputes relating to allocation of transmission capacity, reasonableness of reserves and amount of excess capacity, compensation for the use of the facilities, and all other issues arising under this subsection.

"(g) Whenever the Commission determines that emergency conditions so require, the Commission shall have authority, upon its own motion or complaint, with or without notice, hearing, or report, and upon such conditions as the Commission deems necessary or appropriate, to exempt persons from any requirements of this section except those contained in subsection (e). For purposes of this section, emergency conditions shall be deemed to exist by reason of a sud-

den increase in the demand for electric power or energy, shortage of electric power or energy, a shortage of facilities or materials for the generation or transmission of electric power or energy including a shortage of fuel or water for generating facilities, or other causes.

"Review as to Land Use

"SEC. 410. Whenever an issue arises, formally or informally, as to land use, including esthetic considerations, either in the regional planning process under section 404 or the review of extra-high-voltage facilities proposals under section 409, the Commission shall entertain written comments by Federal, interstate, State, and local agencies responsible for land-use planning in the affected region. The Commission shall defer to the views of the responsible Federal, interstate, State, or local agency, if any, to resolve local land-use matters unless the Commission determines that a particular resolution would be inconsistent with the objectives of this part. The Commission may use joint boards, as contemplated by section 209 of this Act, to resolve land-use questions which come before it.

"Compulsory Interconnections

"SEC. 411. Whenever the Commission, after notice and hearing had, upon its own motion, or upon complaint, finds such action necessary or appropriate to carry out the objectives of this part, it may by order direct any person engaged in the generation or transmission of electric energy (if the Commission finds that no undue burden will be placed upon such person thereby) to establish physical connection of its transmission facilities with the facilities of one or more other persons engaged in the generation, transmission, or sale of electric energy, to sell energy to or *wheel for or exchange energy with* such persons. The Commission may prescribe the terms and conditions of the arrangement to be made between the persons affected by any such order, *including allocation of transmission capacity, reasonableness of reserves, and amount of excess capacity, and compensation for the use thereof. Nothing herein shall be deemed to modify or repeal any provision of any Federal power marketing statute.*

"Abandonment

"SEC. 412. No person engaged in the generation or transmission of electric energy shall abandon or curtail any bulk power supply service, or abandon all or any part of its bulk power supply facilities if it would thereby effect the abandonment, curtailment, or impairment of bulk power supply service, without obtaining the advance approval of the Commission after notice and opportunity for hearing, upon a finding by the Commission that such abandonment or curtailment is consistent with the objectives of this part.

"Authority to Exempt

"SEC. 413. In order to avoid excessive burdens upon persons engaged in bulk power supply, upon regional councils and upon the public, the Commission may by rule exempt from any requirements of this part, *except those contained in subsection (e) of section 409, or any rule or regulation prescribed thereunder, any facilities, activities, or persons, whenever it determines, after public notice and opportunity for hearing, that such exemption is necessary and appropriate to carry out the objectives of this part. The Commission may attach conditions to any exemption and may by order, after public notice and opportunity for hearing, revoke any such exemption.*"

SEC. 4. *The Commission is directed to survey existing and planned facilities in the United States providing sufficient capacity and energy for the testing of extra high voltage electric equipment under heavy current flow and for research into problems of high voltage-heavy current electricity, and within one year from the effective date of this Act to report its findings to Congress. The Commission's report shall include information as to the adequacy of existing and planned facilities and their accessibility to persons other than their owners, and if such facilities are inadequate or are not accessible to all elements of the electric industry having need for their use, such recommendations for corrective action as the Commission deems appropriate.*

EXPLANATION OF DIFFERENCES BETWEEN THE ELECTRIC POWER RELIABILITY BILL
INTRODUCED BY CONGRESSMAN JOHN E. MOSS AND THE DRAFT OF BILL WHICH
THE FPC TRANSMITTED TO CONGRESS ON JUNE 8, 1967

The Electric Power Reliability bill introduced by Congressman John E. Moss (H.R. 12322 is based on, and in large measure is identical with, the draft bill which the Federal Power Commission transmitted to Congress on June 8, 1967, and which is printed in the Congressional Record of June 12, 1967 (pp. S7949-S7954, daily issue). However, the Moss bill is different from the FPC draft in the following ways:

Sec. 1 contains the name of the Act. No change.

Sec. 2 states the purpose of the Act. The Moss bill revises this section by eliminating a redundant reference to section 202(a) of the Federal Power Act (which is repeated in sec. 401), by referring to the constitutional authority for the act, and by rephrasing its purpose in general terms.

Sec. 3 adds Part IV to the Federal Power Act. The differences between the Moss bill and the FPC draft are as follows:

Sec. 401:

Subsection (a): No change.

Subsection (b): No change.

Subsection (c): No change.

Subsection (d): The FPC draft defines "bulk power supply facilities" as meaning facilities for generation or transmission "which furnish power to points of distribution." The Moss bill changes the latter phrase to read "of electric power and energy." This change will assure that the FPC's jurisdiction over all generation and transmission facilities will not be restricted solely to those that furnish power for distribution, but will also include, for example, auxiliary generating equipment which provide energy for fueling larger generators.

Subsection (e): The Moss bill inserts the "extension, or modification," after "construction" so that the bill will apply to the extensions or modifications of existing transmission lines and associated facilities as well as the construction of such facilities which are wholly new. This will foreclose a possible "grandfather clause" interpretation that would exempt from this bill any changes in existing facilities whether such changes consist of extensions, or conversions of lower voltage facilities into extra high voltage facilities.

Sec. 402: No change.

Sec. 403: No change.

Sec. 404: The Moss bill deletes the reference in the subtitle to "anti-trust immunity."

Subsection (a): The Moss bill amends the second sentence by (1) deleting the words "direct or indirect" after the word "membership," because it is unclear what is meant by "indirect membership," and (2) by adding the phrase "or of its facilities" after the word "ownership," to make clear that each electric system may be a member of a regional council irrespective of the nature of its ownership or of the type of its facilities. The Moss bill amends the fourth sentence by providing that State regulatory commissions, as well as the Federal Power Commission, may designate representatives to participate in the work of the regional councils. Such optional participation by State commissions will permit greater local representation.

Subsection (b): The Moss bill adds provisions requiring prompt publication in the Federal Register of notice that the statements of organization of regional councils, and amendments thereto, and the regional and inter-regional plans, and amendments thereto, have been filed. Because these documents are essential features of the new regulatory scheme proposed by this bill, it is important to provide for widespread publicity for these documents. The Federal Register is the official Federal publication for informing the public of important documents and actions of Federal agencies.

Subsections (c) and (d): The Moss bill deletes the provisions which would confer immunity from treble damages suits under sec. 4 of the Clayton Act (15 U.S.C. 15) instituted by any person who has been injured in his business or property by any action taken pursuant to a statement or plan approved by the Commission. Although the FPC draft would not confer immunity from anti-trust suits instituted by the United States, the Moss bill takes the position that (i) any person injured by an action which is illegal under the anti-trust laws, if it occurs, should not be deprived of a remedy, and (ii) that the Commission should not supplant the courts in deciding whether such illegal action under the anti-trust

laws has injured any complainant. In addition, the Moss bill revises the last sentence of subsection (d) by deleting the phrase "in the public interest" and substituting the phrase "consistent with the objectives of this part."

Subsection (e): No change.

Subsection (f): The Moss bill adds authority for the FPC to require persons engaged in electric generation or transmission to pay their reasonable shares of the expenses of the regional council as well as to participate in the creation and work of the council.

Subsection (g): This is a new subsection added by the Moss bill to authorize the regional council to amend statements and plans from time to time subject to the authority of the Commission to modify or set aside such amendment if the Commission determines, after notice and opportunity for hearing, that it is not consistent with the objectives of Part IV.

Sec. 405: The first sentence of the FPC draft provides for representation in the regional councils of all elements of the "industry" to consolidate "electric industry" efforts, etc. The Moss bill inserts the word "electric" before the first reference to "industry" in order to make clear that the representation shall be from the "electric industry."

Sec. 406: The Moss bill adds explicit language at the end of the section to insure that the Commission, in making appointments to its advisory coordination review boards, will also include persons interested in conservation and aesthetics.

Sec. 407: The Moss bill adds a provision to insure that all coordination agreements filed with the Commission shall be available for public inspection.

Sec. 408: The Moss bill changes the word "may" to "shall" and thus makes it mandatory that the Commission issue regulations setting forth reasonable reliability criteria of national or regional applicability. The Moss bill substitutes the word "govern" for the word "enhance" in order to describe more accurately the effect of the regulations which the Commission will promulgate.

Sec. 409: The Moss bill adds the words "extension, or modification" after "construction" wherever the latter word appears in this section. See comment under section 401(e) above.

Subsection (a): The Moss bill deletes the requirement for two year advance filing of proposals, since it is inconsistent with subsection (b), which authorizes commencement of construction after six months. The Moss bill also specifies that a map should be included with the information accompanying a proposal for an EHV transmission line. The Moss bill rewords the sentence about publication in the Federal Register and service of notice of filing of proposals, to clarify that it is the Commission's responsibility to cause publication and service to be promptly made. The Moss bill allows the public ninety, rather than sixty, days to comment upon proposals to construct, extend, or modify extra high voltage facilities.

Subsection (b): Under the Moss bill, the six-months waiting period before commencement of construction, etc., of extra high voltage facilities, will begin to run from the date of publication of the notice of filing in the Federal Register rather than from the much less readily ascertainable date of "acceptance of filing." Since section 404(d) permits the FPC to modify plans developed by regional councils, the Moss bill uses the phrase "a plan approved pursuant to section 404(d)" instead of the phrase "an approved plan developed by a regional council," to clarify that it is the plan as finally approved, with the FPC's modifications, which is controlling. In the *provided* clause at the end of this subsection, the Moss bill changes the phrase "a construction proposal" to read "the proposal" in order to accord with the new requirement in the Moss bill that proposals be filed for extensions and modifications as well as for new construction.

Subsection (c): No change.

Subsections (d) and (e): The Moss bill adds the words "extension or modification" after "construction." (See comment at beginning of this section.)

Subparagraph (i) of subsection (e): There is no change in this subparagraph, which deals with acquisition of rights-of-way for EHV transmission lines by purchase or condemnation over non-Federal lands.

Subparagraph (ii) of subsection (e): This subparagraph deals with rights-of-way for EHV transmission lines over Federal lands. The Moss bill substitutes new subparagraphs (ii)-(v) for subparagraph (ii) to provide more adequate protection to public and Indian interests, in the following respects:

(1) The Moss bill provides that rights-of-way over lands or reservations be either limited to a term not exceeding fifty years or be subject to modification by the Commission, at intervals of not less than ten years, after notice and opportunity for hearing, as may reasonably be necessary in the public interest.

It has been customary heretofore to limit Federal transmission line rights-of-way to a term of fifty years. Sec. e.g. Act of March 4, 1911, 36 Stat. 1253, 43 U.S.C. 961; Federal Power Act, June 10, 1920, sec. 6, 41 Stat. 1067, 16 U.S.C. 799; 25 C.F.R. 161.19.

Fifty years ordinarily is ample time to amortize the cost of extra-high voltage facilities, and to provide for a periodic re-evaluation of whether continued use of the right-of-way remains in the public interest. The bill would permit discretionary renewal of rights-of-way granted for a limited term and authorize the holder to continue use of the right-of-way until its application for renewal is finally approved or rejected.

(2) In the case of Federal lands other than Indian reservations, the Moss bill requires notice and opportunity for hearing to the department or agency administering the land affected, so that it may effectively and promptly submit its comments or protests to the FPC. If it protests on one of three grounds—failure to give due regard to preservation of historic values, aesthetic values, or particular species of flora or fauna—and identifies the values of species involved, the protest, unless withdrawn, acts as a veto. Agencies administering military reservations have one additional ground for veto—prejudice to safe and efficient conduct of national defense operation. If the protest or comment of the administering agency does not invoke one of the grounds for veto, but does suggest reasonable land use conditions relating to non-power matters, the FPC must incorporate such conditions in the right-of-way grant. Other agency protests and comments, and protests and comments from the public, will be considered by the FPC and decided in its discretion.

The FPC bill allows veto by the administering agency only for aesthetic or historic reasons, by filing protest at any time prior to sixty days after issuance of the right-of-way. The Moss bill requires the agency to file its protest before the right-of-way is granted, and the notice requirement insures that it will have an opportunity to do so. It is contemplated that the FPC will issue rules of practice (authorized by section 309 of Part III of the Federal Power Act, 16 U.S.C. 825h), requiring prompt submission of protests and comments so that they can be properly evaluated without occasioning delay in construction of EHV facilities.

(3) In the case of Indian reservations the Moss bill requires consent of the Tribe having jurisdiction before any right-of-way may be granted. In the case of tribes organized under the Indian Reorganization Act, such consent is now required by statute (25 U.S.C. 476). In the case of all other tribes such consent is now required either by regulation of the Department of the Interior (25 CFR 161.3(a)), or by treaty. To abandon this requirement would be contrary to the current national policy of vesting Indians with increased responsibility for management of their own affairs and would approach a breach of faith by Congress.

(4) All rights-of-way will be granted on three mandatory conditions:

A. Payment of reasonable annual charges for the use and occupancy of the right-of-way, to be paid to the administering agency of the land affected, or in the case of Indian reservations, to the Tribe having jurisdiction. It should be noted that payment of annual charges for use of a power line right-of-way is presently the method of compensation authorized by sec. 10(e) of the Federal Power Act (16 U.S.C. 803(e)); and over forest lands under 36 CFR 251.57. The Bureau of Land Management regulations authorize either annual or periodic charges or lump sum payments for power transmission line rights-of-way, 43 CFR 2234.1-6. The amount of charges payable under the Moss bill would be determined by negotiation between the right-of-way proponent and the agency or Tribe, or if agreement cannot be reached within a reasonable time, by the FPC after notice and opportunity for hearing. Charges will be subject to re-determination at ten year intervals upon request of the administering agency, Indian tribe, or right-of-way holder, by negotiation, or if that fails, by the FPC after another notice and opportunity for hearing.

B. Special damages for elements of value not included in the base for annual charges must be paid in a lump sum whenever they occur. Special damages would include severance damages occasioned to the remaining estate, payment for the Government's or Indian's timber, crops or structures destroyed on or in the vicinity of the right-of-way, either as a result of initial construction, or maintenance or operation of the facilities on the right-of-way. Where improvements of individuals on Federal lands are destroyed—such as individual Indians' crops on Indian reservations or summer cabins in National Forests—lump sum payment to the owners would be required. Special damages would be fixed by negotiation or by the FPC after notice and opportunity for hearing, in the

same manner as annual charges, but whenever they occur rather than at fixed intervals. The third mandatory condition is contained in subsection (f), discussed below.

(5) In addition, rights-of-way may be granted on two sets of discretionary conditions:

C. Reasonable land use conditions relating to non-power matters. The discretion to impose these conditions would be vested in the administering agency of the land affected, or in the Indian tribe in case of an Indian reservation. It would be mandatory for the FPC, however, to include such conditions, so long as they are reasonable, in its grant of the right-of-way, when requested by the administering agency or Indian tribe.

D. Other reasonable conditions that the FPC may prescribe, which would ordinarily have to do with power matters, although they might concern aesthetic or historic values or other values overlooked by the administering agency, and suggested to the FPC by land use planning agencies pursuant to section 410, or by the public, or raised on its own motion.

Subparagraph (iii): Defines "Federal lands" by reference to section 3 of the Federal Power Act (16 U.S.C. 796), but somewhat broadens the exemption from FPC jurisdiction of National Park Service lands. Currently, rights-of-way are forbidden by the act of March 3, 1921 (16 U.S.C. 797a—in part) only in National Parks and monuments. The Moss bill would, in addition, prohibit EHV lines, without special Congressional authorization, in any land administered by the National Park Service except National Parkways—which may be hundreds of miles long—National Recreation Areas, and recreation areas administered by the Park Service under cooperative agreements with other agencies. These recreation areas frequently surround important hydropower sites, and the preservation of their natural environment is not their primary purpose.

Subparagraph (iv): The Moss bill authorizes the Commission after notice and opportunity for hearing, to cancel a right-of-way if the holder has defaulted on any condition of the right-of-way grant and failed to correct the default after receiving notice of such default. The FPC bill contains no cancellation provision.

Subparagraph (v): The Moss bill expressly provides that nothing in the Power Reliability bill shall repeal or modify any provision of the Wilderness Act (16 U.S.C. 1131). That act contains various restrictions on man-made structures in wilderness areas as defined in that act.

Subsection (f): This is a new subsection added by the Moss bill. The FPC bill contemplated regional planning of extra-high-voltage facilities and full consideration of the views of all interested parties prior to authorization of the initial construction of a particular facility. However, the FPC bill is seriously deficient in not expressly authorizing the Commission to require joint use of the facilities as increased energy consumption or changing regional demand patterns may make such use necessary to effectuate the national policy of an abundant power supply throughout the United States with the greatest possible economy and enhanced reliability (see sec. 401(b) of the bill). Hence, the new subsection (f) in the Moss bill would require that all extra-high-voltage facilities constructed, extended, or modified after the effective date of the act, and interconnected facilities, would be available for transmission service, to the extent of any excess capacity, by any person demonstrating a need for such service consistent with the objectives of the new part IV of the Federal Power Act. The Moss bill would also empower the FPC, in appropriate cases, to authorize third parties to enlarge existing EHV facilities, at their own expense, to provide additional capacity to transmit their power, thus eliminating the necessity for wasteful and unsightly parallel lines. The Commission would prescribe the conditions of use, including compensation to the owner of the line, and where appropriate, to the owner of the land underlying the right-of-way. All disputes under this subsection would be resolved by the Commission.

Subsection (g): This is the same as subsection (f) of the Commission bill except that the Moss bill adds a clause precluding the granting of exemptions from the act as to any matter covered under subsection 409(e).

Sec. 410: No change.

Sec. 411: The Moss bill adds language to make it clear that the section authorizes the Commission to provide for transmission of energy and specify the terms and conditions, including compensation for such use of the transmission lines, and that the section shall not be deemed to modify or repeal any Federal power marketing statute.

Sec. 412: No change.

Sec. 413: The Moss bill adds a clause precluding the granting of any exemptions from the act as to any matter covered under subsection 409(e).

Sec. 4: The Moss bill adds this new section, which is not an amendment to the Federal Power Act, to require the Commission to survey existing and planned high voltage-heavy current testing and research facilities in the United States for adequacy and accessibility to all interested persons and to report its findings to Congress within one year, making recommendations for corrective action, if necessary.

In volume I of its report of July 1967 entitled *Prevention of Power Failures*, the FPC points out (in page 71) that some power failures have been caused by malfunction of major new high voltage equipment that was inadequately tested under operating conditions. At the present time, the report continues, there are only two laboratories in the United States equipped to provide the extremely high current requirements for such testing, each owned by a large manufacturer and not accessible to other manufacturers or operating companies.

The FPC report stated (p. 71): "Preliminary plans have been developed for a test facility near Grand Coulee Dam in the heart of the major hydroelectric network of the Pacific Northwest." Whether this facility will be open to all manufacturers and operating companies without discrimination, and whether one such facility will be adequate for all American needs, should be carefully evaluated.

Obviously the reliability of power facilities and transmission will be increased by technological progress as well as by improved coordination of operating entities. Section 4 in the Moss bill is aimed at correcting one of the major bottlenecks to technological progress.

Senator METCALF. I certainly concur in the chairman's statement. I have always regarded these preliminary bills as a sort of a pleading, which we finally put into a working draft after the hearings are over.

Congressman Moss' statement does include an explanation of the differences between his bill and the FPC bill.

The CHAIRMAN. They all contribute ideas to our objectives.

Senator METCALF. That was the idea of putting this in the record.

The CHAIRMAN. Senator Monroney?

Senator MONRONEY. No questions.

The CHAIRMAN. Senator Moss?

Senator MOSS. I am very happy to hear from Senator Metcalf, and I know this is a field in which he has long been expert and well informed.

Do I understand from your example of that TVA outage that the electric connections were picked up from surrounding utility systems that are interconnected with TVA?

Senator METCALF. Interconnected with TVA; yes, sir. And the interconnections and relays were strong enough, and reliable enough, so in an outage that was almost as big as the big blackout in the Northeast, the automatic relays went into effect and they had the transmission capacity to take care of it from other parts of the system.

Senator MOSS. That is a very dramatic example.

Thank you.

The CHAIRMAN. Senator Pearson?

Senator PEARSON. I am very pleased to have Senator Metcalf here, whom I respect so much. You may have to just educate me for a few minutes.

Right at the start of your statement, you say "This legislation would give Federal Power Commission authority needed to supervise the electric power interconnections."

What is electric power interconnection?

I suppose everybody in the room knows but me, but you might as well educate me.

Senator METCALF. One of the most thrilling examples of the potentialities of our system are the extra-high voltage and long-range transmission facilities we are beginning to develop with new techniques such as direct current transmission. Interconnections with those connections between one power system and another power system, or between a generating system and a transmission system, permit a flow of power back and forth.

Senator PEARSON. And these interconnections are not subject to Federal Power regulation now?

Senator METCALF. Primarily they are not. There is neither the kind of requirement of interconnection control nor is there a requirement of wheeling power for one group back and forth, or territorial integrity that is essential for the development of these regional systems.

Senator PEARSON. What would be the power in the Federal Power Commission or the authority in the Federal Power Commission, what could they do to prevent the blackouts we have all heard about and experienced?

Senator METCALF. When these regional interconnections were proposed, there would have to be review and approval. The Federal Power Commission would require that the various ties and automatic relays would be adequate and the system would be strong enough to take care of the kind of outage we had.

I used the example of TVA, where they have alternate relays and alternate interconnections and the system is strong enough. Apparently what happened in the Northeast was that gradually there were cascading outages on various weak links in the system and finally you just had islands of power generating for little local areas. And the authority of the Federal Power Commission then would be to require that applicants for interconnections conform to certain basic standards of reliability.

Senator PEARSON. I thank the Senator very much for an excellent statement.

Thank you, Mr. Chairman.

The CHAIRMAN. I might say by way of explanation for the record—and I am just speaking generally of the thrust of the various bills—that the Federal Power Commission may be empowered to promulgate, for instance, reliability standards, and certify transmission lines over 200 kilowatts to be constructed after 2 years from the date of the enactment of the bill. And the right of eminent domain for approved lines is involved as well as the authority to cross Federal lands, for approved proposals.

Now there are some questions about all of this. And there are also provisions in one or two of the bills to cover compulsory interconnections, abandonment, and authority to make exceptions in emergencies, and establish an electric studies committee or advisory committee on how engineeringwise, I suppose, to build these lines. And then there is immunity from private antitrust actions for approved regional plans. They can get together and decide on a plan, a transmission plan that is in the best interests of reliability and serves the public better. That is the thrust of most bills. There won't be too much compulsion in the bills, it is more review and cooperation, we hope, between the people involved, all segments, and the Federal Power Commission.

Senator METCALF. Mr. Chairman, an example of what has occurred was the so-called MAPP, the midcontinent area power planners, where the investor-owned utilities put together a regional system and left the Bureau of Reclamation, which was the largest power supplier in the whole area, out of it. Any system of regional development must include every power supplier in the system and have this mandatory requirement that some interconnections were made, so everyone benefits, the supplier and the consumer alike.

The CHAIRMAN. Any further questions?

Senator MONRONEY. Yes, I have a question.

I appreciate the distinguished junior Senator from Montana appearing and opening these hearings and also the work he has done in his House days and here in improving power supplies and utilization of our natural resources for generation.

May I ask, what type of standby power has to be built in one of these systems to make it effective, to pick up losses such as Niagara or the loss at TVA?

Senator METCALF. Well, ideally of course you have a system such as TVA, where you have strong hydropower, which is available almost instantaneously upon the flick of a switch and the water falling through the penstocks. The thermal systems have to have some sort of a buildup before they can go into operation, and these vast regional systems, with long-range transmission, we could tie our areas of thermal, or of hydropower into the areas where there is thermal power and have that kind of integrated system, whereby under a smaller regional group, without the long-range transmission, sometimes we have to have a lot of power just running away to have the proper reserves.

Senator MONRONEY. The theory of cascading, that means, I guess, the power running toward the low—

Senator METCALF. There is outage after outage.

Senator MONRONEY. That pulls the power away from where it is into the places where the power loss occurs. Is that correct?

Senator METCALF. That is right.

Senator MONRONEY. There must be a built-in surplus in these systems, so when that happens there can be a surplus to move in and supply some of the demands.

Senator METCALF. There has to be that, combined of course with the provision that when these overloads do take place the automatic relays work, so that only a certain area is cut out, instead of the cascading effect we had in the Northeast.

Senator MONRONEY. It limits the spread, is that it?

Senator METCALF. That is correct, sir.

Senator MONRONEY. In this bill, will this direct the Federal Power Commission to have some control over the capability or capacity of these interconnecting systems?

Senator METCALF. As I read the bill, there would have to be some control over the capability upon application for an interconnection, because this is part of the built-in reliability we want for these regional systems.

Senator MONRONEY. And if they have built in enough extra capacity, they would have enough to take care of the areas, so we would not have a recurrence of the east coast blackout or the PJM blackout.

Senator METCALF. That is correct. It would seem to me that with modern technological relays and transformers and so forth, and with regional systems, under such a bill as this a regional system would be stronger than any local system.

Senator MONRONEY. Yes. Thank you very much. We appreciate your appearing here.

The CHAIRMAN. Is the situation as you have related it, as to TVA, similar to the Bonneville?

Senator METCALF. Bonneville would be another admirable example.

The CHAIRMAN. Of regional interconnections?

Senator METCALF. Yes, sir.

The CHAIRMAN. Of private PUDs, municipals, and the Federal generating units?

Senator METCALF. Up in the Bonneville system, we have all kinds of power suppliers, and they necessarily would all have to be included. We would have to have the Federal Government of course, because of the ownership of most of the hydro.

The CHAIRMAN. Senator Metcalf, there has been some suggestions—and I have heard it several times in different places, very informally—that all of the people involved in this matter, private, the Power Commission, Bonneville, TVA, all of the rest of them, establish some kind of a research laboratory on interconnection matters, and transmission of power. Have you heard anything about that?

Senator METCALF. Yes; and I think it would be an admirable thing.

The CHAIRMAN. We don't have one I know of. Each of them now do their own research.

Senator METCALF. We have done outstanding research in our Federal agencies, both at Bonneville and TVA. And the investor-owned utilities have a research group that has contributed a great deal to the advancement of the technology. But I think a commission such as you suggest would be almost as valuable as the kind of integration that is suggested in the bill here.

The CHAIRMAN. What would be found out would be available to everybody, to make the transmission of electric power better.

Senator METCALF. Certainly. If one of the investor-owned utilities found out something we could put it into operation at Bonneville.

The CHAIRMAN. Yes. All right, if there are no further questions, we thank you, Senator.

The Senator from Maryland, Senator Tydings, is here and he introduced one of the bills, S. 2227. We will be glad to hear from you, Senator.

STATEMENT OF HON. JOSEPH D. TYDINGS, U.S. SENATOR FROM THE STATE OF MARYLAND

Senator TYDINGS. That is correct, Mr. Chairman. I appear this morning to testify in favor of effective Federal legislation to protect places of national significance from defacement by electric power transmission lines. I have introduced one of the bills, S. 2227, upon which this committee is holding hearings this morning and have co-sponsored three others—S. 1834, S. 1835, and S. 1934. All of these bills seek to assure the preservation of areas of national significance from unnecessary scarring by powerline construction. S. 1834, S. 1835,

and S. 1934 all vest the conservation responsibility in the Federal Power Commission.

These three bills have as their major purpose, however, the assurance of an adequate power supply. Conservation is a secondary and not always clearly stated purpose.

My bill, S. 2227, which Congressman Reuss has introduced in the House, is more specific in its conservation purpose.

Mr. Chairman, I hope that whatever bill this committee reports contains a strong, effective guarantee of the public interest in preserving the natural state of our national parks, battlefields, monuments, and landmarks. Such a guarantee need not preempt the State interest and authority in safeguarding the interests of its own citizenry. But a guarantee for the public interest is essential.

At the present time nothing prevents a public utility in many States, including my own, from ravaging the beauty of our national parks and historic sites with electric transmission towers. In my own State of Maryland, for example, power companies unfortunately, almost inconceivably to me, have a blanket power of condemnation for their powerline rights-of-way, without review by Federal, State, or local authorities. This is an intolerable situation which our State legislature hopefully will rectify next year. In the meantime though, we have a great monument, the battlefield of Antietam, which needs protection. The Potomac Edison Power Co., which is not a Maryland company but is controlled by a holding company out of New York, which has no interest in Maryland, and has no clear interests in protecting the beauty of the Antietam battlefield, is planning to build a series of huge transmission towers adjacent to the historic Civil War battlefield of Antietam in Washington County as part of a 150-mile-long, 500,000-volt power transmission line which will pass through Pennsylvania, Maryland, and West Virginia.

I don't know if any of you gentlemen have been to Antietam, but unlike Gettysburg, it is the same as it was 100 years ago. You can still see Bloody Lane. You can still see where Jeb Stuart moved his horse cavalry and artillery up along a ridge and fired down in the cornfield, where, as they say, men fell like rows of corn. It is a magnificent area. It is just beautiful. It has been protected. And if General Lee were alive today, he would have no trouble locating his first northern invasion route. Unfortunately, if this transmission lines goes through, it will be highlighted by massive steel girders and electric powerlines on towers 11 stories high within a mile of the battlefield. The desecration of this historic landmark will be a national tragedy. Thirteen thousand men fell in that battlefield, gentlemen, in 12 hours. That is one of the battlefields where truly brothers fell against brothers, because boys from Maryland, Virginia, and West Virginia in the same family were on opposite sides of that fight.

There were two future Presidents of the United States who fought in that battlefield. One was wounded.

I have spoken out frequently against Potomac Edison's plan. So have the local citizens groups, the county commissioners of Washington County, the Washington County Planning and Zoning Commission, and the Secretary of the Interior, Stewart Udall. Yet while Potomac Edison blithely goes ahead and files condemnation suits, the State can do nothing, Washington County can do nothing, Sharpsburg can do

nothing. No one has any power to stop them. I do not know how many other States are in the same position as Maryland, but this situation cannot be allowed to continue.

I am hoping that my own State legislature will enact laws next year to correct this situation. I understand that Maryland's Public Service Commission is now drafting such a bill for the submission to the next session of our general assembly. But whether or not such State laws are enacted, a Federal law complementing, not preempting State jurisdiction, should be enacted to prevent power companies from defacing our national parks, national forests, and national historic landmarks. After all, the taxpayers of the United States put up the money to preserve these great national monuments. They have a right to see them preserved.

My bill, S. 2227, would rectify this intolerable situation. Public utilities would be prohibited from constructing power facilities adjacent to land which has been determined by the Secretary of the Interior to have a national, historic, recreational, or scenic value to the people of the United States, unless the Secretary of the Interior determined that such construction is consistent with the national interest. The Secretary would be required to hold hearings prior to his decision, at which all interested parties would have the opportunity to testify.

As I understand their provisions, neither S. 1834, S. 1835, nor S. 1934 would protect the public interest in conservation as clearly as would S. 2227. I realize that the primary purpose of these other bills is to deal with the issue of power supply itself. Nonetheless, events of this summer in my own State clearly demonstrate the need for effective public protection of many areas of national significance where powerlines can now be built without regard to the public interest.

I urge this committee to include provisions for such effective public oversight in any bill it reports.

A nation which neglects its natural beauty and its national heritage bequeaths a sterile estate to its future generations. I don't know the laws of the States which you gentlemen represent, but if they are the same as my State, I am sure there are monuments or forests or parks in your own areas which some day might be threatened in the manner that Antietam is being threatened today.

The CHAIRMAN. Thank you, Senator, for that statement and that very potent illustration of what can happen.

I would think this committee would look with favor—I am speaking only of myself—on taking the major portions of your bill and relating them to S. 1934 as an amendment or separate section to deal with this, once we get the other matters resolved. I am sure the committee would think that would be worthwhile doing.

Senator Monroney?

Senator MONRONEY. Thank you, Senator Tydings, for calling our attention to this gap in the law protecting our historic sites. I wondered, in such a bill—certainly there would be no risk with the present Secretary of the Interior, as dedicated as he is to conservation. But we don't know who the following Secretaries of the Interior might be. We have had some good and some very bad ones. Since the Secretary of the Interior, I believe would be the controlling officer of all public powerlines, I wonder if it would be wise to put the private power people under the power of the Secretary of the Interior for

prohibiting invasion of these areas, since the areas might be permitted to be invaded by public powerlines.

Most of our Federal power authority, I think, is under the Secretary of the Interior.

Senator TYDINGS. You are getting into an area in which I do not have a great deal of expertise. As I indicated, my primary concern here is with the conservation of national parks, forests, and monuments.

My bill is identical with Congressman Reuss'. We felt the power should lie with the Secretary of the Interior. However, I do not have any strong feeling that way. The chairman and the committee have a great deal more experience in this field, than I. To repeat, I am concerned in the main with the protection of our national heritage.

Senator MONRONEY. Any modification which would still vest the right in a government agency to prohibit the desecration of our historic sites would be consistent with this bill, however best it could be done?

Senator TYDINGS. That is right.

Senator MONRONEY. I have no fear of the present Secretary of the Interior, but they do change as time goes on.

Senator TYDINGS. Of course my bill provides for public hearing and the right of appeal for any arbitrary or capricious decision of the Secretary, just as you have under the Federal Power Commission.

Senator MONRONEY. I feel it would be a point that a lot could be made of, if the Secretary's decision prohibited private companies or lines from going into one area, and perhaps failed to prohibit a public line which might be considered to be destructive of scenic beauty or something to go into another State simply because it was not a private company. I think it would be better to put both private and public under the same jurisdiction and then an impartial decision could be made.

Senator TYDINGS. I wouldn't want to get into the middle of a public-private power dispute.

The CHAIRMAN. But you want the authority to lie somewhere?

Senator TYDINGS. That is right.

The CHAIRMAN. So someone can pass on it. I can think of a lot of people I would like to have pass on this and a lot of people I wouldn't. I am just thinking out loud now, but it might be the Federal Power Commission, which is a rotating body, as it were, although I hate to put them in the middle of this too, because if there is anything that causes controversy, it is the value of a national park. No one knows it better than the Senator from the State of Washington. But any way, I think we understand what you are trying to say.

Senator Moss?

Senator Moss. I appreciate the statement of the Senator from Maryland. And I think I understand the objective and I agree with that. Perhaps additional language might have to be worked out as to just how the standard would be applied.

As I understand in the case of Antietam, these towers do not go through the battlefield itself, but they are adjacent to it, and they are so high——

Senator TYDINGS. Eleven stories; that is right.

Senator Moss. And are visible for so far.

Senator TYDINGS. Yes, and the position of the power company is that it would be more expensive to run it on an alternative route. Of course, since they have the absolute power of eminent domain, the Governor of the State can do nothing, the board of county commissioners can do nothing, the planning and zoning commission can do nothing, the Secretary of the Interior can do nothing. In short, everyone is helpless. Potomac Edison makes a decision and that is it.

Senator Moss. If this had been a smaller line, however, with lower towers, it might very well have gone on this route and not caused damage to the scenery?

Senator TYDINGS. That is right. It is a question of the construction of the line, the design. I am not an engineer and I am not expert in all phases of this. But I understand that there are economic factors which the power company and the holding companies which control it feel are persuasive here.

Senator Moss. But the point of your bill is there will be this intrusion on the historic sites and that there should be a way to regulate it so that the intrusion would not be made?

Senator TYDINGS. That is right. Where we have preserved the battlefield and the surrounding farms, the taxpayers of the United States have contributed funds and every State whose men died in that battlefield has a monument there, there should be some way to protect the area from intrusion by public utilities.

You might be interested to know that Hood's brigade from Texas lost 90 percent of the men in his division in 1 hour and a half, 90 percent casualties, fighting at Antietam. It was perhaps one of the turning points of the Civil War. Had Lee been able to continue his march—this was his first invasion of the North so to speak—he would have been able to get supplies and produce and he would have thrown Washington into a panic, because he would have been able to flank the Capital. It was one of the decisive battles of the war.

The CHAIRMAN. We have some southerners on this committee but they are not here this morning. We could have a very interesting discussion.

Senator Pearson?

Senator PEARSON. Senator, I am with you, I am a carpetbagger, I lived in Virginia much of my life and moved to Kansas about 1950.

Is Antietam a Federal park?

Senator TYDINGS. That is right, it is a national battlefield.

Senator PEARSON. Is the condemnation under the Maryland State law?

Senator TYDINGS. Yes; the Maryland Legislature years ago passed legislation which gave the power companies the power of eminent domain. The wisdom of this legislation was questionable then and I hope the legislature recognizes the situation next year and remedies it. I feel reasonably certain that they will. But I know there are other States in the same situation as Maryland. You know the history of the State legislatures during the latter part of the 19th and 20th centuries. Specialists, particularly power companies, dominated them.

Senator PEARSON. Usually under those powers of eminent domain, if you go to court, about the only thing the court will make a determination on is whether or not the power of eminent domain is used for the purpose for which the utility or the agency was created.

Senator TYDINGS. That is right.

Senator PEARSON. And thereafter about all you can ask about is money.

Senator TYDINGS. That is right.

Senator PEARSON. And that is the case in Maryland.

Senator TYDINGS. That is exactly the case.

Senator PEARSON. So your bill would give discretion to the Secretary of the Interior, on a line 150 miles long. If it were changed away from Antietam, it might run through another national monument or park, as a hypothetical case?

Senator TYDINGS. That is conceivable.

Senator PEARSON. It is just discretionary with the Secretary of the Interior.

Senator TYDINGS. That is right. But he is required to hold a public hearing before making his decision.

Senator PEARSON. But he could hold the construction and location was proper and in the national interest, considering all of the values?

Senator TYDINGS. That is right.

Senator PEARSON. I am very grateful to the Senator.

The CHAIRMAN. Thank you, Senator.

Senator TYDINGS. Thank you, Senator Magnuson.

The CHAIRMAN. The next witness is Chairman of the Federal Power Commission, Lee White.

STATEMENT OF HON. LEE C. WHITE, CHAIRMAN, FEDERAL POWER COMMISSION; ACCOMPANIED BY JOHN A. CARVER, VICE CHAIRMAN; LAWRENCE J. O'CONNOR, JR., COMMISSIONER; CARL E. BAGGE, COMMISSIONER; RICHARD A. SOLOMON, GENERAL COUNSEL; DAVID J. BARDIN, ASSISTANT GENERAL COUNSEL; AND F. STEWART BROWN, CHIEF ENGINEER, BUREAU OF POWER

The CHAIRMAN. All right, we will hear from the Chairman of the Federal Power Commission.

Will you introduce for the record the people with you?

Mr. WHITE. Yes, Mr. Chairman.

To my far left at the table is Commissioner John Carver, who is the Vice Chairman of the Federal Power Commission during calendar year 1967.

Immediately to my left is Commissioner O'Connor. To my right is Commissioner Carl Bagge. To his right is Mr. Richard Solomon, who is the Commission's General Counsel. And to his right is Mr. David Bardin, the Assistant General Counsel in charge of legislation at the Commission. Also in the room and now joining us is Mr. Stewart Brown, who is the Commission's Chief Engineer and the head of our Bureau of Power, a man who would play a key role under the bill.

The CHAIRMAN. If this bill is enacted in some form, he will be the important person, wouldn't he?

Mr. WHITE. We Commissioners would certainly look to him, but the responsibility would be ours.

The CHAIRMAN. All right. Do you have a written statement?

Mr. WHITE. Yes, sir. It is in two sections: a rather general section which I would like to read for the record, and a much more detailed section, which we would like to have inserted as a part of the record.

The CHAIRMAN. All right. This is a very important matter and I think the committee wants to be as well informed as possible.

Mr. WHITE. Indeed it is, and that is why we have present here four members of the Commission—Commissioner Ross is out of town and unable to be present. However, he has asked me to indicate his support and I am sure the committee is aware this bill comes to the Congress with the unanimous recommendation of the FPC. As the committee also knows, we are not always unanimous on such major issues as a fundamental proposal to amend and extend considerably the Federal Power Act under which we function.

The CHAIRMAN. May I ask, Is that your map over there [indicating]?

Mr. WHITE. That was prepared by the commission staff, Mr. Chairman. Under the overlay is a map of the United States, showing the major transmission lines as of the middle of 1965. The overlay that is visible indicates the major power failures that have occurred since the blackout of November 9, 1965, in the Northeast, plus the failure that occurred in the area in the middle of the country, encompassing Iowa and Nebraska, in the year before the Northeast power failure. Between November 1965 and the present there have been 20 major power failures, 17 of them have the characteristics of cascading power failures, where systems impact on each other and then create a total or partial system collapse.

The map offers a graphic illustration of the national character of the problem. It is not the province of any particular section of the country.

The CHAIRMAN. All right.

Mr. WHITE. We welcome this opportunity to appear before the committee in support of the Electric Power Reliability Act, S. 934, introduced by yourself and 18 other Members of the Senate at the unanimous request of the Federal Power Commission.¹

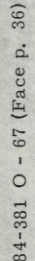
The bill seeks direct solutions to the problem of reliability of electric bulk power supply, discussed by the President in his state of the Union message and in the special message on consumer affairs. Our transmittal letter, submitting the bill, carries the advice that "the enactment of this bill would be in accord with the program of President." The committee is aware of the President's personal concern for this legislation to strengthen the reliability of the bulk power supply of the country.

The President has aptly observed the extent of the Nation's dependence on electric power in the consumer message transmitted to the Congress on February 16, 1967:

We have become almost totally reliant on electric power and on the systems that carry it to our homes, offices, factories, and farms. The Northeast blackout in November 1965—affecting 30 million people in six States and Canada—was a spectacular reminder of how vital an uninterrupted flow of electric power is to our safety, defense, health, and convenience. Subsequent power failures of lesser magnitude elsewhere in the country have intensified the concern of every citizen. The Nation's dependence on electric power requires further efforts to assure that service becomes even more reliable in the future.

¹ The cosponsors are Senators Muskie, Aiken, Bartlett, Brewster, Clark, Gruening, Jackson, Kennedy of Massachusetts, Kennedy of New York, Long of Missouri, Magnuson, Metcalf, Moss, Pastore, Pell, Ribicoff, Tydings, Williams of New Jersey, and Young of Ohio.

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FEDERAL POWER COMMISSION
RECENT MAJOR POWER INTERRUPTIONS



UNITED STATES
FEDERAL POWER COMMISSION
WASHINGTON, D. C. 20585

The subsequent PJM Middle Atlantic power failure fully confirmed this assessment. The committee has printed the transcript of the hearings held on June 6, the day after the PJM blackout.

Mr. Chairman, as you appreciate, the Commission has met in recent weeks with many members of the electric utility industry and other interested persons to explain and discuss the Electric Power Reliability Act. As you will recall, Mr. Chairman, we discussed this and I indicated to you that this was the course of action we would follow. Prior to submission to the Congress for its review, the bill itself was not discussed with any outside organization. The interest in the legislation resulting from the Middle Atlantic blackout and its great complexity convinced us it was not the type of bill on which we could secure a consensus in any reasonable period of time. Thus we elected to submit the bill to the Congress and ask that it be considered in proper order and since that time we have met with every segment of the industry to seek their criticism, views, comments, and reactions. And certainly your reference earlier this morning to regional hearings indicate that this is a major proposal that merits very careful attention by all who have an interest in this industry.

The CHAIRMAN. I just want to reiterate that a bill of this magnitude and complexity necessarily must go through many hearings and suggestions, modifications, to make the objective effective in the future. And that is what we intend to do.

Most bills, like this one, are working papers to us.

Mr. WHITE. We have submitted it, Mr. Chairman, as a workable document. We could not submit it with the assumption that it required some drastic revision, because we have a primary obligation to the Congress to submit something that we believe is rational and workable.

The CHAIRMAN. We have to look at it—we want the bill to be practical, we want it to work. And you can't always do that by just passing a law. This big job has to be a cooperative effort in my opinion, with everybody concerned, from the Government on down.

Mr. WHITE. In our talks with various industry groups we have made it clear that in our view this is a major public policy issue. In our society, it is the U.S. Congress that resolves public policy issues. We have submitted a major and earnest and sincere proposal. We also believe it is workable and practicable, but this is now for others to consider I think this is the spirit in which this hearing is being held and in which others will be held as well.

The CHAIRMAN. That is correct.

Mr. WHITE. This complex industry deals in an intricate technology, involving numerous utilities and rival sectors. We have gone into the bill in great detail with the interested parties and I believe these sessions have been most constructive. My prepared statement—the one I characterized as the detailed statement—embraces a full discussion of each section of the bill with special attention to those aspects which were of concern to those persons intimately involved in the workings of the industry. I trust that the full statement may appear in the record but I shall not attempt to read it all this morning. Instead, let me outline the fundamental problem as we see it.

The CHAIRMAN. We will put that in the record in full.

Mr. WHITE. And I would contemplate highlighting the remainder in fairly general terms, and then we will hold ourselves open for questioning.

The CHAIRMAN. All right.

Mr. WHITE. Massive power failures have dramatized for the Nation the scale of operations of the electric utility industry today. Inadequate planning, as these power failures plainly demonstrate, can lead to disruptions of electric service on a massive scale, to serious economic injuries, and, potentially, to human and community tragedy. Demands for electricity are soaring, and this industry must run very hard indeed in order merely to keep up with its present level of performance.

The industry can be assured its demands will increase every year. The question is: How much over 7 percent will the increase be? Roughly the demands on the industry double every decade. A rough estimate is that by the year 2000 we in this country will require seven times the output that was needed in 1965. This is a very serious challenge that all in the industry face and certainly all who have some governmental role, at the Federal, State, or local level, face as well.

We cannot afford not to meet these increasing demands. In some parts of the country generation reserves available for the long haul have been extremely short, raising the danger of brownouts, such as St. Louis experienced last summer and this area, to a far lesser degree, this summer. As many of you may remember, the week of the Middle Atlantic blackout was a hot week, and we in Washington were operating at about 95 percent of the normal voltage. This was a precautionary measure taken by the PJM system to reduce the total demand. It was a legitimate and successful effort. But it demonstrates, I think, the comparatively thin ice on which we were skating, if we can talk about skating on thin ice in the summer.

Viewing the country as a whole, a substantial increase in transmission capacity is essential if we are to preserve the integrity of our systems under severe disturbance and thereby avoid cascading failures of bulk power supply. Even short of total prevention, distinct advances have been made in some parts of the country and should be made in all parts of the country to assure that if a power failure occurs its impact will be minimized and service restored quickly in the affected areas. These serious problems, of which the Congress is aware, are spelled out in considerable detail in our report to the President entitled "Prevention of Power Failures," previously furnished to the committee, and to each individual Member of the Congress.

The industry, too, is aware of these problems and strives to meet them. However, the rate of progress within the industry is impeded by the multiplicity of corporations engaged in the electric utility business. The very numbers of utilities create obstacles which must be overcome.

We have over 3,500 separate utilities in this Nation. Frictions between public, private, and cooperative segments of the industry also impede cooperation in some areas, as do differences between large utilities, middle-sized utilities, and small utilities.

At the present time, plans are made by the industry, some early, some late, coordinated or uncoordinated, adequate and inadequate, and are rarely presented for any public scrutiny until it is almost too late

to do anything about it. Even manufacturers of electrical equipment need better projections to keep abreast of requirements of the industry. The emphasis must be on a timely and adequate planning procedure and exposure of plans to the public and regulatory authorities.

We have concluded, and on the basis of what I read in the newspapers I believe the public has also concluded, that the problem dramatized by the Northeast power failure of 1965, the PJM power failure of this year, and the 19 intervening major power failures calls for speedy and intensive remedial action. The public expects us, I believe, to find and implement efficient mechanisms by which the diverse utilities which make up the pluralistic electric utility industry of this country will cooperate despite the rivalries that exist among them. We believe that the public expects its government to respond positively to the challenge to prevent the recurrence of protracted power failures and to do so in the most economical way possible.

A successful program to strengthen electric system reliability will demand substantial increases in the construction of extra-high-voltage transmission lines. EHV transmission lines, because of their size, intrude upon the environment and create concern. The public is entitled to assurance that needed lines will be available to meet the Nation's ever-growing power requirements; but it is also entitled to assurance that the public interest will be respected in the following regards:

That wasteful, duplicating lines will not be constructed;

That inefficient lines will not use up our precious land resources where efficient lines could do a better job with less land; and

That all opportunities will be seized for routing and construction which respect our scenic and historic heritage.

Senator Tydings has given a dramatic illustration of this problem. We would, I think, view this as a major conflict between social values. It is perfectly clear to all of us that it is in the national interest to have adequate power available throughout the country whenever it is needed. Senator Tydings made it clear that he would by no means deny Potomac Edison some means of moving power back and forth. It is also clear that we are sensing a long overdue interest in the environment and in the esthetic characteristics of our life. When these conflict, as indeed they do conflict, there should be some mechanism whereby the public has an opportunity to know what is about to be done, and to express its views, and whereby some agency can to work out those conflicts.

As I think was suggested by Chairman Magnuson, it is a very difficult duty to undertake and you may question our sanity in even proposing that we be the agency to do it. If there is a better agency, let it be done by them. I assure you it is difficult, and yet as we look at the matter from the viewpoint of a national responsibility, we believe that it is in the Nation's interest that it be done, and we have, through this bill, volunteered ourselves for that job.

The CHAIRMAN. Well, we will seriously consider in the bill, either an amendment or some other way, the land use problems.

Mr. WHITE. One of the problems that some people in the industry have seen with our proposal is that it touches matters of land use. They say, "We thought this was a reliability bill; why are you going into these questions of land use?" Our answer is that land use is not separable from reliability. Nobody can be absolutely certain about it,

but there is reason to believe the Middle Atlantic failure would not have occurred if a major transmission line that was designed and planned and on order had been in existence and operating. The reason it wasn't operating is that the landowners in a portion of New Jersey were resisting the line. They had taken it to hearings, and they were contesting it.

I don't see, therefore, how the use of land can be separated from reliability. Our basic thesis is that much more effective transmission networks are essential for reliability and you can't have a transmission network without building transmission lines and you can't build transmission lines without putting them somewhere. And people have an interest in where they are put. We must therefore find the mechanism that will both give the interested people a hearing and permit timely decisions on transmission lines. Thus, these issues are integral parts of the same problem.

Returning now to my formal statement: The public will not long tolerate that any utility corporation—whether privately or publicly owned—should be permitted to take land for right-of-way use on its own, unreviewed say-so.

Again, Senator Tydings' statement was quite strong. I have seen many statements by Senator Brewster to the same effect. And I think it is clearly a growing problem in this Nation. Utility managers will, therefore, come to appreciate that an orderly and effective mechanism for public review of their land use programs will make for speedier construction of needed lines than present arrangements which encourage opposition and suspicion.

I believe that the public would be willing to pay a somewhat higher price for electricity—or to forgo a rate reduction, which is the more likely case—in order to secure more reliable service if, but only if, it can be assured that the utility industry has provided the increased security of service in the most efficient and economical way possible.

This is precisely what we have tried to provide in the proposed Electric Power Reliability Act: A bill which would foster cooperation among all utilities as the basic technique for assuring a high order of reliability in an efficient and economical fashion, consistent with the conservation of the national resources. We have built upon the existing mechanisms of the industry and respected its pluralistic character. We have done our best to come up with a proposal strong enough to get the job done yet acting through evolution from established techniques rather than by a radical restructuring of the industry.

It has been erroneously suggested that S. 1934 is intended to restructure the electric utility industry along monolithic lines. This is simply not so. The bill attempts instead to rely on and expand the coordinative techniques pioneered by the leaders of the industry. If coordination among diverse utilities should fail, however, then Congress might well have to look to more drastic solutions. There are some who believe that only through the formation of regional bulk power corporations could the public be assured a reliable, adequate, and economical supply of power. Thus it has been predicted that the industry will ultimately be reduced through mergers to about a dozen power companies in the entire country.

Such regional bulk power suppliers could be integrated, investor-owned—or publicly owned—holding companies, perhaps confined to selling wholesale power to numerous distributors. But we at FPC have not been persuaded that such a radical realignment of the industry should be a legislative objective. We have proposed, instead, a bill based on coordination—that is voluntary cooperation—and regulation, not amalgamation.

We believe that S. 1934 will succeed and that stronger measures will not be necessary. S. 1934 is the Commission's unanimous recommendation for a legislative solution to the problem. We believe the program proposed by S. 1934 is sound and urge its speedy enactment by the Congress.

Thank you, Mr. Chairman. That concludes the introductory portion of the statement. What follows is a detailed, fairly intricate explanation of a number of the important and critical sections of the bill. It undertakes to set forth some of the questions and criticisms that have been heard by the Commission in its earlier meetings with industry groups.

A section-by-section analysis and critique of our bill has been prepared by Mr. Lelan F. Sillin, the president and chief executive officer of Central Hudson Gas & Electric Corp. It is in printed form. It occurs to me that even though we do not share many of the views expressed there, that it would be appropriate and useful to the committee and to the members of the staff to have this available and, if there is no objection, I would like to make it available for that purpose. (See p. 125.)

The CHAIRMAN. All right.

Mr. WHITE. Additionally, spelled out in some detail in my formal statement is the description of a regional operating mechanism, in what we have characterized as the east central area of the country, covering all or parts of Michigan, Indiana, Ohio, Kentucky, Tennessee, Virginia, West Virginia, Pennsylvania, and Maryland. This, too, is a document that we believe ought to be available to the committee and to the staff and if there is no objection, we would like to offer that too.

Testimony resumes on p. 61.) (Mr. White's formal statement follows:)

STATEMENT OF LEE C. WHITE, CHAIRMAN, FEDERAL POWER COMMISSION

We are grateful to the Committee for this opportunity to present to the Committee our conclusions and legislative recommendations concerning the reliability of the Nation's bulk power supply. We deeply appreciate the early and abiding interest demonstrated by the President of the United States and reflected in the State of the Union Message [113 Cong. Rec. H25-H29, at H27] and the Special Message on Consumer Affairs [113 Cong. Rec. H1407-H1411, at H1410]. We are mindful of the attention which the Congress, in particular this Committee, and the public have given to the problem of cascading power failures which has become a matter of widespread concern since the Northeast power failure of November 9, 1965.

The Electric Power Reliability Act was transmitted to the Congress by a unanimous Federal Power Commission on June 8, 1967, and introduced as S. 1934. Our transmittal letter to the President of the Senate carries the advice that "the enactment of this bill would be in accord with the program of the President."

The bill before you was drafted by the Federal Power Commission in the light of studies made in the wake of the Northeast power failure of November 9, 1965. Our studies have enjoyed support, advice, and cooperation of leading figures from all segments of the electric utility industry, and we gratefully acknowledge the

invaluable assistance we have received. The legislation itself, however, is exclusively our own product; and I would not want to convey the impression that any utility or group of utilities or individual member of our industry advisory committees is in any way responsible for the proposal.

Since the introduction of S. 1934, and with the encouragement of Chairman Magnuson, we have met with every group that has an interest in this legislation in order to set forth the problems as we saw them, explain our proposed solutions, and answer any questions. Those who have thus consulted with the Commission or its representatives include the President and a special committee of the National Association of Railroad and Utilities Commissioners and the Executive Committee of NARUC, the President and a special committee of the Edison Electric Institute, representatives of individual utilities or power pools, the Executive Committee and a special committee of the American Public Power Association, a special committee and the General Manager, President, and a subcommittee of the National Rural Electric Cooperative Association, the President's Council on Recreation and Outdoor Beauty, and our own National Power Survey Executive Advisory Committee. These meetings have generated a constructive and useful dialogue concerning aims and means. Every meeting, without exception, has raised at least one fresh question deserving of serious attention, and I shall in this statement report to you concerns and suggestions which we have heard in connection with S. 1934.

We have urged every group with which we discussed the bill to consider it carefully and to come forward both with criticisms of the bill and with proposed alternatives. A memorandum analyzing the bill in great detail has been made available to us, by Mr. Lelan F. Sillin, Jr., the President and Chief Executive Officer of Central Hudson Gas & Electric Corporation. Although our analysis does not correspond with his, in many important instances, as our discussion will show, I believe that this memorandum, dated August 10, 1967, should be available to the Committee in its consideration of the bill. Accordingly, Mr. Chairman, I would like to offer a copy for the use of the Committee and its staff.

One of the industry leaders who met with us correctly pinpointed the real issue raised by S. 1934: Is it a workable solution to the reliability problem? If it is workable, he said, I will support it. If not I will instead support an alternative which does work.

We agree that workability, rather than any abstract prerogatives of management or of government, should be the key test. In my testimony today I shall try to describe to you the way in which we think the bill should work and will work as a practical matter.

OUTLINE OF THE PROBLEM

I would like to explain at the start how we at the Federal Power Commission developed the Electric Power Reliability Act. The bill grows out of our sense that there is a problem—illustrated by the massive power failures—which requires correction. Although a few may believe that the electric utility industry and its institutions are perfect, we have come to the conclusion that despite its remarkably high level of performance there is a need to take action to avoid the kind of cascading power failures which hit the Northeast in 1965, the Missouri Basin in 1965 and 1966, the mid-Atlantic States this year and a number of smaller areas at various times. Our fundamental conclusions, detailed in our final report to the President, entitled *Prevention of Power Failures*, are:

(1) That electric utility technology permits the industry to secure a higher standard of reliability, under which the cascading power failures we have experienced could have been prevented altogether, or at least localized;

(2) That effective adherence to more stringent reliability criteria will require the numerous and diverse utilities which comprise the industry to expand their planning horizons to a broad regional scale and to accelerate the design and construction of extra-high-voltage transmission capacity to tie strongly together the various generators in the nation's electric power networks;

(3) That an effective regional coordination effort should be able to secure these reliability objectives at a reasonable cost, consistent with the national goals of an abundant and economical supply of electric energy;

(4) That regional coordination should give early and careful consideration to land, air and water use planning when plans are still flexible; conservation of the environment and coordination with responsible agencies should play a vital role in securing timely approvals of needed construction;

(5) That an appropriate evolutionary means for achieving more stringent reliability standards is the creation of regional reliability organizations to coordinate the planning of the power networks; and

(6) That the regional coordination program be conducted in such a way as to assure just and fair treatment of each affected utility.

These conclusions are equally valid for all segments of the industry: investor-owned, public, Federal and cooperative. If regional coordination is to do the job, it must have the support and participation of all sectors of the utility industry. When utilities are interconnected, the existence of one weak link may endanger the reliability of all. It is essential, therefore, that each management, regardless of its ownership or structure, plan for the protection of other utilities' customers as well as its own. In this sense, reliability is more difficult to achieve than it was in the days of small, isolated utilities. It is now necessary to correct remediable weaknesses that can cause an interconnected network to collapse. This requires joint planning and constant cooperation—and such cooperation demands painstaking effort and understanding both to bridge differences among the four segments composing the industry's structure and to extend more broadly among the numerous utilities within the various segments. The sheer number of utilities creates a major challenge. We believe that regional coordination is the best means to assure that the needed planning and cooperation become the rule.

This country is fortunate in having a dedicated group of executives guiding the performance of its electric utilities. Reliability in the future, as in the past, will depend most heavily on their managerial skill and foresight. We recognize management responsibility and initiative as the basis upon which the utilities have successfully performed their public service obligations. Why then the need for legislation? Simply because the scale of technology has now progressed to the point where utilities are interdependent. Management of individual utilities can no longer stand alone and meet their responsibilities. This bill seeks to provide additional coordinating tools which will enable utility management to exercise its responsibility most effectively in a new technological era.

The conclusions grow out of our detailed study set forth in our final report to the President, entitled *Prevention of Power Failures*. We have supplied copies of this report to each member of the Committee and to the Staff. The report deals both with the specific experience in the Northeast and with the Nation as a whole. It discusses basic problems, and it outlines general programs to solve them. It does not consider, however, specific means such as the legislation which is now before you.

The report is in three volumes. Volume I is the report of the Commission itself including a description of our studies and 34 numbered recommendations and conclusions (appearing at pages 87-95).

Volume II is the report of the Advisory Committee on Reliability of Electric Bulk Power Supply. The Advisory Committee consisted of 12 experts in electric utility system planning and operation and related technology drawn from all four segments of the electric utility industry (investor-owned, Federal, municipal-state and cooperative), from the state commissions, and from the academic community. The Chairman of the Committee was J. K. Busby, the President of Pennsylvania Power and Light Company, and the two Vice Chairmen were C. P. Almon, Jr., Director of Power System Operations of the Tennessee Valley Authority and T. J. Nagel, Vice President—System Planning, of the American Electric Power Service Corporation. The Advisory Committee has taken a broad view of the nationwide challenges to reliability and has come up with 12 major conclusions (summarized at pages 26-28). We have drawn heavily upon ideas generated by the Advisory Committee in developing our own thinking that led to the drafting of S. 1934. I reiterate, however, that no member of the Advisory Committee has recommended legislation as a means of securing implementation of their recommendations or has had any hand in drafting our own legislative proposal.

Volume III of the report represents the studies of the task groups that examined in depth the Northeast power interruption and includes at the start the critique of the Advisory Panel on the Northeast Power Failure. The task groups were made up of utility personnel from the Northeast itself. The advisory panel consisted of 14 experts from other parts of the country.

OBJECTIVES OF THE BILL

The objectives of the bill, as stated in section 401(b), are broad but are all related to, and designed to further, the policy of section 202(a) to assure "an

abundant supply of electric energy throughout the United States with the greatest possible economy and with regard to the proper utilization and conservation of natural resources." S. 1934 would both further and elaborate that policy, emphasizing as it does enhancement of reliability, strengthening of coordination, comprehensive development of power resources (both technological and natural) with due regard for conservation, access for all utilities to the benefits of coordination and the use of extra-high-voltage transmission, respect, so far as the public interest allows, for territorial integrity of service areas, and cooperation by all sectors of the industry. These objectives, we believe, state generally but clearly what we believe must be considered to achieve reliability in harmony with the broad national goals of abundant and economical power supply and resource conservation. We believe such standards are essential to provide reasonable flexibility in administering the proposed Part IV.

We have heard it suggested that these objectives are too broad, or too vague. We have seen no specific suggestions for making this group of standards more specific. However, one commentator has curiously implied that a standard of "public interest" or "just and reasonable" would be more appropriate as a test of the adequacy of industry performance under the bill.

BULK POWER SUPPLY VERSUS DISTRIBUTION

We are accustomed to occasional local failures when a portion of the distribution system of a utility fails to function. It is a mark of the success of the industry in providing dependable service that only in recent months has the public become aware of the different problem of reliability of bulk power supply. We are now talking about the overall supply of power from the generators and transmission lines of a network, not just a particular local supply. Interruptions of a given bulk power supply affect all dependent distribution services and, therefore, are more widespread than interruptions limited to the distribution system. Furthermore, the problems involved in restoring service following an interruption of bulk power facilities may be much more complex than those involved in restoring service to the distribution system in a localized area.

WHAT IS RELIABILITY?

What do we mean by reliability? The Advisory Committee defined reliability [Volume II, page i] as: the degree of assurance of a bulk power supply system in delivering electricity to major points of distribution.

The Commission's own report goes a little further, as follows [Volume I, page xiii]:

As used in this report, the term "reliability" means the ability of a utility system or group of systems to maintain the supply of power. Reliability is gauged by the infrequency of interruption, the size of the area affected, and the quickness with which the bulk power supply is restored if interrupted. For many reasons it is not possible to provide an infallible source of power, but the probability of interruption and the area affected can be greatly minimized by following sound practices in planning and operating power systems.

Recently, Chairman Magnuson has challenged us to expand on the concept of reliability and the distinction, if any, between reliability as we saw it and 100 percent assurance of service. My answer seems pertinent here:

1. Reliability is basically the ability of a power system to deliver power continuously. In the context of S. 1934, it refers to the ability of a bulk power system to deliver power to points of distribution. It can be gauged by the infrequency of interruptions and by the extent and duration of interruptions when they do occur. The difficulty in defining reliability really arises in determining what standard of reliability we want and can hope for. It is not feasible to construct a power system that is proof against absolutely every conceivable disaster. But we can take as a basis that a system should be able to meet every foreseeable load; that is, to avoid shortages caused by an insufficiency of generation or transmission capacity.

I might mention here an example which illustrates the importance of this aspect of reliability planning. Last summer the St. Louis area suffered a curtailment, or "brownout" of about 300 megawatts. The generating capacity available locally was simply inadequate to carry the load that would have been imposed—about 3,500 megawatts. The shortage was partly made up by imports of energy from the north and east, but the available transmission ties were able to move only about 176 megawatts, much less than was needed to provide

normal service. All interruptible loads were dropped, and almost 250 megawatts of firm service loads were shut off on a rotating basis. The total interruption of these loads lasted 14 hours on the first day, and 8 hours the second. The St. Louis shortage lasted less than two days, but it is quite possible for such a condition to last longer; a prolonged heat wave, for instance, might require curtailment of service for many days at a time. My reply to Chairman Magnuson goes on:

That of course implies that reliability depends very heavily on the quality of planning that goes into the system, and that accurate forecasting of loads and allowance for possible delays in obtaining needed equipment are important to good planning.

A basic standard of reliability must also include provision for meeting emergencies (such as those caused by operating errors or equipment failures). Emergencies, in the sense of events other than increases in demand, are bound to occur more or less at random. It is technically possible to plan a system which can withstand any defined emergency without actual interruption of service. In system planning, it is usual to take account of relatively uncommon, and relatively serious contingencies. One might, for instance, design a system that would remain stable in spite of the loss of the largest generating unit. This system would be less reliable than one designed to withstand the loss of the largest generating plant. Here again, reliability starts with planning, and the more severe the contingencies that are planned for and guarded against, the more reliable the system will be.

The Northeast power failure of 1965 illustrates this second component. The transmission network in the Northeast and connections to the south and west were not planned to withstand such a surge, as high as 1,700 megawatts, as was imposed upon it. Under the impact the network became unstable and ceased to function as an integrated whole. Transmission ties separated, subdividing the Northeast into several electrical "islands", isolated from one another and from the rest of the country.

Still a third aspect of reliability is the system's capacity to minimize trouble if it does start, and to restore interrupted service as quickly as possible. Thus automatic load shedding procedures and provisions for quick restoration of service contribute to reliability even though they come into play when service has actually begun to fail.

The Northeast failure also illustrates this third aspect of reliability: In most of the island areas, loads exceeded generation to such an extent that the inherent automatic response of the generators could not restore equilibrium. In this emergency situation, automatic shedding of part of the load might have restored equilibrium, prevented a total blackout, and thus have permitted early resumption of service to the loads temporarily shed. But the utilities in the Northeast had not planned or installed automatic load shedding devices.

These are the fundamental concepts of reliability. Perhaps the most important common feature of them all is that they are planning concepts; reliability is in very large part a matter of planning, and not merely a result of careful, on-the-spot operation.

THE NEED FOR STRONGER TRANSMISSION

What steps, then, are needed to avoid the kind of cascading power failures which have occurred? At the risk of oversimplification, we believe the foremost need is for greater capacity in the transmission systems tying together the bulk power networks in this country. Weak ties can give a dangerous illusion of reliability. Strong transmission systems (including both internal transmission and interconnection) are essential to achieve a high order of bulk power reliability while preserving the economies of interconnected system operation developed by the industry over the decades. The Advisory Committee expresses this need in its discussion of the importance of additional EHV (extra-high-voltage) transmission lines [Volume II, page 26]:

Spreading power failures are basically the result of the inability of transmission facilities within and between power systems to withstand the sudden impact of disturbances caused either by equipment failure or operating deficiencies.

The increased use of properly planned high capacity transmission (particularly in the extra-high-voltage category of 345,000 volts and above) in most instances can eliminate this problem. In practically all cases, load growth will provide economic justification for the construction of these lines.

It is of the utmost importance that the public and governmental authorities cooperate to facilitate the industry's construction of these necessary transmission lines. * * *

We have estimated that the cumulative capital outlays needed to build an adequate transmission system will amount to roughly 8 billion dollars between now and 1975. It appears on the basis of past trends that the industry may have been planning to expend about 5 billion dollars of this amount.

So in a very rough sense the direct cost of a reliability program is in the order of 3 billion dollars of additional capital resources. Even if there were no offsetting economies, the annual charges associated with this amount would represent only two percent of the electric utility industry's total cost of doing business. In my judgment, the public would be willing to incur a reasonable cost and to forego part of the rate decreases which might otherwise be called for in order to secure such a strengthened transmission system. There are some offsetting economies, however, which we believe will permit the adoption of an accelerated timetable of transmission construction and thereby increase the standard of bulk power network reliability without substantially increasing costs of electricity in many parts of the United States. As the Advisory Committee urges [Volume II, page 27] :

The electric power industry should pursue every opportunity to accelerate the development of properly planned interconnections among individual systems. Rather than providing a means for propagating interruptions, strong interconnections enhance reliability while making it possible to pursue inherent economies of scale.

The Commission has concluded [Volume I, page 89] :

Transmission facilities should be critically reviewed throughout the Nation, and planning and construction of needed additions should be accelerated on schedules which will provide ample transmission capacity to meet a broad range of potential needs for both reliability and economy as they occur.

RELIABILITY AND ECONOMY

As the Advisory Committee report makes clear, and as one would expect in our society, reliability concepts are firmly tied to concepts of cost-effectiveness. At this point it might be helpful to show how it can be true that greater reliability and greater economy can result from the same additions to electric system plant. I will attempt to do so, in a simplified way, by considering three of the major factors that can contribute to the achievement of a higher standard of reliability. If all other factors were constant, a utility could achieve a higher degree of reliability by varying any one of these intertwined factors: The first is generating reserves, the margin by which the generating capacity available exceeds that required by the system to meet its maximum demands. If we increase the spinning reserve margin, the system will be better able to withstand many sudden demands. However, the installation and operation of large generating reserves is a relatively expensive method of increasing reliability. Generating equipment is the most costly component of a utility's investment. The second alternative is to reduce the amount of generating capacity that can be lost as the result of a single failure, by holding down generator and plant sizes. The practical effect of reducing the unit size is to compel the construction of numerous small generators rather than a few large ones. This approach to greater reliability is also costly, since the larger a generating unit is the less it costs per kilowatt of capacity and per kilowatt-hour of output. Large generators are generally cheaper to build, install and operate than an equivalent number of smaller units. The third alternative is to increase, by constructing adequate transmission ties, the size of the area within which the loss of a generating unit can be made up by assistance from other units. This method of increasing reliability eliminates duplication of extra generating capacity, and permits the economies of scale available through large generating facilities. It also affords the instantaneous support of many generating units to make up for the sudden loss of generation in any particular area of the interconnected system. Consequently, it is generally the most dependable and the most economical method of reaching a higher standard of reliability for the various emergency conditions that may be encountered in the operation of modern power systems. It is important to bear in mind that the transmission lines must be strong enough to withstand major disturbances, or the expected improvement in reliability will not materialize. An interconnection that is loaded to capacity by normal power flows will not be of much assistance during system disturbances. By its nature, large-scale transmission planning usually requires the

participation of two or more utilities, whereas other approaches to increased reliability can seemingly be pursued without reference to neighboring utilities. The independence which these other methods seem to offer is largely illusory, since one utility's generation policies may indeed affect another's reliability. Moreover, since transmission ties are normally the essential instrument for achieving reliability the need for coordination is both evident and pervasive.

There are certain other economies that are available through coordination made possible by the construction of strong transmission links. The inevitable difference in efficiency between generating units can be turned to advantage if sufficient interconnections are in service; the most efficient units can be used to provide base load service, while the less efficient are kept for part time service of peak loads or for emergencies. Adequate transmission ties may make possible the use of the diversities that exist between the load patterns of different utilities. Strong transmission ties can make it possible for smaller utilities, by joint undertakings, to enjoy the economy of large generating units which individually they could neither afford nor use advantageously. Transmission ties of adequate strength can allow the interconnected systems to stagger their construction generation in such a way that all achieve useful savings. The load growth of a utility is generally gradual, the curve approximating a straight line. Capacity, on the other hand, increases by large jumps at relatively infrequent intervals, as new generators are put into service. The result is that, if a utility builds only for its own needs, it must either sacrifice economies of scale by building numerous small units rather than a few large ones, or else have large blocks of generation idle while load growth catches up with installed capacity. On the other hand, if several systems are interconnected adequately, one can build a large unit and sell the excess capacity to its neighbors until its own load is sufficient to absorb the total output. The other systems can in turn schedule construction for times when loads are more nearly in balance with the increase in capacity. By alternating in this way, a group of systems can use transmission ties to promote both reliability and economy.

Economies of this kind can offset at least a substantial part of the cost of an accelerated transmission construction program. We do not believe the utility industry will have difficulty in raising the capital needed for such a program. We do believe, however, that not only will the industry need government assistance in securing rights-of-way, but that it confronts formidable coordination challenges because of the number of separately owned utilities in the industry.

REGIONAL COORDINATION

The planning of adequate transmission systems on a broad regional scale will require the whole-hearted cooperation of numerous utilities, differing in size and in ownership characteristics, to compile, test, and evaluate the overall reliability programs of individual utilities and power pools. We must recall that this is an industry composed of over 3,500 utilities. Coordination does not come easily. The Commission's report recognizes and discusses some of the unsolved problems which confront expanded coordination in this industry [Volume I, pages 38-39, "Continuing Problems"]. Yet the industry must rapidly evolve toward such broad planning. It has already developed some mechanisms for doing the job, and the objective is to extend the best ideas and best practices currently applied in some parts of the country until they are in use fully throughout the nation. Of course, we must make allowances for relevant regional differences. In some areas, there are already strong transmission systems and a significant amount of coordination; in others, a large proportion of the job is still to be done. Some areas are rich in fossil fuels, some in water power resources, some in neither. The Advisory Committee has emphasized the need for regional coordination, urging that it be "vigorously pursued since such coordination offers the most effective and economical means for assuring bulk power supply for the nation". [Volume II, page 27]. This is the subject of the Commission's recommendation Number 1. [Volume I, page 88]:

1. To the extent they do not now exist, strong regional organizations need to be established throughout the nation, for coordinating the planning, construction, operation and maintenance of individual bulk power supply systems.

a. In view of the rapid growth of the industry and the urgent need for accelerated coordination, the service areas of the 48 contiguous states should be grouped into regions, each to be served by a coordinating organization which would include representation from all utilities in the region.

These organizations should be provided with ample funds by member utilities and have procedures for effective coordinating actions. In the years ahead, utility management cannot fully discharge its responsibilities without intensive participation in coordinating activities. All participating utilities should respect the legitimate interests of adjoining utilities.

b. Representation of systems in regional organizations should be grouped to facilitate progressive improvement in coordination

Coordination of planning and operation of bulk power supplies on a regional basis cannot be performed efficiently by a large number of people such as might be assembled if every utility in a region were individually represented. Qualified representatives of groups of systems will produce effective results. Technical committees with limited, rotating membership have proven workable and effective.

The concept of regional coordination (as contrasted with either small-scale or national pooling) would be implemented under the Electric Power Reliability Act through the establishment of regional councils for reliability coordination. The regional council concept is, we believe, the most vital ingredient of S. 1934. And it is around the regional council that we have built the regulatory mechanisms of minimum reliability standards and review of extra-high voltage transmission line projects.

THE REGIONAL COUNCIL CONCEPT

What then is the regional council proposed by the bill, and how would it work? The council is to be an organization of utilities, not a Federal agency. Its creation will be fostered and encouraged by the Federal government, but its funds will come from the utilities themselves, and its decisions will be made by them. The regional council is intended to provide the effective means by which each individual utility management (privately, publicly, cooperatively or Federally owned) may work with other managements to secure reliability on the regional scale which the present and future technology necessitates. It is designed to realize the recommendation made by the Advisory Committee [Volume II, page 5]:

The growing complexity of power systems, the installation of increasingly large generating units and plants, and the accelerated use of extra-high-voltage (EHV) transmission have expanded the size of areas requiring careful study for reliability purposes. Such areas, nevertheless, would be limited in geographical extent since any disturbance in a well-integrated area-network will dissipate widely and its effect on other facilities will attenuate with distance. * * * Thus, without minimizing the need for coordination among areas, maximum bulk power-system reliability can be met by coordination within such expanded but, nevertheless, geographically-limited areas.

The concept of area or regional coordination permits the development of practical working arrangements among power systems by keeping to manageable size the number of separate, participating entities, which need to communicate and cooperate closely. The extensive geographical size of the United States, its high level of power usage compared to most other countries, and the fact that the electric power industry is composed of many independent systems, are further reasons why effective coordination is practicable only on an area or regional basis.

The Advisory Committee went on [Volume II, page 6] to advocate:

The development of contractual arrangements to formalize the purposes, functions, organizational structure and procedures for carrying out effective regional coordination. Within the framework of such arrangements there are likely to be opportunities for achieving substantial economies through bi-lateral or multi-lateral agreements among the participating systems but the primary function of the broad general agreement must be the assurance of area reliability.

Thus the Advisory Committee pointed up that new institutional arrangements created to prevent further blackouts could create opportunities for "substantial economies" consistently with their primary function. The Advisory Committee specifically urged [*ibid.*]:

The establishment of effective organizations and procedures to implement the necessary coordination among planning, engineering and operating personnel of the participating utilities, with assigned responsibility to review, adjudge, report upon, and effectuate utility plans and practices within the area affecting bulk power system reliability.

Such organizations would be responsible for compiling necessary information on facilities and planned facilities in the region, and on predicted loads. The-

organizations would have to adopt reliability criteria against which to audit and review the facilities and programs of the industry in the region. The organization would have to secure (or conduct) appropriate high-speed computer tests of industry programs against regional reliability criteria and identify any weak spots in the existing regional bulk power system or in the proposed expansions of the system. We believe, although the Advisory Committee did not specify, that such a regional organization would normally require some technical staff of its own to work full-time on reliability viewed on the regional scale.

ARE THERE ANY REGIONAL COUNCILS IN EXISTENCE TODAY?

Considering the broad representation of respected experts on the Advisory Committee and the persuasiveness of their approach it would seem odd indeed if the electric utility industry had done nothing to create the kind of regional coordination bodies described above. In fact, the industry has taken some steps to extend the planning pool concept to the regional scale, and we expect a continued movement in this direction. We expect that further progress will be made and that consideration and enactment of S. 1934 will accelerate this natural evolution of industry institutions.

It may be helpful to describe one of the existing regional coordination councils as a prelude to considering the workings of the program proposed by S. 1934. I have selected the arrangements initiated in the East Central Area in January of this year, not because that organization is matured or perfect, but because it is one notable beginning and shows hopeful signs of moving further in the right direction.

The East Central Area includes all or part of Indiana, Ohio, Kentucky, Virginia, Maryland, Tennessee, West Virginia, Michigan and Pennsylvania. In January the 23 largest investor-owned utilities (including three holding companies) in the region entered into a "Reliability Coordination Agreement". Other investor-owned, publicly-owned and cooperatively-owned utilities were not consulted in the prior negotiations. This month, however, one cooperatively-owned G&T was admitted. So far as we are aware, other cooperative, investor-owned and public bodies in the region have not been invited to join either individually or as a group, nor have they requested an opportunity to join.

The purpose of the so-called ECA Reliability Coordination Agreement is further to augment reliability of the parties' bulk power supply through coordination of the parties' planning and operation of their generation and transmission facilities.

Understandably, considering the purely contractual status of the Agreement, none of the parties undertake responsibility for reliability outside his own system. The agreement sets up a representative Executive Board to formulate operating principles. The Board is to meet quarterly and was originally to operate by unanimous consent only. (The principle of unanimity is common to electric utility coordination agreements. It carries numerous advantages, but also a built-in source of delay.) The Agreement has recently been amended, effective the 1st of this month, to permit decision by representatives of utilities whose annual peak demand (kw) amount to 95 percent of regional demand.

The Agreement creates a Coordination Review Committee, which meets monthly to review and evaluate the plans and pertinent operating procedures drawn up by individual members and groups of members from the standpoint of regional reliability. The Committee is to assist the Executive Board in developing principles and procedures relevant to such matters as minimum installed capacity and spinning reserves to be provided by each party by ownership or contract, the distribution of spinning reserves, coordination of generation and transmission maintenance, emergency measures, communications, protection, and the evaluation and simulated testing of systems' performance.

The Committee is also to carry out studies of the adequacy of generating and transmission facilities and operating practices within the region, and report its results to the Executive Board. The Committee is entitled to receive from the individual utilities "such studies and data as it shall reasonably request".

The Committee may take action by two-thirds vote of the members, dissenters being entitled to submit minority reports. Both Board and Committee consist of representatives of utilities (one per utility or holding company). Each utility pays the direct expenses of its representative.

The Agreement provides for a full-time staff headed by an Executive Manager, to assist the companies in putting the principles developed by the Executive Board

into effect, and for several advisory panels of experts paid by the individual companies to assist the Committee on such subjects as generation, transmission, protection and operations. An engineer of stature within the profession has been selected as the first Executive Manager. The Agreement leaves division of joint expenses to the Board. We understand that a formula has been adopted which is partially weighted in terms of utility size.

The Agreement states that it is subject to all requisite government approvals. The Commission has not thus far asserted jurisdiction over such contracts under Part II of the Act, although they may be subject to the requirements of sections 205 and 206 to the extent that the parties are subject to FPC jurisdiction. No regulatory agency personnel have been attending Board or Committee meetings. Minutes have not been made available to the public.

I have described the organization of the East Central Region at some length because I think it offers some good examples of how regional coordination might work. For this reason, I believe the Committee should have copies of the ECA Agreement, dated January 14, 1967, and have therefore submitted them, Mr. Chairman, for the use of the Committee. It should be clear from S. 1934 that in our view, as encouraging as this East Central Area regional council is, regional planning organizations can and should be even more effective. Although there is no reason to believe that any two regional councils need be identical, all should be effective to meet the problems in the region. We find it disappointing that the Northeast Power Coordinating Council, created by utilities in the area affected by the November 9, 1965 blackout, is a far weaker organization.

HOW WOULD REGIONAL COUNCILS BE SET UP UNDER S. 1934?

If S. 1934 were enacted tomorrow, our first responsibility would be to extend the regional council concept to every region of the country so as to make its benefits fully available to every utility and its customers. We have not drafted a set of tentative regulations to implement the bill because we believe it preferable, as proposed section 404(a) provides, for the Commission to engage first in a full round of consultation with State commissions and utilities. I can in general terms, however, suggest what we would do upon enactment.

The Commission would have to consult with interested agencies and utilities to select the appropriate initial regions for reliability coordination. We now employ six regions for purposes of updating the National Power Survey. These would not necessarily be appropriate for reliability purposes. Existing planning organizations might be expected to ask that their grouping form the geographic limits; State commissions might suggest considerations of regulatory convenience. In any event, the regions would have to be large enough to be able to deal with substantial reliability problems at the present scale of technology yet small enough to permit manageable functioning of the regional council. Coordination between adjacent regions would also be considered. To this end, the bill permits regions to overlap, so that one utility might join two regional councils.

The next step will be to "secure the establishment" of regional councils. The phrase has been selected advisedly, since we contemplate establishment of councils by the utilities themselves rather than by Federal fiat. In some regions, an existing organization may offer to serve as the nucleus for a council, or as the regional council itself. In other regions, one or more utilities or state commissions may call a meeting to create a statutory council. If need be, the Commission could invite one or more leaders of the States or the industry to initiate discussions, or could call a conference itself. In practice, we do not believe that this step would present great difficulties.

Each council's first job would be to adopt a charter, a statement of organization and to present it to the Commission.

The Commission would have both informal and formal review powers. It would be responsible for assuring the overall fairness of the organizing charter. The bill itself requires that the councils be open to membership "by each electric system in the region whatever the nature of its ownership". This carries out, but also goes beyond one recommendation of the Advisory Committee for [II: 6]:

The inclusion in such regional groups of systems from all segments of the power industry whose planning and operation can have a major effect upon the reliability of the overall bulk power supply to the area.

We agree that none of the principal bulk power suppliers should be excluded from reliability coordination on the ground that they are differently owned or financed from the predominant group in the particular region. We also believe that the smaller utilities, which may collectively affect bulk power reliability

and which are certainly affected by bulk power reliability in the region, should be entitled to participate. The bill recognizes, however, that it may be more appropriate for the smaller systems to participate indirectly, by grouping themselves and securing a single representative.

The bill contemplates that the Commission shall have a staff representative participating in the discussions, but not the votes, of the council. Our section-by-section analysis [113 Cong. Rec. S7952-S7954 at S7952] indicates that the charter would be expected to provide opportunity for appropriate participation by State commissions along similar lines. The precise role of the State commissions might vary in different regions and that is the only reason why the bill does not specify a relationship, but leaves it for development in each area. Obviously the Commission would give the greatest weight to the desires of the State commissions themselves in this regard.

Other issues which would probably arise on review of a proposed regional council charter would include provisions for voting and expression of minority views, including appropriate arrangements for avoiding any incentive to fragment utility operations in order to secure more votes. By the same token, we would expect the statements of organization to set forth a reasonable formula for contributing to the administrative expenses of the council.

The regional council statements of organization would at all times be open for public inspection, and the Commission would publish notice whenever such a statement (or an amendment thereto) were filed and would permit public comment of the statement submitted. If the Commission felt a proposed council organization were improper and inconsistent with the statutory objectives, it would try to resolve the matter informally. The bill does, however, give the Commission authority, after a formal hearing and subject to all the safeguards of judicial review, to order a change in a statement of organization submitted by a regional council. That provision, section 404(c), also provides limited antitrust immunity for all actions taken pursuant to a statement of organization which has formally been approved by the Commission including a finding that "the effect of the statement upon competition will be in substantial or will be clearly outweighed by other public interest considerations". It seemed only fair that when the Federal government is asking businessmen to meet frequently and to work closely together to help overcome a national problem that it protect them from incurring technical antitrust liability for doing exactly what they have been requested to do. The immunity is intended to cover antitrust suits, both for regular or treble damages and for injunction, but not suits by the Antitrust Division of the Justice Department. The bill inadvertently cited only section 4 of the Clayton Act, but as our letter of July 18, 1967 to the Chairman pointed out it was intended to immunize also from those actions specified in section 16.¹

THE REGIONAL COUNCILS IN OPERATION

I have indicated so far, in a general way, the kinds of problems which may arise in establishing the regional councils. Now I think it would be useful to consider how they would carry out their functions. Section 404 attempts to draw on the tremendous reserves of knowledge and experience which the industry can bring to bear on the solution of bulk power problems. It is the antithesis of centralized government planning. The initiative for new construction and new patterns of operation will rest where it belongs—with the operating utilities

¹ SEC. 4. Suits by persons injured; amount of recovery.

Any person who shall be injured in his business or property by reason of anything forbidden in the antitrust laws may sue therefor in any district court of the United States in the district in which the defendant resides or is found or has an agent, without respect to the amount in controversy, and shall recover threefold the damages by him sustained, and the cost of suit, including a reasonable attorney's fee.

SEC. 16. Injunctive relief for private parties; exception.

Any person, firm, corporation, or association shall be entitled to sue for and have injunctive relief, in any court of the United States having jurisdiction over the parties, against threatened loss or damage by a violation of the antitrust laws, including sections 13, 14, 18 and 19 of this title, when and under the same conditions and principles as injunctive relief against threatened conduct that will cause loss or damage is granted by courts of equity, under the rules governing such proceedings, and upon the execution of a proper bond against damages for an injunction improvidently granted and a showing that the danger of irreparable loss or damage is immediate, a preliminary injunction may issue: *Provided*, That nothing herein contained shall be construed to entitle any person, firm, corporation, or association except the United States, to bring suit in equity for injunctive relief against any common carrier subject to the provisions of the Act to regulate commerce, approved February fourth, eighteen hundred and eight-seven, in respect of any matter subject to the regulation, supervision, or other jurisdiction of the Interstate Commerce Commission.

themselves. The councils because of their inclusive character, and the availability to them of information about the needs and plans of all utilities in the region, will be able to stimulate suggestions for and help formulate more far-reaching plans than any individual utility or small group, acting without certain knowledge of its neighbor's plans, could safely embark upon alone.

The provision for FPC staff participation in the work of the regional councils is not designed to give the Commission any sort of veto or control over the council's decision making. The FPC representative, as the bill states, would take no part in "the ultimate adoption of plans or any other council actions". His function would be that of a public representative, charged with reviewing and criticizing—in much the same manner as the council's own staff—the plans and agreements arrived at by individual council members and local groupings of systems within the region. He would also provide a useful liaison between the council and the Commission. As a public representative, the FPC representatives would view the plans and agreements of council members primarily from the standpoint of protection of the public interest. I believe there is a definite need for such protection and such a public presence within the councils. The public at large will be vitally affected by the decisions made there, and should be represented. Since the FPC would be empowered to grant limited antitrust immunity to the organization's charter and plans developed by it, we deem it essential that a Federal officer or employee be present at all sessions held by the council.

Among the first tasks I would expect a regional council to undertake are the development of reliability criteria appropriate to its region and the audit of all bulk power facilities in the region (including projected facilities not yet constructed) in light of such criteria. In undertaking these assignments, the techniques which are now part of the planning process in all progressive utilities and power pools would be employed on a regional scale. Planning analyses must examine the system elements required to supply forecasted loads and also survive unexpected, but possible, contingencies without major system power failures. An example of a planning criterion in widespread acceptance in the industry is the requirement that a power pool be able to survive the forced outage of any generating unit, even the largest then in service without any power failure. The Commission subscribes to the Advisory Committee's recommendation of a more stringent general criterion of ability to withstand "the outage of any power plant, including the largest", which may involve the unexpected, sudden loss of several generating units at one plant [Volume II, page 14].

RELIABILITY CRITERIA

The planning criteria selected by the regional councils would be submitted directly to the Commission under proposed section 408. The Commission would be responsible for reviewing such criteria both from the national and the regional points of view. The appropriate criteria might well vary among regions because of important differences in such factors as load distribution. In reviewing reliability criteria suggested either by the regional councils or by others, the Commission could secure the advice of technical experts pursuant to section 406. The Commission's experience in the investigation of major power failures has convinced us that electric utility experts selected by the Commission for their technical proficiency can provide an invaluable source of critical advice in these and other matters.

Criteria approved by the Commission, after public notice and opportunity to comment in a rulemaking proceeding would have the force of law. (The Commission would not be empowered, however, to direct the design of particular facilities.) The need for uniform binding reliability criteria is illustrated by the recent P-J-M Power Failure of June 5, 1967. At that time, there were plans or facilities to shed only a slight fraction of the P-J-M Power Pool load in case of an emergency. The limited provision for automatic load shedding in P-J-M was not enough to have any one of the utilities. Equally important, if enough utilities had participated to save the pool but if other utilities had not participated, a gross inequity would have arisen since one group of utilities and some of their customers would be bailing out the remaining non-participating members of the pool. The lesson, then, in load shedding as in so many other aspects of interconnected system reliability is that every interconnected utility must participate in order to avoid weak links and unfair assumption of burdens. The regulatory provisions of section 408 assure just that.

It has been suggested to us that it might be well to define the roles of the State commissions in the matter of reliability criteria. In the past, the selection of

criteria has been vested almost exclusively in utility managements despite the vital public stake in the matter. We believe that now is the time for State and Federal Governments to focus upon their appropriate responsibilities.

Design of particular facilities should remain completely outside the scope of this bill. Even the planning decisions, although influenced by Commission responsibilities under other parts of S. 1934, would not be controlled by the reliability criteria prescribed under section 408 since the criteria would have to be of general applicability and could therefore be satisfied by more than one alternative plan.

We have been asked whether section 408 might authorize not only those reasonable regulations which enhanced reliable system planning and operation, but also any other reasonable regulations which accord with the overall objectives of the statute, as summarized in section 401(b)—even regulations unrelated to reliability. We do not believe section 408 goes that far; certainly that is not our intent. Section 408 is restricted to reliability criteria, and is further restricted in that the regulations must not only be reasonable but also in accordance with the statutory objectives. The reason for a further restriction is to make clear that reliability regulation is a balancing process in which public policy must decide whether an increment in reliability is worth the price of dollars, natural resources, or the like.

REGIONAL COUNCIL PLANS

The regional councils are to develop plans for regional and interregional coordination. This aspect of the bill has raised a number of questions: We expect that the regional council and its staff will coordinate plan and studies of the member utilities and have general oversight of the necessary testing and critical review to assure prosecution of reliable system expansion plans. We would not normally expect the regional council to originate and work out detailed plans, although it would likely suggest basic regional requirements and planning possibilities and would arrange for these matters to be explored by one or more member utilities (or adjacent utilities in another region). An illustration may help: Volume III of our Final Report to the President includes a critique by the Commission's Advisory Panel on the Northeast Power Interruption. Among other things the Panel suggests (pages 5-6):

that further consideration be given to additional interconnections, particularly to the south and west from upper New York State. This judgment was arrived at by noting the future proposed 345-kv. and 500-kv. developments in this and adjacent areas. While the Panel is in no position to determine whether such lines are essential, it, nevertheless, believes that any additional reinforcing ties of this type would contribute greatly to the overall reliability of the area, particularly because of the area's somewhat radial relationship to the systems to the south and west.

The Panel's suggestion to the New York utilities and their neighbors hardly amounts to original planning; certainly no member of the Panel purports to have come up with a master plan. Yet the suggestion is a preliminary step in the planning process, intended to encourage the particular utilities to study and possibly take action. We would expect the regional council staffs, and the Commission representatives to raise similar questions. The latter, at least, should be empowered to require a response to suggestions, including genuine confrontation and discussion of issues raised. Eventually, in some instances, the role of a regional council and its staff may evolve beyond the review and recommendation function spelled out above. The extent to which such evolutions take place will depend largely upon the people who become involved in the regional council work and upon the degrees of mutual confidence that member utilities develop. Nothing in the bill forbids such evolution toward a stronger regional pooling mechanism; but by the same token, nothing requires it.

Another significant function of the regional councils under the bill would be to assure the planning needed to prevent power shortages in addition to dealing with problems of system reliability against widespread failures. One function would be to secure the best and most comprehensive load forecasts possible. Load forecasting is particularly important in avoiding "brownouts"—power shortages, like the St. Louis situation I spoke of earlier. These failures, which are as much a matter of concern to the reliability planner as sudden, unforeseen interruptions, are not amenable to rapid correction. By their nature, they require new construction rather than repairs which may take only a few hours. Preventing these shortages requires an accurate prediction of demand, and a detailed knowledge of what assistance can be expected from neighboring systems. It is a type

of planning which I believe can be done much better with the assistance of a regional organization than by the action of individual systems.

Studies of the stability of existing facilities under a wide variety of contingencies are equally vital if we are to attain a high standard of reliability. The advent of sophisticated computers has been of tremendous assistance to the utility industry in conducting these studies. When computer studies are made of existing facilities, their weaknesses can be learned and the proper corrective measures—including additional construction if necessary—decided upon. In this way, a regional council, acting on the results of a region-wide survey of the strengths and weaknesses of its members' facilities, can assist the individual systems to arrive at a better scheme of priorities for new construction as well as suggesting useful modifications to the planned facilities. The studies made by regional councils can also help determine what facilities are likely to be most needed and most dependable in the future. It is possible, using computers, to evaluate facilities which exist only on paper from the point of view of stability under various defined contingencies. The results of such studies, in the hands of the individual systems or local power pools, would reveal weaknesses and guide the planning of future construction.

From time to time the council will reduce a composite plan for generation and transmission facilities to writing. The planning process is continuous and utility planning experts repeatedly revise their proposals so that the councils will have to select fixed times for recording and revising regional plans, subject to immediate revision if the magnitude of a particular new project calls for immediate attention by all. The planning process is also geographically intricate since the planning area may, at the same time, be one company for some purposes, a small power pool for others, and a reliability region for yet others. The functioning of regional councils should improve communication among the planners within the region and this, alone, should open up alternatives which might otherwise not be considered at all from a narrower planning horizon.

The regional councils will be expected to come up with plans (perhaps once each year) which attempt to live up to all the objectives of reliability, abundant supply, economy, efficiency, conservation of natural resources, and fair dealing among rival utilities. In case of conflicts, their first obligation should be to reliability.

REGIONAL POWER NEEDS AND THE ENVIRONMENT

The critical need for strong transmission systems seems more and more to be opposed to public desires to promote conservation. Reliability can be jeopardized by delays in the construction of transmission lines due to inadequate mechanisms for evaluation and reconciliation between our demand for power and our need to preserve our natural environment. This issue is becoming more and more important in utility planning. S. 1934 can serve as a means of solving problems that are very likely to invite legislative attention by themselves, and to do so in such a way as to minimize conflicts between our various social goals.

In some cases, utilities have made commendable efforts to accommodate their own requirements to the public demand for preservation of scenic beauty, historic areas, and residential neighborhoods. In Woodside, California, for example, the Pacific Gas & Electric Company and the Atomic Energy Commission faced heated opposition to the construction of a major power line. Underground construction proved to be impracticable. Yet, thoughtful routing and determined effort to make the facility inconspicuous have made the project much more acceptable to the public than seemed possible when it was first proposed.

In some cases, unfortunately, utilities have tried to present the public with a *fait accompli*; to avoid rather than solve the problem. We expect public concern for the preservation of our environment to continue to grow, and we trust that the power industry and the government will pay increasing attention to the problem. I believe that the regional councils, as well as other provisions of this bill, will be a useful means of reaching the necessary accommodations.

In time, we hope that regional councils will be working closely with State and Federal agencies concerned with land and water use in order to facilitate early competent consideration of environmental issues which now, too often, wait for the last minute, if they are reviewed at all. The list of potential problems is formidable: placement of transmission lines is a major issue today and will no doubt continue to be one; location of generating stations raises questions of air pollution, disposal of solid wastes, and thermal pollution of waterways; and hydroelectric development can raise thorny problems of wildlife preservation

and conservation of scenic areas. As matters now stand, our mechanisms for review of such issues satisfy neither the utility's urgent need to maintain construction timetables nor society's need for conservation. The P-J-M Power Failure illustrates how hearings long after a transmission plan has been developed can delay vital facilities. What we desperately need, for reliability as well as conservation, is a procedure to permit thorough consideration of these issues in the planning process, coupled with effective public review at an early stage, as provided by section 410 of the bill. We recognize that earlier disclosure of utility plans may increase land acquisition costs. But we conclude that it is well worth that price to secure earlier consideration of the basic issues. We believe the utility industry should accept a duty to draw affected parties and the public land and water use agencies into the planning process.

The councils would provide an opportunity for discussion of land use issues arising from the construction of new facilities at a time when construction plans are still flexible. Much acrimony that sometimes surrounds these problems today results neither from the intransigence of conservation interests nor from the callousness of utility managers, but from delay in bringing the issue into the open until a late stage in the development of the project. Plans have been made final, much of the right-of-way may have been purchased, and the project is often an urgent necessity in terms of ability to serve customers. If the potential land use problems can be exposed and at least preliminarily discussed in the regional planning process, they may be more easily solved.

REGIONAL POWER PLANNING AND MANUFACTURERS' LEAD TIME

More information, which the regional councils can provide, will help manufacturers of generating and transmission equipment to plan ahead and thereby cut down the delays in meeting orders. The point is illustrated by comments reported by *Electrical World* magazine [June 12, 1967, page 151, *et seq.*] from a panel discussion on manufacturers' lead time at this year's meeting of the Edison Electric Institute Purchasing and Stores Committee. Asked why the insulator industry was not better prepared for the heavy influx of EHV orders despite the publicity given EHV during the past five years, panelists explained:

True, there was much discussion of EHV. Today there is similar talk of DC and URD. In neither case, however, has the electric utility industry made any attempt to present the total needs or to project their effect, so, in the case of EHV, there was no way to estimate total EHV demand.

The delays in securing EHV insulation equipment have been a major factor affecting completion of the Pacific Northwest-Southwest Intertie. *Electrical World* goes on:

One panelist put it this way: "In the past, utilities have been overly protective of their expansion plans. The manufacturer needs insight into plans on quantity of units, kva, voltages, LTC or non-LTC if he is to properly design production facilities. . . ."

Asked for the most effective step the utility industry could employ, one panelist responded:

"We need estimates of miles of new construction and miles to be re-insulated as far in advance as they can be predicted with reasonable accuracy. It would be helpful if plans could be reported accurately and regularly, in advance of public announcement, to an independent gathering source. . . ."

STATUS OF REGIONAL COUNCIL PLANS AND COMMISSION REVIEW

Under section 404(b) the Commission would be directed to consider plans submitted to it by a regional council in the exercise of its responsibilities under the entire Federal Power Act, including the hydroelectric licensing provisions of Part I, the wholesale rate and compulsory interconnection provisions of Part II, and the proposed EHV review provisions of Part IV. The purpose is to give the pre-regulatory planning process status in administrative proceedings thus shifting some of the determinations from an adversary framework to a coordinative framework.

The planning documents submitted by the regional councils would have statutory status even before being reviewed by the Commission; but the Commission would be required to give public notice of the filing of such regional (or inter-regional) plans and could review such plans. Review would involve opportunity for hearing and the safeguards of judicial review. The standards of review would

be two-fold: First, consistency with the objectives of Part IV, spelled out in section 401(b); second, one of two tests as to the restraints upon competition which may be reflected in the regional plan:

(i) will the effect of the regional council plan upon competition be insubstantial? or, if not,

(ii) will the effect of the regional council plan on competition be clearly outweighed by other public interest considerations?

If the Commission approves the plan under these tests then it may confer two benefits: antitrust immunity, limited as described below, for actions taken pursuant to the plan; and the possibility of rapid Commission sanction of any EHV proposal consistent with that plan six months after acceptance of the filing under section 409 of the bill. No utility would be directly required, as a matter of law, to comply with the approved plan, and even at the time of review of EHV proposals the proponent would be free to urge the superiority of his proposal even though inconsistent with the plan. As a practical matter, because of public opinion, however, we would expect that each utility in the region would feel itself under a heavy obligation to explain to its customers, stockholders, State commission, and other interested parties any substantial deviation from the approved plan.

If the Commission disapproved the plan, it might modify it or set it aside. Such action would end the regulatory status of the initial plan; end its antitrust immunity; and end the procedural advantage to proponents of EHV facilities consistent with the initial plan. On the other hand, utilities in the region would be free to adhere to the initial plan, subject only to the need to secure review of EHV proposals.

No formal Commission action under section 404, whether in approval, disapproval or modification of a plan may require any utility (or utilities) to build a generator, to scale a generator to the size favored by the Commission, or to share in the ownership of a generator. We have been urged that the bill should deal with the current problem of co-ownership of large steam units, particularly nuclear units. This the bill does not do.

The last subsection of section 404 would permit the Commission, after compliance with procedural due process and subject to court review, to require participation in the creation of a regional council or in effective coordination, if a system unreasonably refused to do so. This means compulsion to plan, not compulsion to build. I do not believe this subsection would have to be used often, if at all. The benefits to be gained by the regional councils embodied in this bill so far outweigh the expenses and occasional necessities for compromise among systems that there should be almost 100 percent cooperation. This subsection does, I believe, provide a useful spur to cooperation in joint planning, by helping ensure that it will not be crippled by the refusal of some systems to participate.

ANTITRUST PROBLEMS

This Committee has studied the antitrust problem in last year's hearings on S. 3136 (89th Congress) and in this year's hearing on S. 683.

The provision of antitrust immunity, both for the organization of the councils themselves and for the plans they develop, is designed to avoid delay in the progress of coordination, without sacrificing public control over anticompetitive behavior. For this reason, it is limited in two ways. Before any immunity can be granted, the Commission must find the effect of the organization statement or regional plan upon competition will be "insubstantial or * * * clearly outweighed by other public interest considerations." If that finding is made, the immunity granted will apply to actions for treble or regular damages or injunctive relief, except that the authority of the Antitrust Division of the Justice Department will remain unaffected. We believe that this will adequately protect the regional councils and their plans from suits brought primarily for the purpose of stalling a plan, adopted after proper consideration by the council and approved by the Commission, but for some reason unsatisfactory to a single party. On the other hand, the chance of really harmful anticompetitive behavior—a chance we believe is very slight—will continue to be guarded against by the power of the Attorney General to bring suit at the instance of the Antitrust Division. Since the regional council itself would be open to every utility in the region, it is most probable that any possibly restrictive provisions in a regional plan would be fully exposed and corrected before the plan was adopted. For this reason, the immunity would extend only to actions taken pursuant to the regional plans; that is, to arrangements which the regional council had in fact sanctioned. A broader immunity

might have the unfortunate effect of making it equally possible to achieve security from antitrust suits without going through the regional council's procedures, a course we believe is fundamentally inconsistent with the purposes of the Reliability Act. Of course, there will be scope for agreements between individual companies or groups not encompassed within the regional plan, but to the extent they are consistent therewith it seems likely that they will not raise important antitrust questions. Otherwise we would expect the affected utilities to desire and secure regional council attention to the problem.

EXTRA-HIGH-VOLTAGE TRANSMISSION REVIEW

Transmission lines are the key to improved reliability and a sound transmission network is the best insurance against blackouts and power shortages. For that reason, transmission projects receive special attention in the proposed Reliability Act.

There is perhaps much in section 409 of this bill which will be familiar to members of the Committee from their previous consideration of EHV certification bills during the hearings in the 89th Congress on Senator Metcalf's bill, S. 1472 (reintroduced by Senator Metcalf this year as S. 1834) and the Commission's two proposals, S. 2139 and S. 2140 (the latter has been reintroduced by Senator Metcalf this year as S. 1835). I hope that the changes we have made in the procedures and requirements that were before the Committee at last year's hearings chaired by Senator Neuberger will be recognizable as improvements, responsive to the suggestions raised at that time. The functions of EHV regulation in the present bill, however, are much the same as in past proposals. It is designed to assure the adequacy of proposed transmission facilities, both for the proponent's own purposes and for the needs of any other system that logically should participate in the costs and benefits of the project and wishes to do so. It is increasingly necessary, because of the need to conserve land and the higher cost of high-capacity transmission facilities, that the widest possible use be made of each new facility. To this end, EHV regulation under section 409 would seek to ensure that every system that could usefully participate in the construction and use of an EHV project, and wished to do so, would have the opportunity. This encouragement of common use of transmission projects would also serve to prevent duplicative construction and consequent waste of materials, labor, and land. Conservation of land, scenic and historic areas, and recreational resources can also be promoted by EHV review, and the participation of these interests in the reviewing process can help us achieve a satisfactory reconciliation of power needs with the public interest in wise use of land. There are other issues which may need to be considered in a proceeding under section 409. For instance, it may benefit a particular region to build an EHV direct-current transmission project. On the other hand, if DC ground return currents would have a serious corrosive effect on buried pipelines, that fact should fully be taken into consideration and the problem solved in planning the transmission project. Thus FPC review under section 409 would permit exposure and solution of non-power impacts as well as an evaluation of the project from a power engineering standpoint.

One of our primary objectives in drafting section 409 was the avoidance of delay. The problems of administrative delay were much discussed in the hearings on EHV regulation in the 89th Congress. We have tried in this version of EHV review to reduce the amount of time required to the minimum consistent with the objects of this section.

Two years before it intended to begin construction, a utility would file with the Commission a proposal giving sufficient information about the EHV project (including its route) to allow the Commission to determine whether it was consistent with the objectives of Part IV and with a plan developed by a regional council. In many cases, I believe, the proposal would be submitted as a direct result of the regional planning process; that is, it might be agreed within the regional council, and incorporated in the regional plan, that the proponent was to build this particular segment of line. The filing would also state whether the proponent intended to use the right-of-way provisions of section 409(e).

There would be an immediate 6-month moratorium on construction after acceptance of the filing. This in itself would be no additional delay, since the filing would antedate the beginning of construction by two years. Within that six months, the Commission would evaluate the proposal and before the six months expired, it could issue an order suspending construction on the grounds that the project was inconsistent with an approved regional plan or appears not to be

consistent with the objectives of Part IV. The suspension would be for an initial period of not more than 12 months. The important point here is that the Commission must act to suspend within six months. If it does not, Commission review of the project is completed eighteen months before the proponent intended to begin construction.

During the suspension of a proposal, the Commission, the proponent, and other interested parties would attempt, through conferences and negotiations, to develop suitable modifications that would make the project satisfactory. At any time when the Commission found the proposal, as modified or amended, consistent with the objectives of Part IV, it could dissolve the suspense order after public notice and consideration of such comments as were received within 30 days. If, however, no solution were in sight as the suspension period drew to an end, the Commission could extend the suspension either by issuing an order proposing specific modifications to the proposal, setting the matter for hearing, or perhaps both. If the modifications were accepted by the proponent, the Commission would be required to approve the proposal as modified and cancel any hearing that had been scheduled except insofar as the proponent wished to use the right-of-way mechanism of section 409(e). If the modifications were rejected, the matter would proceed to hearing, with the suspension remaining in effect until the Commission made a formal determination whether the project was consistent with the objectives of Part IV and permitted or prohibited its construction accordingly.

The provisions for obtaining clearance to build in an emergency—without necessity of proceeding through the normal steps laid down by section 409—are based largely on section 202(c) of the Federal Power Act. They are designed to permit speedy construction when the existence of an interconnection adequate in capacity is of paramount importance to maintain the supply of power. It is not intended as a back-door method of exempting any person or class of persons or complex of facilities. If the emergency powers of this subsection 409(f) are invoked, and an exemption issued, the right of way provisions of section 409(e) would also be inapplicable.

We believe that S. 1934 would accomplish the significant ends encompassed by our previous proposals to regulate EHV transmission lines, and would do so in the larger and more useful context of regional reliability planning. In addition, the EHV provisions of S. 1934 would themselves offer a more efficient and streamlined means of conducting review than the previous bills.

THE PROBLEM OF LAND USE

I have already spoken today about the need to conserve land and scenic resources, and I have referred specifically to the contribution which regional councils can make by planning with this need in mind. There are other provisions in the proposed Reliability Act which deal even more directly with the land use issue.

Section 409(e), part of the machinery of EHV regulation, is devoted to setting up procedures for obtaining rights of way, over Federal lands by a grant of an easement, and over other lands by exercise of Federal eminent domain. There are advantages and benefits to the utility making use of this section, including the declaration of taking procedure, but there are some extra obligations as well. We do not expect that use of section 409(e) will always be necessary, and no utility would be obliged to use it, but we believe it could be of great assistance in many cases. Use of section 409(e) would lead to automatic suspension of the project, and would require opportunity for a hearing before the right of way could be granted or the Federal eminent domain power used, but if the project were otherwise satisfactory there is no reason to think that these requirements would delay it unduly. There are in some states limitations on the availability of eminent domain to out-of-state corporations, or restrictions on the amount of land that the condemnor may take, which might interfere with construction of large-scale projects. One State court has recently refused to permit one of the principal utilities operating in that State to exercise State-law condemnation rights where the right-of-way was sought for an interstate line thought to be of benefit to the citizens of an adjacent state. The Federal condemnation power contemplated by section 409(e) would be available for all approved EHV lines. It would also include the right to use the declaration of taking procedure, which is unavailable in some states and which could be a valuable time-saving device.

In the case of Federal lands, the bill provides that rights of way shall be issued by the Commission subject to such reasonable land use conditions relating to nonpower matters as the agency managing the lands prescribes. In addition to the power to set land use conditions, which may be tailored to the specific project or may be standard conditions of general applicability, the administering agency may protest—and, in effect, veto—the grant of a right-of-way within 60 days, on the narrow ground that the order granting it does not give sufficient protection to identified esthetic or historic values. If S. 1934 were enacted there could no longer be any need for the right-of-way regulations imposed by the Departments of Agriculture and the Interior.

The second major land use provision is section 410, which would set up a procedure whereby agencies responsible for land use planning—and in that term I include the preservation of bodies of water and of scenic, historic and recreational sites—would submit their comments to the Commission with respect to any land use issue arising either in the regional planning process or in an EHV review proceeding under section 409. The philosophy of section 410 is that the views of local agencies should be given the most respectful consideration in matters of this kind. Obviously there will be cases where a particular area will be of more than local interest; a recent example is the wave of opposition to the construction of a major transmission project near Antietam Battlefield, an area whose historic associations are of value to the whole Nation. But in these cases, too, the agency immediately responsible will be heard first. Of course, the agency may not be a local one in the strict sense; the National Park Service would be as appropriate a party under section 410 as a municipal zoning board or planning commission. There may also be cases in which responsibilities are not clearly defined, and two agencies with jurisdiction present conflicting views. In such cases, the Commission would be compelled to decide the matter. Where responsibilities were clearly defined and all responsible agencies spoke with a single voice the Commission would defer to their views.

INTERCONNECTIONS AND ABANDONMENTS

Two provisions of the bill before you today—section 411 (compulsory interconnections) and section 412 (jurisdiction over abandonments of service)—represent previous proposals of the Commission (respectively, S. 1621 and S. 1622, 89th Congress), somewhat expanded and incorporated into the Reliability Act. In keeping with the general philosophy of the bill, that all segments of the power industry should be equal participants in coordination, these sections have been designed to apply to public and cooperative bodies as well as privately-owned utilities. In this respect they differ from our previous proposals along the same lines.

Section 411 would allow the Commission, on its own motion rather than only upon complaint, to order interconnections and sales or exchanges of energy between utilities. These interconnections can often contribute greatly to the reliability of a utility unable to install generating or transmission facilities on the scale possible for larger neighboring utilities. Moreover, we have recommended voluntary consideration of new or stronger interconnections as an outgrowth of our investigation of recent power failures with only mixed results. Although in some instances diligent planning has resulted, in others almost no effective planning consideration is discernible. Thus we believe providing authority to order interconnections on the Commission's own motion with full procedural safeguards will notably accelerate the industry's own progress toward stronger transmission systems.

Section 412 would prevent abandonments of bulk power service (or of facilities which would have the same effect) without the Commission's authorization. Abandonments can be dealt with to a limited extent under existing law, since they have been held to be changes in rate schedules. *Pennsylvania Water & Power Co. v. Federal Power Commission*, 343 U.S. 414 (1952). But like other rate changes they can be suspended only for five months. Unlike other rate changes, however, they cannot be made up later if found to be unjustified. The consequences of such an abandonment for a utility with limited generation of its own can of course be very serious, and certainly justify public review.

EXEMPTIONS

Section 413 of the proposed Reliability Act is designed to streamline its operation without sacrificing the values the bill is designed to serve. It is not, let me

state emphatically, a device for awarding wholesale exemptions to entire utilities simply because they are publicly (or cooperatively, or otherwise) controlled. The entire Reliability Act is designed to treat all segments of the industry equally, and section 413 would be administered with that overall design in mind. Its function is to permit the exemption of facilities, activities and persons that have no real bearing on the reliability of bulk power supply. There might be particular facilities or entire classes of facilities that could be so treated. The provision was drafted as a result of a state commissioner's sound reaction to last year's EHV certification bill (S. 2140, 89th Congress). An industrial plant, it was pointed out, might require a large quantity of energy for its operations, and propose to build a 345 kilovolt line, tying into the regional transmission grid, to obtain it. This line would be an EHV facility within the meaning of the Act, and yet could be of minimal importance for the maintenance of reliable service. It would be possible, I believe, to define such a class of facilities and grant a blanket exemption covering them. Such an exemption would permit both the Commission and the owners of the facilities to avoid unnecessary administrative proceedings and their attendant delays.

ADVISORY BOARDS AND STUDY COMMITTEE

As I have pointed out, much of the expertise and talent necessary to make this bill work would be supplied by the industry itself. There are two provisions—sections 405 and 406—that would take advantage not only of the skills within the utility industry, but of a broader cross-section of interests; electric equipment manufacturers, conservation and wildlife experts, and the consuming public. Section 405 would establish a National Electric Studies Committee, representative of all elements of the electric industry, including the manufacturers of equipment, to discharge two basic functions. Our report on *Prevention of Power Failures* (which speaks in terms of two separate committees, rather than one with two functions) delineates them as follows:

* * * to exchange and disseminate information on regional coordinating practices to all of the regional organizations, and to review, discuss, and assist in resolving matters affecting inter-regional coordination.

* * * to coordinate industry efforts in investigating some of the more challenging problems of interconnected system development.

* * * Today, most utilities are burdened with system problems demanding immediate solutions, making it difficult for them individually to devote adequate attention to advancing the development of improved design and operating practices. Much of the work could be performed under contract with qualified universities and research institutions, placing before the education community an attractive range of technological examinations.

The Report refers to the lack of interest of the research and academic communities in basic power system research; I believe the National Electric Studies Committee could help to generate such interest by posing challenging questions of power system design.

Section 406 would allow the Commission to establish advisory coordination review boards, made up of experts from the utility industry, the equipment manufacturer, the academic and research communities, and other persons, such as fishermen, conservation experts, planners, and consumer representatives, to assist in considering matters that come before the Commission under other provisions of the Act.

Neither these boards nor the National Studies Committee would in any sense be an intermediate review body interposed between the industry or the regional councils and the Commission; but their advice could be most helpful in solving the problems the legislation would commit to the FPC for resolution.

CONCLUSION

I have said at the outset that reliability is, first and foremost, the responsibility of management. Would S. 1934, however, deprive utility management of the authority necessary to meet their responsibilities? Not at all.

This legislation would provide them with additional means to meet their primary responsibility, the provision of adequate reliable service. If it were possible to plan and operate as isolated utilities and still enjoy low cost power and reliability, then this legislation would not be necessary. But because there are economies of scale in the provision of bulk power supply, it is necessary to interconnect and coordinate to achieve the economies and reliability. Once this

occurs, every system is dependent on every other system to varying degrees but without any authority except that to a limited extent provided by contract. By allowing management to participate effectively in regional bulk power supply affairs of such importance as setting standards for reliability of the region, you will give management the authority necessary to meet its responsibility. This entire legislation is keyed to the cooperation of management of both private and public bodies in resolving the problems of reliability. In some instances this is being done now without government sponsorship. But the public interest cannot wait for existing inter-utility hostilities to disappear to achieve the objectives of this bill. This bill evidences that the public interest requires cooperation between and among those who hold ultimate responsibility for the provision of bulk power supply.

As the managers of this great industry examine S. 1934 and prepare their recommendations for the Congress, I would ask them to consider and address themselves to the following critical questions:

1. Is there a reliability problem? If so, is some Federal overview needed in establishing reliability goals in the public interest?

2. If regional coordination is accepted by the industry, how would the plans of a region be announced, reviewed and evaluated so that the Congress and the public would be apprised in a timely and authoritative manner?

3. How would the public know that reasonable costs were being expended to assure reliability of the Nation's bulk power networks?

4. How would the public know that the interest of all power consumers in the region, regardless of the serving utility, had been considered from the viewpoint of both reliability and economy?

5. In this era of critical public scrutiny and competing use of lands and other resources, is the industry competent in its own right to be the judge of how far to go in considering the impact of its facilities on the public interest and public environments? Assuming that some public role is needed in establishing objectives and goals, how shall it be performed?

6. The industry generally agrees that the coordinated planning of transmission is a key factor in reliability, but how does it suggest that the Nation can be assured that the facilities are adequate?

7. As evidenced by the wide diversity in practices, the industry has an uncertain view on what are adequate criteria for reliability. How does it suggest that the Nation can be assured that reliability criteria are adequate?

Our answers to these searching questions have led us to submit the Electric Power Reliability Act and to urge its early enactment.

Thank you, Mr. Chairman.

The CHAIRMAN. A lot of work has gone into this statement, and we appreciate it, because it pinpoints many of the things the bill attempts to do, and it will be a good reference for us when we hear the other witnesses.

Mr. WHITE. If I may, now, Mr. Chairman, I would like to describe in very general terms how we believe the bill would function.

The CHAIRMAN. Your detailed statement will be placed in the record in full.

Senator COTTON. Mr. Chairman, as you know, I am supposed to be back in the Labor-HEW conference committee on a \$14 billion slice of the budget and I don't dare stay away too long. It appears that we won't all have a chance to question Chairman White this morning. Are we going to have any other opportunity?

(Discussion off the record.)

The CHAIRMAN. All right, you may proceed.

Mr. WHITE. Thank you, Mr. Chairman. In a general sense the Commission went about its responsibilities following the November 1965 blackout by setting up industry advisory committees to examine into exactly what happened and to become as well informed as possible about the whole technology by which large blocks of power are generated and moved to meet the growing demands of the populace.

We have been at it for approximately a year and a half. In that time we have produced a major report. It is in three volumes.

The first volume is our own analysis and recommendations. The second is an excellent report by an industry advisory group made up of people from privately owned, the cooperative, and the publicly owned segments of the industry. I am glad Senator Metcalf spoke of that TVA example, because one of the key members of our industry advisory committee on bulk power supply was Charles Almon, of TVA, who worked in conjunction with others to prepare what I am satisfied will be a primer or hornbook on systems analysis as practiced in the late 1960's in this country. It ought to be read by every utility executive in the United States. That is volume II of our report.

Volume III is the task force report of the groups set up to look into the Northeast power failure itself.

So we have developed some considerable expertise among our staff and I may say also among the members of the Commission on these phenomena. We have tried to determine whether there was indeed some problem that merited national attention and we are satisfied that there is. Just from looking at that map, it is apparent that this is the case.

With that in view we went about determining what was the most effective way to solve the reliability problems in this country. And we explored the whole range, all of the way from doing nothing, beyond what is now being done, to the nationalizing of the industry in some fashion, where there would be central operation. That last alternative didn't have any support. There wasn't anybody who believed we were at the stage or would ever reach the stage in this country where it required nationalizing the power industry to meet our needs. Nobody has suggested, for example, that the TVA or Bonneville concept ought to be extended across the country. This was not an alternative that had any support at all.

But we did finally arrive at our proposal which rests on three major grounds. The first is that there must be planning. And this planning has to encompass all who are in the business of generating electricity and transmitting and distributing it.

We have had some struggles, as I am sure many of you know, with the cooperative utilities. The question was whether we had jurisdiction over them, under our existing statute, a matter upon which the Commission was split, and also the question of whether we should have jurisdiction.

But when it came to reliability, there was no doubt in our minds that it had to be applicable to every kind of utility that had any impact on power supply, including the Federal generating agencies like TVA or Bonneville, which are the two major ones.

This was tough, but we didn't see how we could propose a plan that left out significant elements of the industry. I am delighted to say the NRECA has indicated general support of the principles of our bill, reserving the right to propose such amendments as they believe are necessary for their own interest.

But basically our bill is to promote, stimulate, encourage, and if necessary require all utilities within a region to plan their growth and development. We believe the public has an interest in this. We believe that we can no longer rely upon only some elements of a region, that all of them must expose their concepts, their plans, their

prospects and evolve plans which will guide them in meeting the public's needs.

The second principle is closely related to the first, and that is that the industry has to expand the transmission networks: not only those that are within each system, those that link systems within a region, but even those that are interregional in character. And we believe the key to meeting reliability needs is the transmission lines that are to be built in the future.

Last year we appeared before this committee and testified on some of the bills that have been reintroduced that would give the Federal Power Commission the responsibility to certificate extra-high voltage transmission lines. We believe these lines are so important, so essential, that they should be exposed to public comment, public discussion, and ultimately to some certification by a responsible governmental agency.

The third concept is closely related to that, and that is the land-use problem which we have spoken of previously. It is becoming increasingly important in this country and is causing the industry increasing difficulties in getting its job done.

We believe that job must be done and the only way to go about it is to open these problems to public view. This industry, on the whole, has not operated that way traditionally, although I am happy to say that, without any legislation by the Congress, or any drastic actions by the Federal Power Commission, in many areas of the country they are already trying this type of group planning and coordinated action. And our proposal builds on what the more progressive elements in the industry have already devised on their own. We believe it should not be left to chance, that there ought to be assurances that this kind of planning goes forward.

But really the basis of our proposal is cooperation among all segments of the industry operating within the region. They have the same responsibility to the consumer, without regard to their form of ownership. You don't see a tag on an electron saying "TVA" or "Pacific Gas & Electric." They are all the same, and the way our electric systems are developing in this country the public demands more and more of them. So the problem is to meet an increasing demand; we have proposed what we earnestly believe will facilitate that.

There has been serious criticism—doubts I should say—on the part of those who believe that when the Federal Government, or the Federal Power Commission in particular, gets involved in any process, it won't expedite it, but will slow it down. When we were here a year ago testifying before this committee legitimate concern was expressed that if the Federal Power Commission certificated transmission lines it would complicate an already complex problem, introduce a new layer of review, and make it more difficult actually to get a line constructed.

We don't believe so. We have made a number of changes between the bill that we supported last year and that portion of S. 1934 that would give us this authority in an effort to expedite rather than delay the needed construction.

We have had some useful discussions with the industry groups. I think they have found some things they thought were problems really are not. But this is the right way, I think, to go about solving a national problem. Congress ought to have their views. We have solicited alternatives, specific amendments to our own language that would solve problems. Thus far they have not been forthcoming. I don't know

whether there will be any. But I would hope in any regional hearings or any other national hearings that this committee hears from all segments of the industry, and others as well. State regulatory commissions have a great interest in this problem, and we have met with them.

We have, I think, satisfied a number of them that what we have proposed is at least worthy of consideration and we have got them thinking about this problem as well.

I think the committee would want to hear not only the objections, but also the alternatives and the proposals that others have to meet what is clearly a national problem.

There is a fourth major point I should mention also. That is section 408 of the proposed bill, which would give the Commission the authority to promulgate operating and planning criteria for reliability of service. We believe that the industry, again particularly the leaders of the industry, have developed techniques and technology and understanding that is worth codifying into rules and regulations to be applicable throughout the Nation, or throughout a region. We would propose, if this were enacted, to do so, again relying on the best practices of the industry.

That is, as you can appreciate Mr. Chairman, a very brief and oversimplified statement of our bill and how it came to be. I know you have a time problem and we will be delighted now to proceed in any way you think is best.

The CHAIRMAN. I want to say that there was in the past few months occasionally a little implied criticism of both the committee, its chairman, and the Chairman of the Power Commission on the question of where was the electric reliability bill. And, of course, you have given us the answer. This is a complex and important matter and you just had to do all of these things you mentioned. One just couldn't throw a bill in and hold a hearing without a study of the whole thing in depth. And it was easy, when there was a power failure, for some to say, "All right, let's do something right now." Well, it is not quite that easy. I think you did the commendable thing in doing all of the work that went into this pending the introduction of the bill.

Mr. WHITE. There is a great deal of material and a lot of work and discussion and even argument underlying the final product—S. 1934—that is before the committee for consideration, together with other proposals.

As I said earlier, we could not submit something to the committee that we believed would not work if it were enacted into law tomorrow. We are prepared, if this bill were enacted tomorrow, to do our best to implement it. All of us had to believe it would work or we couldn't have proposed it to the Congress.

The CHAIRMAN. Senator Monroney?

Senator MONRONEY. I have nothing at this time, Mr. Chairman.

The CHAIRMAN. Senator Moss?

Senator MOSS. I appreciate the statement of the Chairman of the Commission and I realize there is a great deal here to be digested. I don't feel that I have any extensive questions to ask, but I am a little interested, however, in just how this interconnection would be effected.

Would the requirement simply be for interconnection so the power could pass back and forth, or does it go beyond that to regulating compensation that must be paid when power is passed from one system to another and factors like that?

Mr. WHITE. This proposal is designed, Senator, to be a separate part of the Federal Power Act. Under the existing authority which the Commission exercises under parts 1, 2, and 3 of the Federal Power Act, we already have some responsibilities in the field of rate regulation for power moving in interstate commerce that is sold for resale.

So to the extent that we have that authority, this additional part 4 would not affect it one way or the other.

The answer is that we would have continuing responsibilities in determining rates and the fairness and nondiscriminatory character of the rates charged for whatever additional power was moved interstate as a result of the efforts to enhance reliability.

Senator Moss. Would this bring you into rate regulation with some types of power production that you are not presently involved in? For instance, governmental or cooperative or private utilities?

Mr. WHITE. No. Even though this bill would give us what is presently not an authority of our Commission—the power to certificate transmission lines constructed by the Federal Government or by some of the generating and transmission cooperatives—it would not, of itself, give us jurisdiction over rates.

When we focused on reliability we knew, as everyone who has had anything to do with this industry knows, there are disputes within the industry. Some private companies are very nervous about the municipalities and cooperatives that are moving into their areas. Many of the municipalities believe they are not getting a fair shake, there are problems in the preference clause that disturb some people, there are problems involved in wheeling and in many other areas.

We have done our best to avoid those problems. We don't believe this is the right time to try to cure all the ills that might exist in the industry, but reliability is something that just about everybody can focus on. Everybody has some reliability problems. And to the extent we could get all segments of the industry, all who are interested in this problem, and all of the regulatory agencies focusing on that responsibility—and that is what we focused on—we thought we had a better chance of giving you a bill that was workable and could be passed.

We don't believe this is a bill that has no chance of enactment. We believe that when the industry begins to focus on it carefully in light of our discussions and our purposes, it will not find something that is totally unacceptable and must be rejected.

That relates to the question you were pursuing: will we suddenly find ourselves with jurisdiction over co-op rates, for example, by virtue of this bill? The answer is no; it was intended not to do so.

Senator Moss. In the power to certificate these interconnecting lines, would there be any initiative in the Power Commission to require the building of a line or is it simply a review of proposals made by others and reviews as to the necessity and convenience of the line?

Mr. WHITE. Under this proposal, where a plan is developed by a regional council made up of all the utilities, and was submitted to the Commission for its review, one of the utilities or the FPC staff might say, "One of the major problems with this plan is that there isn't a line proposed from A to B, and there ought to be." We could say, "Indeed there should be such a line."

But we would not have the authority under this proposal to require

anyone to build that line unless we found under section 411 that the interconnection was absolutely essential in order to maintain reliability.

I think the answer is a qualified yes, we could do it, but not in the standard sense, and obviously not without hearings, without an opportunity for objection and without court review.

Senator Moss. Your way of requiring it would be in effect to say the plan is inadequate and doesn't resolve this problem, because there is no such proposal for a line from A to B?

Mr. WHITE. Basically that is the way we would expect it to operate. A plan would be looked at, and perhaps regarded as deficient. Even though we really do not have any explicit authority here to require everybody to comply with the plan, we believe that if the process makes sense the pressure will be on the particular noncomplying utilities to reconsider.

So we are not suggesting that we believe this is an exercise we would go through just for the fun of it. It would be expected to bring pressure to bear on the utility. If they don't want to do it, under that plan of operation, or if they don't believe it ought to be done at all, then they forgo some of the benefits of having a plan approved by the Commission. Among these benefits are limited antitrust immunity, the right to use Federal eminent domain rights, and the right to have their application for transmission line certificate considered an abbreviated or abridged proceeding. But that would be their choice.

Senator Moss. Have you formed any estimate of the additional staffing that the Commission would require if it took on this added responsibility?

Mr. WHITE. We really haven't nailed it down, partly because we don't know how this is going to develop, and moreover—

The CHAIRMAN. They don't even know what they are going to get next year yet, because the committee hasn't marked up their bill.

Mr. WHITE. I was going to say that is a good question. I hope everybody in this room is paying attention.

Senator Moss. Maybe I should direct it to the other chairman.

Mr. WHITE. This is certainly the appropriate time to say that the Independent Appropriations Subcommittee and the Senate Appropriations Committee have always been aware of the responsibility of the FPC and have treated it most fairly.

The CHAIRMAN. I hope you will say that 2 weeks from now.

Mr. WHITE. I said it today in the hope that I would be able to say it 2 weeks from now.

Senator Moss. You have made no estimate yet of the additional staffing that might be required?

Mr. WHITE. It is difficult, and the truth of the matter is that we are already sensing, without any change in authority, that we probably need more personnel in this field.

One of the difficulties is the development of sufficient competence, not only by regulatory bodies, but by the industry. The one area where everybody in the industry and the regulatory world agree is that there is a shortage of skilled young people and highly trained electrical engineers. We are having a tough time attracting them into this industry. The competition from the electronics world and the more esoteric engineering sciences makes a lot of students believe that systems analysis and the electric power industry are dated and that there

is really not much challenge there. But we have proof right on that map there that there is a great deal of challenge. And we are doing our very best to get the young people in colleges, and those who establish college curriculums, to focus on this. We just need more people and we will need still more in the future.

In terms of our own staff competence, I think we have some extraordinarily competent people. I think, however, in all candor, we are going to need more.

The answer to your question is we do not have a specific estimate, but certainly there can be no doubt that with enactment of this, additional personnel would be required.

Senator MOSS. Thank you very much.

The CHAIRMAN. Senator Brewster, do you have questions?

Senator BREWSTER. If the committee has the time to proceed further.

The CHAIRMAN. Surely, go right ahead.

Senator BREWSTER. Mr. Chairman, you indicated that by the year 2000 we would need seven times the power that was generated in the year 1965.

Mr. WHITE. Yes, sir.

Senator BREWSTER. And your first of three major points is that planning is desperately needed. As a part of planning, would you see the allocation of this future market to various power companies, or the allocation of this future market between public, cooperative, and private companies?

Mr. WHITE. It is hard to predict what will occur in the decades ahead. But so far as we can see the future today, Senator, "No." We have no reason to believe that there ought to be a national decision made to alter the kind of pluralism that we have in the industry, with about 80 percent of the electric energy generated by privately-owned concerns and the remaining 20 percent divided between the Federal, municipally owned, and cooperatively owned entities. We see no reason to believe it can't continue. We have the best power system in the world; let there be no mistake about that. We have some of the best executives and systems men that have been developed anywhere in the whole world. So we have not approached this with the idea of drastically restructuring the industry or believing that the Federal Government through the Federal Power Commission or any other instrumentality should allocate this growth to the various forms of utilities.

There are always going to be, at least for the foreseeable future, political pressures, and I assume there will be continuing fights in the Congress about new public power authority, new hydro projects for generating power; I presume there will be some fights about taxes and some of the other problems that have been with us for a long time.

But I don't think there is a need now for a drastic change.

Senator BREWSTER. So there is no authority in his proposal that would tend toward nationalization of our power industry or change the balance between the private and public segments of the power industry?

Mr. WHITE. Certainly that is our view. It is fair to say that some industry groups with whom we have met have raised the question. I have suggested that we will submit for the committee and the staff a memorandum analyzing our bill, which concludes that this is possi-

ble. We don't believe so. We certainly don't intend so. And we see no need for moving in that direction.

Senator BREWSTER. Now I would like to address your attention to the construction on extra high voltage interregional transmission lines, which you say will clearly be necessary.

Does this proposal provide for Federal expenditures for the cost of capital construction in this area?

Mr. WHITE. No, sir. And I don't believe we will see the time when Congress will delegate to the Federal Power Commission or any regulatory agency the right to commit the Congress to appropriate funds for two transmission lines.

Our proposal would require, however, that if, for example, the Bureau of Reclamation intends to build a transmission line from one of the Missouri River projects to Grand Island, Nebr.—that is my native State, and that line, incidentally, is desperately needed—the Federal Power Commission could perform a service by certifying that particular proposal upon request of the Bureau of Reclamation. The analysis that went into our certification would, I think, be a legitimate factor for the Congress to take into account in determining whether to authorize the funds for it.

But I don't think that we ought to have the right to say that because we approve a line that the Congress should be automatically committed to finance it, if that is your question.

Senator BREWSTER. I certainly agree on that point.

Now pursuing that general subject, would you understand this to give the power to allocate the costs between the various people that would use the interregional transmission lines? Allocate the cost of construction, say to this power company "You pay so much," and to that power co-op, "You pay so much of the cost of construction"?

Mr. WHITE. I would expect, Senator, that the plan itself, devised by the regional and interregional groups, would have to have liaison among groups where there are lines that link them. I believe that in their plan there would be more than just a description of the line; there would be some indication of the date of construction, who would construct it, and an agreement among the parties as to how the cost should be allocated.

Senator BREWSTER. If there were no agreement, would the Federal Power Commission have the authority to force an agreement?

Mr. WHITE. Let me ask our people on that.

I think, without being able to put my finger on the precise subsection of 409, that we would have the right to resolve a dispute. As you can appreciate, my own emphasis and that of the Commission, is on the cooperative character of these plans. But I can visualize a situation where a line is to be constructed and there is disagreement between the parties as to how the costs should be allocated; I think that would be a function we would perform. It is analogous to what is done by the Commission already in interstate pipeline construction.

Senator BREWSTER. My colleague, Senator Tydings, addressed himself to the situation where transmission lines go through national parks, and certainly have a deteriorating effect on the esthetic qualities of the national monuments.

Will you have the power, either in the case of esthetic value or for purposes of public safety, to require that lines be of a certain type of

construction, be placed underground, or be routed around national monuments?

Mr. WHITE. Yes; but I think I ought to qualify that. The way our authority reads under the Natural Gas Act, and the way we proposed it should read here, is that an applicant would come before us for a certificate. This is a voluntary action on his part. He comes in and asks for it. We can say, and have said on the gas side, "You may have this approval that you have requested, but subject to the following conditions."

Now he can say, "Your conditions are unreasonable and we are not going to accept them." We can't compel him to accept a certificate that imposes conditions.

But I think, as a practical response to your question, there are not very many instances where the Commission has been told by an interstate pipeline that they are not going to accept a certificate.

I believe if we imposed as a condition on a certificate for a transmission line that it had to be constructed in a certain fashion for esthetic reasons, that those conditions would be accepted by the applicant.

Senator BREWSTER. Does the Commission now take into consideration esthetic values?

Mr. WHITE. To the extent we are able to bring any moral persuasion to bear on companies; yes. And I should say in all fairness to all segments of the industry, that they are aware of these problems.

But we don't have authority today to certificate transmission lines except in the very limited area of where transmission lines are a part of a licensed hydroelectric project which cannot be constructed without an FPC license. This is a very small percentage of the total transmission lines that are built.

But for all practical purposes, the Potomac Edison line which has been discussed here need not, under Federal law, have Federal Power Commission authority; the company need not tell us what they are planning to do, or seek our advice.

Senator BREWSTER. Would this proposal change that?

Mr. WHITE. Yes. They could not build that line, assuming it was over 200 kilovolts, as it is, without coming to the Commission and securing a certificate. And that certificate proceeding would afford the opportunity for all planning groups, local citizens, and other utilities to comment on it.

Senator BREWSTER. So, therefore, if you have the power to certificate, then you have the absolute power of control of the type of construction and the location of any line that you have authority over, because you just won't give them a certificate unless they do it the way you want it done?

Mr. WHITE. That is putting it pretty badly, but that is about the way it would work, yes.

Senator BREWSTER. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Monroney?

Senator MONRONEY. I wish I had had time to go over this report fully. It contains a great deal of study and a great deal of work. I compliment the Commission on it.

I just wonder, though, who is going to build the additional power generation that is necessary for these regional systems where it might be found there is a deficiency? Would it be a sharing, or would it be

that one member of the regional system says well, I will build this additional source to get power in here, or additional lines? It seems to me it is a little woolly as to who will put up the money. This always becomes a pretty important thing when you are dealing with public utilities.

Mr. WHITE. It is right at the heart of it, there is no question. It is one of the critical elements. The way it would work as we visualize it is the way it works today. Some regions are not quite as well coordinated as others, but we have no difficulty in finding a situation in which when the utility recognizes that its load is going to increase and it has to meet those demands, it has some alternatives available to it. It has the opportunity to go out and build its own generating facilities. It can purchase from someone else, who has an excess. Or it can work out a joint arrangement where it and another utility in the surrounding area both know that their loads will increase.

The problem has become more complicated now, because technology permits the industry to build very large units. The larger they are the more economical they are for the most part. And yet you can't say that a project is economical unless it is being fully utilized.

So a number of arrangements have been worked out, and, we anticipate, will be expanded, whereby utility A agrees with utility B that B will build the next big unit and for the years necessary for B to sell its excess power, available because its load will not have grown that sharply, A will take it off B's hands. The next project A will build with the understanding that the part of B's system that needs capacity can be supplied from A's for a period of time. It is a perfectly satisfactory and a perfectly rational way of proceeding. And I would expect that under this proposal exactly that would continue to be the case.

Take the Pacific Northwest, for example. When Bonneville contemplates that a new project is going to be on the line, the privately owned utilities, and the PUD's in the area who have their load requirements to meet, sit down with the Administrator of Bonneville and figure out how this can be done on a coordinated basis, so as to benefit the company economically and to improve the reliability of service to all of the people in the area as well.

I think, therefore, that the answer to your question, Senator, is that these decisions will continue to be made by the same people who make them now. They will be made in a broader forum. They will be made with some public scrutiny. But they are not unaccustomed to public scrutiny in many areas of the country. This arrangement for the Northwest-Southwest intertie has had more scrutiny than any other project has ever had and it is going to come into existence and is going to work.

Senator MONRONEY. Assuming that about 20 percent of them are cooperative and municipal, as you said, with 80 percent the other, you are not unaware, I am sure, of the very great opposition usually to giving power generation capability to the cooperatives or municipalities. And since this is supposed to be a free and I presume cooperative association, would there not be a tendency to restrict the development of power contributions from the co-ops and from the municipalities?

Mr. WHITE. I don't think it would necessarily work that way. I understand exactly what you have your finger on. I think we must

realize that we are not at the stage where the only facilities to be constructed are the gigantic ones. They are still producing 5 megawatt projects—there are not many of those—they are producing 50 megawatt projects—there are more of those—to meet individual needs. Nobody can say for sure, especially in terms of reliability that the only facility that ought to be constructed is the very large or the gigantic one.

Part of it is just where the load is. A co-op is going to have difficulty using a lot of power unless it can reach some arrangement to sell to an adjoining utility, even if it is privately owned, while its load is building up. But there are practical examples already of the construction by the co-ops of major facilities and the making of arrangements for that excess power to be used during the period that it is excess while their own load increases.

Moreover, I think that where the co-ops and the municipalities are most likely to benefit from this proposal is that they will be involved in the planning process, so that they will know what is going on.

It is difficult to explain rationally a municipal system doing through all of the struggle to build its own new plant, because its load is growing, only to find out after they are too far committed that another utility nearby is going to have a period of time when they could have sold power to the municipality without requiring the capital investment.

I think that in that case the municipal and its customers would be better served if they knew what the plans or the proposed plans are for the neighboring larger utilities, if they are larger, and that will give them an opportunity to propose an arrangement where we can build a plant with our own bond issues, and supply some of your needs, because the part of your system over here really isn't as heavily deficient or going to have as much of a problem.

I think I have oversimplified it a little; but the great benefit we see here is open planning, planning as far in advance as possible, without the secretiveness that has characterized much of the industry. Planning has not always been done in the dark; you can't have a generalization that applies to this industry across the country. They operate differently in different sections, because of tradition or leadership or other factors.

But the basic thesis we come back to is that the public will be better served, and we believe all of the utility managements would be better served, if they get in the same room and know what is about to take place in their own region.

Senator MONRONEY. Hypothetically, in two States which are adjoining, six utilities might get together in a regional supply agreement. They would calculate their needs and also the emergency needs of that two-State area, wouldn't they?

Mr. WHITE. Yes, sir. That is really the whole purpose of this kind of planning, to stimulate the construction of transmission lines in such fashion and to such designs that when utility A is in trouble because, say, a piece of sheet metal blew into the substation, as in the TVA case, and all of a sudden their most efficient and largest unit stopped generating, they are tied in with the five other companies, and the reserve requirements are adequate, and they will pull through, just as TVA did. This is not unique with TVA; we have in our report an

illustration from southern California of the ability to call upon the reserves of other systems with which they are connected. We are going to find that utility. A, instead of being in trouble and collapsing or going black, will meet the needs of its consumers by calling on the reserves of that whole group.

Senator MONRONEY. Would this mean, generally speaking—this is just an example—that if the five remaining companies didn't have this emergency, they would supply the one that did, perhaps about 20 percent of their power capacity?

Mr. WHITE. It would depend entirely upon—

Senator MONRONEY. Each one would contribute something to the needs of the one that is blacked out?

Mr. WHITE. That is correct, and it would be done automatically and instantaneously. There wouldn't be a board meeting called.

Senator MONRONEY. But each would be balanced off evenly, each would have to have a capacity of at least 20 percent beyond their own needs?

Mr. WHITE. The 20 percent is only for purposes of this example. For practical purposes, the opportunity to rely upon the reserve capacity of others normally will permit a utility to operate with a smaller reserve than would be needed if it were isolated and depended totally upon itself. So it means, therefore, that for a utility to serve the same number of people with the same or a higher degree of reliability, they ought to be able to do it more economically if they are tied together and pooled. That way, whenever a disturbance strikes, it is a common disturbance, and all of them can respond to it.

But with those qualifications the answer to your question is "Yes."

Senator MONRONEY. You have to have an overcapability. So when one plant goes down, whatever the percentage of contribution, you have to have the built-in capability there?

Mr. WHITE. Yes. The chances are it will have a larger percentage available, because they know in the industry as they must that things are going to happen, equipment has to be maintained, it has to be shut down for purposes of checking, and there are incidents that are simply going to occur. Relays get blocked up, for instance.

Senator MONRONEY. Assuming this one that goes down needed more power than was available from the other five, then this regional system would have to call on the next neighboring system for some power?

Mr. WHITE. Yes. But that should be qualified by another element which we have not previously discussed here and that is the concept of load shedding, or dropping. When a system operator sees—and the operator can recognize this from his panel—that the system is in trouble, he then knows that he is going to have to call upon the systems with which they are associated. But if he knows the magnitude of it is such that he may have trouble getting all of the capacity required to meet the problem, he should have available either automatic load-shedding equipment, or the most effective manual arrangement. If he does, he says to the large interruptible industrial loads first—they are normally the ones that go first—"For a little while you are not going to get electricity," and drops them off with the hope that by reducing his system requirements he will be able to match them with what generation he has available and what he is able to import from adjoining systems.

Once the crisis is over and he gets his own generation back, he can restore service to those loads that have been dropped. In some cases, there are major industrial loads that get their electricity at a slightly better rate, because they are subject to interruption.

But in our view such limited interruptibility is not enough. It is most important that all utilities—and this is a fairly important part of our final report—focus on how to provide more general load shedding to handle a major crisis.

We mention here, in favorable terms, the experience of Southern California Edison in Los Angeles, where they had a loss of power that was equivalent to or greater than that surge across from Canada at Niagara in the big Northeast blackout. Because Southern California Edison had equipment to drop loads quickly enough and were able to import power, they rode through that crisis with a minimum of difficulty. There could have been gross inconvenience and even perhaps disaster for the citizens of Los Angeles. And it was averted in large measure because the system had automatic load-dropping equipment that functioned. As the frequency drops, relays begin to operate and knock off these loads, and that is what happened in Los Angeles.

Senator MONRONEY. And it cuts the demand down?

Mr. WHITE. Yes. So there is some balance between demand and supply.

Senator MONRONEY. I don't quite yet understand how region A is going to get its power from region B, or how it is going to know whether region B has built in enough capability to be helpful to region A. You are going to have maybe 10 or 15 regions throughout the United States, I presume.

Mr. WHITE. It knows in part by simple communication that goes on today. System operators in the major organizations have a pretty good idea of what can be done. They have a pretty good idea of what their loads will be for next week, and if they are aware of the fact that plant construction for some reason is not on time, or plant has to be taken out of operation because there is a problem or an instantaneous fault develops, they have a pretty good idea of it. Most of them check with each other in the morning and know what the situation is in the adjoining systems with which they are most directly associated.

Sometimes they don't, and we have had problems resulting from that.

Senator MONRONEY. You said earlier in your statement there will be tremendous increase in demand, a sevenfold increase in demand is expected over 1965 by 2000, and that would mean the demand would be rising more rapidly than the reserves, and you would have to build in reserves into the system in a tremendous amount, I would think, to make this cooperative plan work.

Mr. WHITE. That is correct, and the leadtime problem in this industry is always difficult because the technology is always moving ahead of them. But there are on order now—maybe Mr. Brown has the precise figures—tremendous equipment orders now being worked on by the manufacturers to produce the equipment to meet these needs.

That is our concern; that planning will be effective, that utilities will know what their requirements will be and will know who is going to build the next major plant and how it is going to fit into the system. These are most complicated problems and we have had the op-

portunity to have before the Federal Power Commission some of the most successful systems operators in the country, some from private utilities, some from public. They have tremendous responsibility to meet these increasing needs. The difficulty is that just as they are trying to catch up, the demand keeps going higher each year. That is what brings us here.

We believe it is a national problem and none of us will feel we have done our job if we have to give explanations as to why adequate power was not available. Our responsibility and yours and the industry's is to see to it that it is available. We believe this bill will achieve that.

Senator MONRONEY. I am just wondering who is going to pick up the check on some of this. Take region A, for example. It has to have a built-in extra capability of carrying one or more of the other utilities if they should go down. Will there be a charge then for the utility companies that have this excess supply for the standby capacity that they have that is ready to be put into the regional grid?

Mr. WHITE. There can be, but under existing practice in the industry these arrangements often are worked out without that necessity. They are complicated contracts, but there are great benefits to a utility when it is building a plant larger than the next year's needs. It knows that it is more economical per unit of electricity if it has a larger plant. He also knows, however, that all of those economies will be eaten up if the plant is idle.

So he can contract to exchange part of that output to somebody else, whose needs are out of phase with his, and he can also agree with them that he will help solve their reliability problems by allowing them to call on his excess capacity.

Senator MONRONEY. Then he gets a standby charge for having that?

Mr. WHITE. Yes, sir; they may well do that.

Senator MONRONEY. Would there be, for say region B, that would be the neighbor that would be called on in the event of a tremendous outage, would there be any payment coming in for any surplus region B might have available to send in to region A?

Mr. WHITE. We do know of situations where those arrangements are worked out and paid for. And the system obtaining the power is mighty glad to be able to find somebody to supply it to him when he needs it. And the other fellow who has supplied it is pretty happy too, because he is using his excess capacity and this helps him.

Senator MONRONEY. I mean at the time he is not selling it. At the time he is not selling it, does he receive remuneration for the extra standby capability he has?

Mr. WHITE. He might be paid for the capability, yes. In other words, in order to protect a system, you contract with your neighbor who says, Under these circumstances I will provide you the necessary energy. If the worst never comes to pass you have to pay for that right, for his commitment to you to meet your needs when you need help, either by making a money payment or by making the same electrical service available to him.

So the answer is yes, you are paid for that. And frankly it is good business from both points of view.

Senator MONRONEY. In other words, you are paid for the standby capability, even though it is not used?

Mr. WHITE. Yes.

Senator MONRONEY. You would have that for maybe 2 or 3 years and maybe need the power only for a day or two?

Mr. WHITE. That is correct, and under the isolated system they have to have standby power available, unless they want their customers to go without service in the event of a disturbance.

Senator MONRONEY. I see. Thank you very much, Mr. Chairman. That is all I have.

The CHAIRMAN. All right. We have had a very productive morning on this. The committee members may submit some questions to you.

There are a lot of long complicated questions that some of them may have.

Mr. WHITE. Yes, sir.

The CHAIRMAN. Thank you very much.

(Thereupon, at 12:33 p.m. the hearing was recessed subject to the call of the chair.)

(The following statements, information and articles were subsequently received for inclusion in the record:)

STATEMENT BY HON. EDMUND S. MUSKIE, U.S. SENATOR FROM THE STATE OF MAINE

Mr. Chairman, I appreciate the opportunity to present my views on S. 1934, the proposed Electric Power Reliability Act of 1967. I was privileged to introduce this bill on which I was joined by yourself and several other Senators who are also concerned with the reliability of our nation's supply of power.

This bill is a response to the report to the President by the Federal Power Commission on *The Prevention of Power Failures*, a study which was specifically designed to answer the questions posed by the massive power blackout which struck the Northeast in 1965. In effect, the conclusions and recommendations of this report are a challenge to the capabilities of the United States to keep up with its own technology. We have created an unprecedented demand for electric power, yet we have failed to insure an adequate and reliable supply.

The concept of a reliable supply must be more strictly defined in the context of electric power than in almost any other area. *Nearly* complete reliability is unacceptable. We learned the lesson from the blackout of 1965 and subsequent failures that disastrous possibilities exist if our structure of supply and distribution is not 100 percent reliable. We have been relatively fortunate that these large-scale failures have not resulted in actual disaster. However, we can no longer afford to rely on the graces of circumstance and luck. Instead, through programs of planning and action, we must strengthen the reliability and efficiency of our power systems to the point where our dependence on these systems cannot be questioned.

The basic capabilities of utility companies, both public and private, to produce the power itself is not in question. According to the report of the Commission, "The challenges here are as much institutional as technical." They conclude that "The critical . . . needs . . . are to develop mechanisms for effective coordinated planning, design, construction, and operation of generation and transmission facilities."

It is becoming increasingly evident in many areas of the public interest that regional coordination is a necessity if we are to effectively maintain the public welfare and services. As far as electricity is concerned, this coordination must include:

1. Joint planning;
2. Construction of facilities with an eye to the needs and desires of other systems;
3. Integration of operating practices; and
4. Cooperation in dropping load and restoring service in event of an outage.

The most important facet of electrical coordination, however, is the adequacy of the entire system's transmission capacity. The Commission's Advisory Committee emphasized that transmission "is the cohesive force which ties together power systems."

We have learned that existing institutional mechanisms are insufficient to cope with these increasingly complex problems. If we ignore the necessity of

innovation in this area, we will soon collapse under the weight of our own technology.

This bill provides the impetus and the authority for such innovation. I most strongly urge favorable action by the Committee as soon as possible.

FEDERAL POWER COMMISSION,
Washington, D.C., September 21, 1967.

HON. WARREN G. MAGNUSON,
*Chairman, Committee on Commerce,
U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: During my appearance on August 22, 1967 at the hearing on the Electric Power Reliability Act (S. 1934), Senator Monroney and I discussed the question of spare generating capacity for emergency assistance among interconnected utilities and the related economics. This is a complicated aspect of the electric utility business, and I believe that my answers should be amplified in order to provide a more complete understanding of how equity is achieved when a group of electric utilities through joint planning attempt to improve reliability and increase their economic benefits.

First, we can start with Senator Monroney's illustrative example involving six utilities that plan their generation jointly so as to have sufficient reserve capacity to meet various kinds of emergencies which could arise on their interconnected systems. In the illustration, each utility maintains an assumed reserve of 20 percent of peak load; it is further assumed that this is sufficient reserve capacity to keep the entire interconnection going if equipment is forced out of service on one or more of the systems. If these six utilities were not operating their facilities in this interconnected manner, they could each achieve a comparable level of reliability only by maintaining more installed capacity, or by installing smaller, less efficient generating units. The illustration, although oversimplified, serves to emphasize how utilities join together, through interconnection, to recognize diversity of hazards and thereby achieve substantial cost savings. Thus, since interconnection among neighbors permits utilities to lower costs, in a long-term sense the problem is how to distribute benefits rather than how to divide extra costs.

Nonetheless, in the short run utilities must decide who is to pay for particular construction which results in one utility having a greater proportion of capacity than some of its neighbors. As I suggested at the hearing, utilities have worked out contractual arrangements whereby the costs which are incurred in this manner may be equitably borne by the beneficiaries. These arrangements may involve a flow of dollars among power pool members through an equalization of reserve formula or they may be implemented by bilateral agreements for short-term sales of capacity to permit staggered construction. Regardless of which technique is used, one important prerequisite is that the reserve obligation of each participant be clearly established through informal understandings or contractual agreements.

There are instances where standby service is provided by a large utility to a small utility for a price, but such instances are relatively infrequent, and the small system receiving such service usually does not have the opportunity to participate in multi-party coordination agreements. For example, Cincinnati Gas & Electric Company provides 10,000 kw of standby service to the City of Hamilton, Ohio, at a price of \$1.00 per kw per month. This arrangement permits Hamilton to maintain a level of power supply reliability with less installed generation than would be possible under isolated operation. A somewhat different type of standby arrangement was entered into by PJM at the beginning of this summer with systems to the west and south. Under the contractual arrangements these systems agreed to reserve several hundred thousand kilowatts of capacity excess to their needs to be available to PJM on demand during the summer peak season. For this service PJM is required to pay 30¢ per kw per week and incremental cost plus 10 percent for any energy taken. In contrast to the relatively long-term Hamilton type of standby agreement, the PJM arrangement grew out of a short-term power supply shortage which developed unexpectedly.

Situations of the sort described above have a minimal impact upon bulk power supply planning. Of much greater significance from the point of view of region-wide reliability of power supply are the emergency service agreements entered into by all large systems. These agreements, in general, provide for the interconnection of the systems at one or more points and for the supply of emergency

power when generation or transmission capacity is forced out of service. As a precondition to the establishment of such interconnections, the parties must reach agreement on a variety of complex operating and planning factors including minimum reserve capacity requirements. As the result of these agreements, however, each system in the interconnected network is, in effect, standing by for its neighbors to the full extent of its resources with the result, again, that all participating systems are able to function with greater reliability and economic efficiency than under conditions of isolation. If no emergency occurs, there is no payment provided each system maintains its minimum reserve obligation. When a system does have an emergency and takes emergency power and energy from its neighbors, such service is usually priced upon the basis of incremental cost plus a nominal percentage.

Every large electric system has one or more such mutual emergency service arrangements with neighboring systems either in the form of bilateral agreements or as a part of multi-party coordination agreements. Over 50 percent of the total installed capacity in this country is controlled by utilities that are members of "formal power pools".

Coordinating group or power pool members jointly determine the generation reserve requirements for the entire group and attempt to achieve equity by distributing these obligations to each member. However, much work still must be done to develop suitable techniques for achieving adequate reliability of the interconnected network as well as achieving equity among the coordinating groups and power pools which constitute the network. One of the basic challenges is to establish effective regional organizations which can achieve fuller inter-area coordination for reliability, economic efficiency and equity.

These are complicated matters, and I believe it would be helpful to include this letter at the appropriate point in the printed hearing.

Sincerely,

LEE C. WHITE,
Chairman.

FEDERAL POWER COMMISSION,
Washington, D.C., September 18, 1967.

HON. WARREN G. MAGNUSON,
Chairman, Committee on Commerce,
U.S. Senate,
Washington, D.C.

DEAR MR. CHAIRMAN: Enclosed are the Commission's answers to the questions regarding the proposed Electric Power Reliability Act, S. 1934, transmitted by your letter of August 29, 1967.

Time has not permitted us to secure the advice of the Bureau of the Budget with regard to these questions.

Please let us know if we may be of further assistance.

Sincerely,

LEE C. WHITE, *Chairman.*

QUESTIONS REGARDING S. 1934, ELECTRIC POWER RELIABILITY ACT OF 1967

1. Generally speaking, do state regulatory commissions now have authority relating to reliability of electric service?

Answer: We believe most State commissions probably have some, incomplete authority relating to reliability of electric service.

a. Although neither we nor the National Association of Railroad and Utilities Commissioners. (NARUC) have completed a detailed survey of the matter, we have consulted the President and General Counsel of NARUC. The following information is pertinent: State regulatory statutes commonly include legal authority to require a regulated utility to provide "adequate" service. The Pennsylvania statute specifically provides that the regulated service shall be "reasonably continuous" and "without unreasonable interruptions" and the Vermont statute expressly empowers the state commission to order interconnections. Most statutes are less specific. Thus the Maryland statute empowers the state commission to "prescribe standards of safe, adequate, reasonable and proper service for any class of public service company, which in its opinion will best promote the security or convenience of the public, of those employed in furnishing service, and of those to whom service is rendered; and to these ends, the Commission may enforce the standards set by it, and may by order

require such changes and additions in the service of any public service company as it may deem necessary, including but not limited to repairs or improvements in plant, increase in motive power and change in schedule or manner of operations."

Attached is a letter, dated September 7, 1967, from the General Counsel of NARUC.

b. Such State statutes are of limited legal effect since many State commissions have no authority over the municipally-owned, State-owned or cooperatively-owned electric utilities and no State has jurisdiction over the Federal electric utilities.

c. State authority is practically limited by interdependence of utilities in several states as a result of interconnection.

d. Active Federal-State cooperation will best promote electric reliability and is a major feature of the reliability program we propose.

2. What authority does the Commission have under Section 202 of the present Federal Power Act to improve reliability?

Answer: a. Section 202(a) provides authority to promote voluntary coordination, as the Commission has done through the National Power Survey, studies of power failures, particular interconnection studies, and the work of the Advisory Committee on Reliability of Bulk Power Supply. Although the term "reliability" does not appear in section 202(a), we believe it is a relevant consideration. The Congress there declared a national "purpose of assuring an abundant supply of electric energy throughout the United States with the greatest possible economy and with regard to the proper utilization and conservation of national resources."

The Commission is thereby authorized to establish regional districts "for the *voluntary* interconnection and coordination of facilities for the generation, transmission and sale of electric energy" [emphasis added], and "to promote and encourage such interconnection and coordination within each such district and between such districts". Under these provisions, utilities may disregard the Commission's urging of increased interconnections and may even decline to permit attendance by Commission representatives at coordination meetings.

b. Section 202(b) provides additional authority to require a "public utility" (but not of a Federal, municipal, state, or cooperative utility or an intrastate utility) interconnection of transmission facilities, sale of energy or exchange of energy. The authority of section 202(b) may come into play only if an application is filed either by a State commission or by any other transmitter or seller of electric energy. (Exercise of the authority is limited as described in answer to Question 3, below.) This section is of special importance to small electrically isolated systems, whether municipally, cooperatively, or privately-owned. At the present time there are more than 250 such systems. However, few cases have been initiated or decided under this authority (none on application of a State commission). Utilities seem reluctant to resort to these provisions even though negotiations with their neighbors may drag on without tangible results.

c. Section 202(c) provides that during wartime, power shortages, or other emergencies the Commission may require of a utility "such temporary connections of facilities and such generation, delivery, interchange, or transmission of electric energy as in its judgment will best meet the emergency and serve the public interest."

Emergency orders under section 202(c) may be directed against an intrastate utility, but it is not clear whether they may be addressed to a public body or instrumentality exempted from regulation by section 201(f). These provisions can be used to require temporary services in wartime and other emergency circumstances; the Commission has recently done so where an isolated utility suffered repeated power failures. *Georgia Power Co.*, 35 FPC 629, order issued April 22, 1966. It is questionable, however, whether these provisions were intended to authorize the Commission to act generally to improve long-term reliability.

d. Section 202(e) provides for Commission regulation of exports.

e. While we are convinced that section 202 of the Act is inadequate to permit the Commission to play the full part called for to assist the industry in meeting the challenges ahead, we intend to use our existing authority fully to achieve these objectives to the extent that funds are available.

3. Is the authority presently contained in Section 202(b) of the Federal Power Act sufficient to accomplish the essential purposes of Section 411, or would it be sufficient if authority were added to Section 202(b) to permit orders on the Commission's own motion?

Answer: As the question correctly suggests, and as mentioned in the previous answer, one of the inadequacies of section 202(b) is the lack of authority in the

Commission to act on its own motion. Thus our study of the El Paso power failure of December 22, 1965, led the Commission to recommend serious study of an interconnection between El Paso Electric Company and Southwestern Public Service Company to strengthen the bulk power network serving El Paso. The companies have discussed the proposal, but no tangible results are yet forthcoming and the Commission cannot compel action despite the slow pace of purely voluntary coordination. Proposed section 411 would permit the Commission to act on its own motion in such circumstances, but this is not the only insufficiency of section 202(b).

Proposed section 411 is patterned directly upon section 202(b) with the following differences:

a. Under section 411 the Commission could act on its own motion, not only upon complaint.

b. Under section 411 the Commission could require compliance by utilities exempt from Part II of the Act: *i.e.*, municipal, state and Federal utilities, cooperatively-owned utilities, and those investor-owned utilities not engaged in interstate commerce in the statutory sense (but subject to the commerce or national defense powers of Congress under the Constitution).

c. Under section 411, Commission decisions would be governed by the objectives spelled out in section 401(b); under section 202(b) the more general "public interest" standard governs.

d. Section 411 preserves the limitation in section 202(b) that the Commission may act only when it finds that "no undue burden will be placed" by its order upon the utility. Section 411 does not repeat the additional limitation that the Commission order may not "compel the enlargement of generating facilities" since there appears no legitimate reason for further limiting authority to act in those instances where the order imposes no undue burden. Thus the Northeast power failure illustrates how the absence of standby generating facilities to supply auxiliary station power and to maintain communications and remote control systems multiplied the duration of the outage and, in some instances, gave rise to equipment damage. In appropriate circumstances, therefore, the Commission should have power to compel non-burdensome provision of generating facilities as an incident to an interconnection order. On the other hand, section 411 also omits the further limitation in section 202(b) against requiring a utility to take steps which "would impair its ability to render adequate service to its customers." Normally, the proscription against imposing undue burdens upon the utility would also protect this objective, but it has been pointed out to us that the interests of a utility and its customers might diverge in some circumstances. Accordingly, we would have no objection to adding this explicit protection of service to existing customers to section 411.

4. In view of your support of S. 683, why are the antitrust provisions of S. 1934 limited to providing immunity only from private damage suits?

Answer: As pointed out in our letter of July 18, 1967, to Chairman Magnuson and in Chairman White's statement on August 22 (page 30), the bill was intended to immunize from private injunction suits as well as damage suits and should be so amended. As spelled out in the discussion of antitrust problems in the statement (page 42) the differences between S. 1934 and S. 683 are intended both to meet objections previously raised to the broader immunity of the latter (in the hearings on S. 3136, 89th Congress) and to place a premium on considering the relevant issues in the regional planning process, rather than on by-passing the regional council.

5. Federal rights on right-of-ways will not arise until quite a long time after the utilities have been required to publicly identify their proposed rights-of-way. Will this increase the cost of this land?

Answer: Chairman White's prepared statement discusses the point (page 55):

"... We recognize that earlier disclosure of utility plans may increase land acquisition costs. But we conclude that it is well worth that price to secure earlier consideration of the basic issues. We believe the utility industry should accept a duty to draw affected parties and public land and water use agencies into the planning process."

Although the cost of land for rights-of-way might increase in some instances, that possible effect would not be so great as to disrupt utility economics, and in other instances we anticipate a net decrease in costs through avoidance of last-minute litigation. To the extent that rights-of-way information must be divulged early under present practice we know of no disastrous cost consequences: Such information is made public when the line involved is required to be licensed by the FPC as a primary line from a hydroelectric project and some State utility

laws also require notice. It must be kept in mind that land costs amount to but a fraction of electric utility investment. Besides, we expect countervailing savings as a result of the orderly procedure that S. 1934 would provide. Delay and litigation in the absence of such procedure, especially when they arise at the last minute, must also be counted among the expenses of securing a right-of-way.

6. The final report on the Northeast Blackout points out that the prolonged nature of the essential lead-time seriously aggravates the reliability of existing systems. Will superimposing of Commission staff review, public hearings and Commission review further aggravate this situation?

Answer: Enactment of S. 1934 would speed up, rather than delay the process. The problem would be aggravated, as was asserted during last year's hearings on S. 1472, S. 2139, and S. 2140 (89th Congress), if FPC review first began only after utility planning was completed. Indeed, too often today we see implementation of plans delayed because of last-minute disputes over transmission line routing. The planning agencies and regulatory authorities cannot do either an effective or expeditious job under present industry practices which shroud utility planning in secrecy until a fully-developed program is announced for implementation. Similarly, electric equipment manufacturers complain that the utilities are not disclosing their plans early enough to permit timely installation of manufacturing capacity. The procedures of S. 1934 would open the earlier stages of the planning process and thereby facilitate sounder and speedier decisions by all concerned. If despite all these early procedures an emergency arose threatening reliability in a particular case, section 409(f) of S. 1934 provides an emergency procedure to waive hearings and further review.

7. Will differing standards of reliability be used for different regions?

Answer: There may be differences, if the circumstances warrant and section 408 expressly provides for that possibility. The various regions that would be set up would be defined, at least in part, on the basis of the type of problems found in different areas of the country. Some areas for example, depend heavily on their plentiful supply of hydroelectric capacity; others are primarily dependent on fuel-burning plants. The reliability standards, insofar as they were initially prepared by the regional councils, would automatically reflect these differences; and the Commission would, wherever appropriate, issue standards on a regional rather than a national basis.

8. Will you state the Commission's present opinion as to what areas should be included within the various regions in which you suggest that regional organizations be established for coordinating the planning, construction, operation and maintenance of bulk power supply systems?

Answer: We have not decided what particular areas should be included in each region. The terms of S. 1934 require that we consult extensively with utilities and State commissions before coming to any decision on that question, and naturally we would want to have all the advice we can gather from those quarters before hazarding any opinion. Chairman White's statement (page 28) gives some idea of the general criteria we would use.

9. On page 4 of the Commission's July report on the prevention of power failures you state "Achieving adequate reliability throughout the nation will engage not months, but years of concerted planning and construction. We believe the 12 recommendations which follow go to the heart of the problem." After reference to some supplemental recommendations, the report lists 12 principal conclusions and recommendations. Is it correct to assume that the attainment of those conclusion would, to the best of your present knowledge and advice, result, in due course, in the maximum feasible reliability of bulk power supplies?

Answer: The twelve recommendations mentioned are the most sweeping and significant of the total of 34 which the report sets out. The twelve are at volume I, pages 4-5; the 34 at volume I, pages 88-95. We would prefer to say that these thirty-four recommendations represent what, as far as we can see today, would be the best means of achieving the highest practicable degree of reliability (including the earliest restoration of service if a power failure occurs) and providing for continuity of essential services where a blackout occurs.

10. Can you give examples of regulations that would be appropriate to implement those various provision of S. 1934 under which the promulgation of regulations is authorized?

Answer: The Commission's general, rulemaking authority under existing section 309 would automatically carry over to the new Part IV by virtue of section 402(b). However, in a number of instances we have deemed it important to call attention to the rulemaking power to implement the statute. For example:

a. Section 404(b) specifies that statements of regional council organization and regional plans are to be filed under rules to be prescribed. Such rules might define the sort of document which rises to the status of statement of organization (see, e.g., the ECAR Coordination Agreement submitted to the Committee at page 27 of Chairman White's statement) as contrasted with minor administrative directives. Rules might also fix the frequency with which regional plans are to be reported, as explained at page 36 of Chairman White's statement.

b. Section 407 provides for lodging of all agreements for coordination of bulk power supply with the Commission, including both agreements that must now be filed under Part II of the Act and other agreements, not now filed, such as those involving only public power utilities or utilities engaged exclusively in intrastate commerce. Rules to be promulgated under this section would include provisions to avoid double burdens in the case of agreements subject both to existing Part II and new section 407.

c. Section 409(a) provides for regulations as to filing of proposals to construct extra-high-voltage transmission facilities. Such regulations would include specific guidance to the proponent as to the form and contents of his filings. Existing Commission regulations similarly govern the applications for hydroelectric licenses under Part I of the Power Act, applications for gas pipeline certificates under the Natural Gas Act, and rate change proposals under each of these statutes.

d. Section 413 authorizes the exemption by rule of matters otherwise subject to Part IV. As the Commission's section-by-section analysis and Chairman White's statement (page 49) point out, such a regulation might exempt an extra-high-voltage spur line, built to serve only a single industrial customer.

11. Is there any provision of S. 1934 which would authorize the Commission to decide what specific organization or agency would build a transmission line in cases where more than one agency is competing to provide such facility? If so, what criteria would the Commission use to decide between them?

Answer: If two utilities each propose under section 409 to build the same extra-high-voltage transmission line the Commission would have to decide where the public interest lay between them, guided by the objectives of Part IV. Hopefully, such disagreements would be rare, being resolved earlier by negotiation in the regional planning process. If some disputes cannot be thus resolved, however, it would be the Commission's responsibility under section 409 to make a decision which prevented wasteful duplication, which secured reliable planning and operation, and which economically utilized steel and aluminum, land, capital and human resources. Perhaps particularly relevant is the objective of Part IV to respect the territorial integrity of service areas so far as consistent with the public interest. It is common practice in the industry for each neighboring utility to build and own that segment of a major transmission line which lies in its own service area, and this practice might often provide a practicable method of settling competitive applications.

12. If two or more utilities each desired to build a large generating plant and only one is needed at that time to meet the area load, would S. 1934 authorize the Commission to decide between them? If so, what criteria would be used to make such decisions?

Answer: The Commission would not be authorized to decide. No section of the bill provides for FPC review of generating projects along the lines of the proposed review of EHV transmission lines. Such issues could arise in the regional planning process, and so be subject to Commission examination and comment under section 404, including the withholding of antitrust immunity if the Commission concluded that plans for ownership of a generating plant would have a substantial adverse effect on competition which would not be clearly outweighed by other public interest considerations. The Commission's persuasive role might well influence industry ownership decisions, but the bill would not authorize the Commission to impose its own decision upon the utilities.

13. Will the Commission have any authority, direct or indirect, to enforce the execution of plans to be developed by the proposed regional councils?

Answer: The Commission would not have any general authority to require execution of plans developed by the regional councils. The Commission would have special authority, however, in two respects:

a. Under section 411, the Commission might require execution of an inter-connection, sale or exchange which carried out a plan developed by a regional council.

b. Under section 409, the Commission might allow construction of proposed EHV facilities only on condition that the proposal be carried out consistently with a plan developed by a regional council.

As noted in the previous answer, the Commission would also have the powers of persuasion and of withholding the antitrust immunity which might be conferred under the bill.

14. Under the new Part IV of the Federal Power Act, as provided for in this bill, how will the FPC justify jurisdiction over electric utilities operating in intrastate commerce, under present interpretations of Parts II and III of the Act, where such intrastate companies are not considered jurisdictional?

Answer: Existing Part II generally applies only to operations in interstate commerce, but the Congress has broader power under the Constitution. Proposed Part IV would exercise the broad range of Congressional power over electric systems, reaching to operations which affect interstate commerce and operations which affect the national defense.

15. With respect to nuclear power plants, how will the exercise of FPC authority be coordinated with the AEC's regulatory powers over construction and operation of such plants?

Answer: The AEC has licensing jurisdiction over certain aspects of nuclear power plant construction. S. 1934 does not involve licensing of power plants. We anticipate that the authorities of AEC and of FPC under S. 1934 would be readily compatible.

16. What jurisdiction, if any, will this bill give to the FPC with respect to thermal pollution?

Answer: Thermal pollution would be a factor to be considered in the regional planning process under section 404, but the Commission would not have authority to regulate thermal pollution. The Commission has separately supported legislation to provide for licensing of water diversion facilities for steam-electric plants, thereby authorizing regulation of thermal pollution effects. See F.P.C., Forty-Sixth Annual Report (1967); and S. 2306 and H.R. 10701 (89th Congress). The Commission now has authority over thermal pollution matters to the extent of its jurisdiction over licensed hydroelectric projects.

17. Can you give the Committee a more explicit estimate of additional staff that will be needed to administer the bill?

Answer: The Commission is in the process of building up its staff in order to exercise fully its existing authority under the Federal Power Act. This must be a rather slow process because of the scarcity of highly trained experts in this field. Beyond the level of staff that we consider necessary to fully exercise the authority and responsibility with respect to reliability of service contained in the present Act, we estimate that a fairly substantial increase in staff would be necessary to carry out the provisions of S. 1934. The staff that would be required depends on a number of factors, not the least significant of which is the degree of cooperation that may be forthcoming from the various segments of the industry, how the regions and regional councils are set up, how the councils operate, and the extent to which we are able to utilize advisory boards, as provided in section 406. These matters are not precisely predictable at this time, but we shall work closely with the Congress to plan and pace the development of needed staff resources.

18. Do you believe it will be necessary to set electrical equipment specifications on a national basis to assure components of the required characteristics and reliability?

Answer: We doubt that it will become necessary to standardize electrical equipment components nationally. In any event, S. 1934 does not provide for such standardization.

19. Does the language in Section 401(b), which states that "all utility systems and their customers shall have access to the benefits of coordination . . ." mean that nongenerating distribution electric utilities will be able to participate in the planning councils envisioned in this bill under Section 404?

Answer: The bill intends to furnish an opportunity for such participation and says so more explicitly in section 404(a):

"Each regional coordination organization . . . shall be open to membership, direct or indirect, by each electric system in the region . . ."

We recognize that participation by nongenerating distribution utilities (and, perhaps, others of the smaller systems) may prove feasible only on a grouped basis. This is spelled out in Chairman White's statement at pages 22 and 29.

20. What will be the nature of FPC representation on regional councils as described in section 404(a)?

Answer: The FPC representative would participate in the work of the regional council in much the same way as other members. He would not be empowered to

cast a vote or otherwise participate in the council's final decision to adopt a plan, but he would be a full participant in the discussion and criticism of ideas and projects within the council. Without having any veto power, or the right to speak authoritatively for the Commission, the staff representative would be able to examine and criticize council members' plans and suggestions from the standpoint of the broad public interest. The availability to the utilities of comments from this quarter would be helpful to them, and would give them a better feel for what the Commission hoped would emerge from the planning process. Of course the benefits flow in both directions. Having a staff representative within the regional council would enable the Commission to keep posted on its progress. We would expect the council to hear the staff representative's comments as those of a representative of the public interest, but we would not expect our representative to exercise any veto or control over what was proposed, discussed, or decided by the council. Representation of the public interest is vital, however, particularly since the deliberations of the regional councils, and the plans that would result from them, would often be immunized from some types of anti-trust action.

21. What standards will the FPC apply as to the validity of the organization of councils as stated in Section 404(b)? Will this be a carryover of present regional advisory committees?

Answer: The regional councils will not merely carry over the functions of the present regional advisory committees. The latter were established by the FPC to help update the National Power Survey and they include a few leaders, selected by the FPC to advise it. The regional councils under S. 1934, however, would be created by the utilities (not the FPC) and their utility members would be representing their organizations (not advising the FPC in general).

The validity of the organization of the regional councils would be judged by the public interest. The governing standards would be those spelled out in section 401(b). In essence, FPC review should assure fair dealing in addition to workability. Fairness in this context means, first of all, fairness in representation: The assurance that, taking into account the necessity of holding the regional council to a manageable size, every utility will have a chance to be heard either through its own representative or through a representative of a group it is associated with. This should be the rule regardless of the form of ownership of a particular utility. As mentioned in Chairman White's statement (page 29):

"... none of the principal bulk power suppliers should be excluded from reliability coordination on the ground that they are differently owned or financed from the predominant group in the particular region. We also believe that the smaller utilities, which may collectively affect bulk power reliability and which are certainly affected by bulk power reliability in the region, should be entitled to participate. The bill recognizes, however, that it may be more appropriate for the smaller systems to participate indirectly, by grouping themselves and securing a single representative."

Fairness also means fairness in procedures. The statement of organization would have to show that minority views would be heard and considered, and would be given adequate publicity. The publication of minority views, of course, would be helpful to the Commission in its review activities as well as being necessary to protect the rights of council members. We would expect, as well, that a council would establish some reasonable and equitable formula for dividing the costs of operating the council.

22. In Section 404(d), antitrust immunity is granted to plans approved by the FPC "while the Commission's approval remains in effect." What procedure would be followed for withdrawal of approval?

Answer: The Commission would follow the procedures of section 404(d), as it had in its initial approval. If the Commission found it necessary to withdraw the approval it had granted to a plan, it would make every effort to assist the regional council in developing modifications, or perhaps a new plan, that would meet the circumstances calling for withdrawal of the prior approval. If the matter could not be resolved informally, the Commission could act after notice and opportunity for hearing (and subject to judicial review) under the first sentence of section 404(d).

23. In Section 404(f), the FPC may require participation in a regional council. How will it be enforced?

Answer: Section 404(f) is intended to make sure that every system in each region at least considers the plans and problems of the other entities, and informs its neighbors of its own plans. This means compulsion to plan, not compulsion

to build. The section is included because we think it necessary to ensure that cooperative planning will not be crippled by the refusal of some systems to participate in it. We would enforce the section, if necessary, after judicial review of the Commission's order under the enforcement provisions of the other parts of the Federal Power Act, which are made applicable by section 402(b). We expect it would not be necessary to resort to these provisions, however, in light of the industry's record of compliance with Commission orders (subject, of course, to the right of resort to judicial review of those orders).

24. Compare the duties of the Committee proposed under Section 405 with the duties of the present industry advisory committees.

Answer: The National Electric Studies Committee and the present advisory committees are alike in that they draw on the expertise and talent of the industry to solve general problems. The National Electric Studies Committee, however, would have rather different functions and, most important, the status which comes from Congressional recognition. Our report on *Prevention of Power Failures* proposed duties for such a body, in a passage quoted at pages 60-61 of Chairman White's statement. It would be particularly valuable if the National Electric Studies Committee could generate more interest in power system problems than exists today in our universities and research institutions. Utilities face stiff competition in recruiting new engineering talent, since glamorous fields like aerospace and computers draw off many students and young engineers. The picture which many have of the utility industry as one whose major technological problems are behind it is misleading, but a real effort to correct it is necessary if the industry is to attract talented technical personnel. This could be a major service to the industry, which we believe the National Electric Studies Committee would be well fitted to perform.

25. Section 409(c) states that informal procedures will be stressed in FPC review of EHV facilities proposals. Will this be analogous to informal procedures in rate cases?

Answer: The types of procedures to be used in settling EHV matters informally would resemble those we employ in exercising our rate of jurisdiction. Often, of course, a rate problem can be settled satisfactorily by conference without instituting a case at all; and we think the structure of section 409 encourages this type of speedy disposition. If the proponent of an EHV project can present a satisfactory proposal, or modify it satisfactorily within the first six months, there need be no formal proceeding at all. This should be an incentive to all parties concerned to make the fullest possible use of these informal procedures available. The use of informal procedures would save time, which, in the context of EHV regulation, is of primary importance for the expediting of needed transmission line construction and the maintenance of reliability.

26. Section 409(f) allows the FPC to exempt persons from requirements of Section 409 "whenever the Commission determines that emergency conditions so require". What does the FPC think will constitute an emergency?

Answer: The criteria for determining when an emergency exists are defined by section 409(f) in the same language as appears in section 202(c) of the present Federal Power Act. They attempt to indicate situations in which immediate construction of the new facilities may be the indispensable way to remedy a shortage or failure in bulk power supply.

27. May the FPC require wheeling under section 411?

Answer: Under section 411 the Commission may order one utility to establish an interconnection with another and sell energy to or exchange energy with that utility. This is the same power that the Commission has (in more limited circumstances) under present section 202(b) of the Federal Power Act, and the relevant language of section 411 is identical. Whether section 202(b) permits the Commission to order wheeling, and if so to what extent, has not been finally answered. It was adverted to, but not decided in a recent case (decided since section 411 was drafted): *City of Paris, Kentucky v. Kentucky Utilities Company*, FPC Opinion No. 525, decided August 4, 1967, at page 3. We note that in another version of the proposed Reliability Act (H.R. 12322) section 411 explicitly provides that the Commission would be able to order wheeling service.

28. Does the Commission intend by Section 411 to relax any of the limiting standards now contained in Section 202(b) of the Federal Power Act?

Answer: Yes, as discussed in the answer to question number 3, above.

29. Section 411 of S. 1934 provides for compulsory interconnections and sale or exchange of energy upon terms and conditions to be prescribed by the

Commission. What effect might this provision have on the sale of revenue bonds by municipalities? For example, some municipalities must covenant with their bond holders that they will fix rates or charges for electric energy sufficient to pay the principal and interest on the revenue obligations and all costs of operation and maintenance of the public utility.

Answer: We have been advised of no adverse effect and it seems most unlikely that this provision would have any effect on the salability or attractiveness of municipal bonds. The Commission would have to consider this matter in deciding any interconnection case, and it would be an element in determining whether the proposed interconnection order would impose an undue burden on the utility concerned. If the terms of its bond indentures required the utility to raise its rates unreasonably, the Commission could determine the proposed interconnection improper under the circumstances, and refuse to order it. These would certainly be relevant considerations under section 411.

30. In what ways, if any, would Section 412 of S. 1934, relating to abandonment of service, affect the present industry policy of making flexible short-term arrangements for the interchange of surpluses?

Answer: It should not interfere with that industry practice. The Commission now has power to deal with abandonments, although in a limited fashion, since they are changes in rate schedules. Even though the Commission, under existing law, can suspend and ultimately disallow discontinuance of a surplus-interchange service, the industry has not been deterred from entering into such arrangements. For example, the members of the PJM interconnection arranged for the interchange of several hundred thousand kilowatts with the Virginia Electric & Power Company, the Allegheny Power System and Cleveland Electric Illuminating Company over a 17-week period this past summer. The Consolidated Edison Company made a number of short-term arrangements, of varying duration, with other utilities in New York State. Such arrangements are quite common under the present Act, and to the advantage of all concerned. There is no reason to fear that section 412 would interfere with them, and it is certainly not intended to operate in that manner.

NATIONAL ASSOCIATION OF RAILROAD
AND UTILITIES COMMISSIONERS,
Washington, D.C., September 7, 1967.

MR. DAVID J. BARDIN,
*Assistant General Counsel,
Federal Power Commission,
Washington D.C.*

DEAR MR. BARDIN: This will confirm our telephone conversation of last week in which I answered "Yes" to the following question: "Generally speaking, do state regulatory commissions now have authority relating to reliability of electric service?"

I understand that this question has been addressed to the Federal Power Commission by Chairman Warren G. Magnuson of the Senate Committee on Commerce.

Reliability is an important feature of the service rendered by any utility to the public. In general, the state regulatory commissions are authorized by law to prescribe and enforce reasonable service standards to be observed by the utilities they regulate.

For example, the Maryland Public Service Commission is empowered to "prescribe standards of safe, adequate, reasonable and proper service for any class of public service company, which in its option will best promote the security or convenience of the public, of those employed in furnishing service, and of those to whom service is rendered; and to these ends, the Commission may enforce the standards set by it, and may by order require such changes and additions in the service of any public service company as it may deem necessary, including but not limited to repairs or improvements in plant, increase in motive power and change in schedule or manner of operations."¹ The term "public service company" is defined to include an electric company.²

¹ Annotated Code of Maryland, 1957, art. 78, sec. 73.

² *Id.*, sec. 2(o).

On the basis of my knowledge of state regulatory law, it is my opinion that in general the other state regulatory commissions possess comparable powers over the rendition of utility service and the reliability aspects thereof.

I have reviewed this matter with President Frederick N. Allen of this Association and he concurs in these views.

Sincerely yours,

PAUL RODGERS,
General Counsel.

FEDERAL POWER COMMISSION,
Washington, August 4, 1967.

HON. WARREN G. MAGNUSON,
Chairman, Subcommittee on Independent Offices, Committee on Appropriations,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This is in reply to your letter of July 25, 1967, transmitting eight additional questions not dealt with in the course of the Independent Offices Appropriation hearing on July 24. The questions and my answers follow. Time has not permitted me to secure consideration of these answers by my fellow commissioners.

Question 1. S. 1934 contains a section on reliability and mention of it in many places. How do you define reliability?—100% or some lesser fraction? or do you define it in terms of system engineering concepts, or what?

Answer. Reliability is basically the ability of a power system to deliver power continuously. In the context of S. 1934, it refers to the ability of a bulk power system to deliver power to points of distribution. It can be gaged by the infrequency of interruptions and by the extent and duration of interruptions when they do occur. The difficulty in defining reliability really arises in determining what standard of reliability we want and can hope for. It is not feasible to construct a power system that is proof against absolutely every conceivable disaster. But we can take as a basis that a system should be able to meet every foreseeable load; that is, to avoid shortages caused by an insufficiency of generating or transmission capacity. That of course implies that reliability depends very heavily on the quality of planning that goes into the system, and that accurate forecasting of loads and allowance for possible delays in obtaining needed equipment are important to good planning.

A basic standard of reliability must also include provision for meeting emergencies (such as those caused by operating errors or equipment failures). Emergencies, in the sense of events other than increases in demand, are bound to occur more or less at random. It is technically possible to plan a system which can withstand any defined emergency without actual interruption of service. In system planning, it is usual to take account of relatively uncommon, and relatively serious, contingencies. One might, for instance, design a system that would remain stable in spite of the loss of the largest generating unit. This system would be less reliable than one designed to withstand the loss of the largest generating plant. Here again, reliability starts with planning, and the more severe the contingencies that are planned for and guarded against, the more reliable the system will be.

Still a third aspect of reliability is the system's capacity to minimize trouble if it does start, and to restore interrupted service as quickly as possible. Thus automatic load shedding procedures and provisions for quick restoration of service contribute to reliability even though they come into play when service has actually begun to fail.

These are the fundamental concepts of reliability. Perhaps the most important common feature of them all is that they are planning concepts: reliability is in very large part a matter of planning, and not merely a result of careful, on-the-spot operation.

Question 2. In S. 1934, does that part of the "objectives of the part" relating to "providing all utility systems . . . shall have access to the benefits of coordination" have any effect on the preference clause of the Power Act?

Answer. The objective of providing all utility systems with access to the benefits of coordination is not intended to have any effect on statutory preference rights to obtain power from government dams. The aim of this provision is to prevent the exclusion of systems from coordination endeavors and extra-high-voltage transmission projects in which they should, as a matter of engineering and economic logic, be included. It is possible, of course, that discussion in the regional councils may lead to new contractual arrangements among Fed-

eral agencies, their customers, and other power systems, and perhaps even to suggestions from the industry for new policies and legislation with regard to the Federal power program. However, neither this section nor sections 409 or 411 should be taken as modifying, or allowing the Commission to override, the preference granted to certain types of systems by the reclamation laws. The preference is an independent Congressional policy.

Question 3. S. 1934 contains a provision on land use. What is the Commission presently doing on this subject?

Answer. The Commission has rather limited powers to affect the use made of land by electric systems. Under Part I of the Federal Power Act, we can and do consider these problems in the licensing of hydro projects and the primary lines that tie them to the main transmission grids. We do not have authority over land use problems in connection with the bulk of transmission lines, since they are not licensed by the Commission.

The Commission has worked on the problem in a non-regulatory context, however. We have established an advisory committee which investigated and reported on underground power transmission, which many think is or can be an important means of lessening the impact of transmission facilities on scenery and natural beauty. The Commission also participated in hearings before the Senate Commerce Committee on May 1966 on bills relating to effects of overhead transmission lines and development of underground transmission (S. 2507 and S. 2508, 89th Congress). Undergrounding is expensive, and there are technological problems which make it more complicated than overhead transmission, but it has intriguing possibilities for some applications. We also believe that overhead lines can be designed to have a less injurious impact on the landscape. For example, the AEC-Pacific Gas & Electric lines in Woodside, California were strenuously objected to on appearance grounds, but we understand that thoughtful routing and good design have made the lines much more acceptable to local residents than they were at first.

Question 4. Land use, EHV right of ways, etc., are included in S. 1934. Has any consideration been given to including a clause on thermal pollution from nuclear generating plants?

Answer. Thermal pollution, from fossil-fuel plants as well as nuclear stations, is a matter which can now come within the Commission's regulatory authority only in the context of a hydroelectric licensing case. We have proposed other regulatory legislation on this topic, but in the context of S. 1934 we would expect that avoidance of thermal pollution would be a major consideration in the planning done by the regional councils. Among the objectives of the bill, set out in section 401(b), is the maintenance of "due regard for the conservation of land, scenic and other limited resources." We believe that preservation of water quality from thermal pollution is covered by this provision, and would therefore be one of the goals of the regional planning process. However S. 1934 does not propose licensing of steam plants.

Question 5. If S. 1934 as written were enacted into law, what amount of additional funds, and how many and what type of additional employees would the Commission require to administer the provisions of the bill? At what point in the future would you expect the provisions of the bill to become fully operative? That is to say, how long would it be before the full effect of the bill would be felt as far as the electric industry is concerned, and as far as appropriations are concerned?

Answer. We believe that S. 1934 would become fully operative, both in terms of its effect on the industry and with respect to Federal expenditures, in about two years after its enactment. Predictions of this kind are particularly difficult for a bill like S. 1934, since it depends to a considerable extent on the rapidity with which the industry takes the initiative in setting up regional councils, beginning work on regional plans, and bringing them before the Commission. Anticipated cooperation by the industry would tend to minimize the need for additional Federal personnel. We would, of course, work closely with the industry and with the incipient regional councils from the very beginning.

Question 6. Does the Federal Power Commission now have any authority to promote electric system reliability? How much of your proposed budget for fiscal year 1968 is earmarked for electric power reliability work?

Answer. The Commission can now promote reliability in limited ways. The broadest mandate of the present Federal Power Act is the instruction to set up regions for voluntary coordination, under section 202(a). This section was the principal authority for the National Power Survey, which we believe has assisted individual system planning by presenting a large-scale overall picture of the

power industry. The policy of section 202(a) would be furthered in the proposed Electric Power Reliability Act. The Commission has some compulsory powers as well; under section 202(b) certain types of interconnections and energy sales and exchanges can be ordered which can contribute to improved reliability. If the Commission finds that an emergency exists, it can do the same on a rather broader scale under section 202(c), and can act on its own motion rather than only on complaint as is the case under section 202(b). Section 207 allows the Commission to determine, when requested to do so by a State commission, what is "adequate" electric service in a particular case. No State commission has ever utilized this section, so its scope is not clear. Information useful in planning for and promoting reliability can be gathered and published under section 311.

Since reliability considerations cannot be entirely divorced from other factors such as economy and efficiency, it is difficult to say exactly how much of our proposed 1968 budget is designated for reliability work. Perhaps 15 to 18 employees would devote their full time to reliability matters, or matters in which reliability was a consideration of the first importance. However, many other employees must deal with reliability problems from time to time. For example, those employees who are at work on updating the National Power Survey would be making a contribution to the solution of reliability problems, although their work deals with numerous other types of issues as well.

Question 7. In connection with future appropriations for the Federal Power Commission, do you believe approval of your reliability bill will require you to expand your regional offices? I ask this because it seems to me that questions of general reliability vary from region to region and that you probably should handle them on a regional basis rather than administer the Act entirely from Washington, D.C.

Answer. The problems of reliability vary considerably from one section of the country to another, and it is probable that more field work would be needed under the Electric Power Reliability Act than under the present statutory scheme. Quite possibly, strengthening the present field offices might be necessary. However, the regions for which these offices are responsible were established long before the Electric Power Reliability Act was proposed and do not necessarily represent the regions that would be set up after the consultation required by the bill, for regional council purposes. It is too early to say whether rearrangements might be necessary.

Question 8. In view of the obvious pressures on the Federal budget, are you convinced that the most economic method of promoting bulk power supply reliability is by means of the mechanism set out in your bill? Are there other ways to promote reliability which would produce substantially less budgetary pressure? Has the Commission considered various alternative methods?

Answer. The Commission has considered a wide range of alternative approaches to the reliability problem: from inaction, on the argument that no improvement is needed, to such drastic ideas as nationalized bulk power supply. We reject the extremes, both of inaction and of overturning the structure of a basically sound and successful industry. The alternative of attempting only to step up the pace of voluntary activity, under existing law, offers insufficient assurance, in our judgment, to power users. Perhaps the fundamental consequence of the increasing interdependence of electric systems is the necessity of eliminating all weak links, since one such weakness can cause a widespread collapse. Coordination under a purely voluntary approach is likely to be fragmented and uneven in its development, and there would be a real danger that the intersegmental hostilities that unfortunately exist in the power industry might cause some systems to be excluded from joint planning. We have also considered the idea of compulsory large-scale mergers, ultimately resulting in a small number of regionwide bulk power companies. We believe, however, that the most economical approach is one which makes use of the existing institutions of the industry and of current trends toward new coordinating institutions. In this way, the industry can provide a great deal of the momentum which under other approaches might have to be furnished by Federal participation. Consequently, less Federal expenditure would be needed for the same degree of improvement in electric service. Of course, this approach would also be less costly for the industry, since the work already invested in coordination and coordinating institutions could be turned to advantage.

As I have noted, the foregoing represent my own answers because time has not permitted the Commission as a whole to study this response. Please let us know if we can be of any further assistance.

Sincerely,

LEE C. WHITE, *Chairman.*

[From Consumer Reports, March 1966]

WHAT'S NEEDED TO PREVENT MORE POWER BLACKOUTS

Vast cascading power failures like that in the Northeast have happened elsewhere before and since. But putting 30,000,000 people in the dark all at once has raised sharp questions

Just after 5:16 on the evening of November 9, a toaster-sized electrical relay tripped in a generating plant in Ontario. Within 12 minutes, some 30,000,000 people in eastern Canada and the northeastern United States were plunged into darkness. Twenty-eight separate utilities, among them some of the nation's mightiest, went down like a row of dominoes pawed by a playful kitten.

Long before the lights came back on, millions of shocked Americans were raising serious questions about the standard of reliability of their country's electric power systems. Among them:

What can be done to prevent another such happening?

Can the power companies whose systems failed so spectacularly be counted on to do better in the future, or are new regulations needed to insure greater reliability?

Will the needed improvements lead to higher electricity rates to consumers, as a statement by one Federal Power Commission member implied?

Some important answers have emerged from the investigations that followed the biggest blackout in history. First, despite protests by utility officials that the blackout was an isolated event, a one-in-a-million combination of improvable circumstances leading to a nearly impossible conclusion, power engineers have long known that electrical systems in many parts of the country are vulnerable. There have been other extensive blackouts, both before and since.

On January 28, 1965, a loose connection in a protective relay circuit in the Corps of Engineers' Fort Randall power plant in South Dakota opened and shut down six generators. Wildly fluctuating current reversals, similar to those in the Northeast, ripped through the Midwest, shutting down virtually all of Iowa and parts of five other states. (Roughly the same area had a similar failure in 1962.) A section of Arizona cascaded out in April of last year when an operator pushed a wrong button. And on December 2, 1965, while experts were still probing the Northeast blackout, a clogged gas regulator in El Paso, Texas, shut down a generating plant. The failure spread into New Mexico and across the international border to Juarez. Obviously, the Northeast blackout was not an isolated exception.

Second, power pools, the complex electrical networks that link virtually the entire U.S. by means of interties among the various power companies, vary widely in their vulnerability to spreading failures. Some strong ones are virtually immune and, indeed, have stood up under severe shocks in the past, but they are in the minority.

And third, there are no minimum standards of requirements for safety and reliability. State regulatory bodies have some degree of control, varying from state to state, over the design and operation of electric companies that operate within their borders. But nearly every pool crosses state lines. No state, consequently, can control these sprawling networks. The FPC—the only nationwide regulatory body in the power field—has no authority whatsoever to set or enforce standards of reliability. Its prime authority is in the regulation of interstate wholesale rates. And even this limited power would be restricted if Congress were to pass S. 1459, a bill that would exempt some major power companies now under FPC jurisdiction.

Reliability of the electrical supply doesn't necessarily correlate with the rates customers pay. The American Electric Power system, stretching across a tier of states from Michigan to Virginia, has generally low rates when compared with most other private power companies. Yet AEP, one of the strongest grid networks in the nation, is commonly accepted as one of the most blackout proof. The U.S. area of the CANUSE system, which failed so spectacularly on November 9, has rates averaging anywhere from 10% to more than 30% higher than those in most AEP areas (the exact amount depends on both location and the amount of power used). Similarly, electricity consumers in the section of the country centering around Iowa, where cascading failures blacked out power both on June 25, 1962 and on January 28, 1965, pay 10% to 20% higher rates than most AEP customers.

The November 9 blackout was caused by shortcomings in two areas: the basic design of the pool and the way its human controllers operated it in the emergency.

To protect consumers from the threat of similar blackouts in the future, changes will have to come in both these areas.

Since the Northeast blackout, the affected companies, and others as well, have been making some changes. But the matter is too important to be left entirely in the hands of companies that, despite the warnings given by similar failures in the past, left many parts of their systems vulnerable. For the protection of the public, all pools should be required to maintain high levels of safety and reliability. And the only organization that can see to it that they do so is the FPC. A law making the FPC responsible for establishing and enforcing the proper standards is needed.

THE LIGHT THAT FAILED

To see how better standards would help prevent future cascading power failures, it is useful to examine in some detail the design and operation of the Northeast power system and to trace the event of November 9.

The Northeastern power pool, like most throughout the country, is made up of many independent electric companies interconnected by a grid or network of high-voltage transmission lines. This pool is called CANUSE—the Canada-United States Eastern Interconnection.

The chief advantage of a pool is that it saves money. Times of peak electric demand vary during the day and through the year. Normally, the daily peak is reached in the early evening; it starts in the east and travels west with the setting sun. Seasonal peaks vary from place to place; the greatest demand for power in southern California for example, comes with the summer air-conditioning load. In the Pacific Northwest, where electric home heating is more widely used, the peak comes in winter. Pool members with differing peak-demand times trade surplus power back and forth. Thus each can get by with less generating capacity than would otherwise be necessary.

Also, big generators cost far less to build per kilowatt of generating capacity than do small ones—20% to 30% less. And they cost less to operate, too. Companies in a pool can get together and build a huge generating station to serve them all. Each gets cheaper electricity than it could if it built alone. Moreover, companies owning large generators frequently sell cheap surplus power to neighboring companies that elect to buy cheap power from pool partners rather than run their own less efficient machines.

These advantages have led to widespread power pooling. Some 97% of the U.S. generating facilities are tied into pools, five of which cover most of the country.

But pooling also introduces complex technical problems. All generators in a pool must be synchronized, or run, as power engineers say, in "parallel." A-c (alternating current) power, the kind used almost everywhere today, does not flow steadily in one direction but goes through 60 positive and negative swings each second. In a pool, these swings must be exactly synchronized.

Each generator in the system has a governor to control the frequency of its output. As thousands of customers turn on lights, the extra current drawn puts a greater load on the generator, and it slows down slightly. The governor, sensing the slightest slow-down, supplies more fuel to the boiler, which generates more steam and brings the generator back into precise step with the rest of the system. When lights go off, the generator speeds up, and the governor throttles back on the steam. (In hydroelectric plants, the governor regulates the amount of water flowing through the turbine.) If a generator gets so badly out of step that it may be damaged or destroyed, safety devices shut it down automatically.

The backbone of the CANUSE pool are giant 345-kilovolt (345,000-volt) transmission lines that begin at the powerful hydroelectric plants around Niagara Falls and stretch some 400 miles east and south to New York City. Tenacles of lesser voltage snake out from this main trunk into Canada, upstate New York, and New England. The entire system serves as a sort of reservoir. Companies with excess generating capacity pour power into it; others with a deficit draw power off. As loads change, millions of watts of power can rush efficiently through this gigantic network at the speed of light, sometimes in one direction, sometimes in the other, depending on need and capacity. But occasionally something goes wrong.

WHAT HAPPENED NOVEMBER 9

The trouble began while the Sir Adam Beck No. 2 plant of the Hydro-Electric Power Commission of Ontario was building up power for the evening peak. Five 230-Kv transmission lines heading north toward Toronto and other parts of the

province were carrying a heavy load—an average of 350 megawatts (350,000,000 watts) each. Suddenly, at 11 seconds past 5:16, an apparently routine surge on one of the lines caused the protective relay to trip and activate a giant circuit breaker in a nearby distribution yard. This took the line out of service and transferred its load to the other four. Each of these, now overloaded, tripped out in turn. The millions of watts of power still pouring from the spinning generators suddenly reversed direction of flow, crossing the river through interties to the U.S. This huge surge hit like a bomb.

The western terminus of the 345-Kv CANUSE trunk through New York was suddenly flooded with power. Generators in the Niagara Falls area, their loads suddenly lightened by the excess power flowing in, began to race. The net, as engineers say, went unstable. Generators lost synchronization and began to shut down. Protective equipment between Rochester and Syracuse sensed the instability and disconnected the main transmission lines, breaking the back of the 345-Kv line. In four seconds, vast regions of Ontario and western New York State were dark.

Most of New England and New York east of Rochester still hung together. But the giant shock had reverberated through the entire grid like a scream in an echo chamber. Systems operators, watching the frantic recording needles in their instrument-lined control centers, had no idea what had happened. They knew only that a few seconds before millions of watts of power had been pouring in from the hydro plants upstate; now current was rushing out as though sucked by a whirlwind. Just before 5:16, more than 500 Mw of power had been flowing down the trunk. Now, suddenly more than twice that much—some 1100 Mw—was rushing the other way.

The giant power strain came mostly from the eastern portion of the Niagara Mohawk Power Company. Many of its generators had been knocked out by the surge, and it did not separate from New England and New York. Hence, the Niagara Mohawk area was screaming frantically for power, and generators in Boston, Hartford, New York, and scores of other cities strained to fill the gap.

In theory, they should have been able to meet the sudden demand by drawing on their "spinning reserve," the amount of their maximum output not normally used. A 500-Mw generator, for example, producing only 300 Mw has a spinning reserve of 200 Mw. With more fuel (or the opening of turbine gates if it is a hydro unit), its output can be brought up to 500 Mw in relatively short order.

The spinning reserve in the eastern section of CANUSE was 1650 Mw, well above the 1100-Mw load demanded when the Niagara Mohawk generators shut down. But the reserves on tap were almost entirely from steam-powered plants. A hydro plant can respond in seconds. But a steam generator takes at least several minutes to open the valves, pour in more fuel, get up the steam, and actually generate the extra power. And there was another difficulty: 350 Mw—more than a third of the reserve—was in one unit, the giant 1000-Mw No. 3 generator at Consolidated Edison's Ravenswood plant in New York City. And one big generator takes longer to pick up a load than do a number of small ones.

The generators on the line were unable to meet the demand fast enough, and system frequency began to fall. The lower frequency compounded the trouble by crippling the auxiliary motors used to feed fuel and water to the generators. Automatic protective devices shut down the generators one after another. By 5:28, 80,000 square miles of the U.S. and Canada were dark.

The Northeast blackout was upsetting not only because of the unprecedented area covered, but also because of its duration. Although some companies started restoring power within minutes, the vast majority of the Northeast was dark for hours. Parts of New York City, for instance, were not restored until the next morning.

Before the night was over, power experts from all over the country began pouring into the Washington headquarters of the FPC. In the weeks following, teams traveled over the blackout area, looking through mountains of records, hearing millions of words of explanation from the power companies involved. Finally, on December 6, the FPC issued a preliminary report. The study would continue—probably for many months—it said. But in the meantime, it had reached a number of conclusions.

First, the relay that started the whole thing had been improperly set. Several years earlier, the relay, a protective device that works something like a household fuse to protect against excessive current flow, had been set at 375 Mw. At the time, this provided an adequate margin for the normal load carried by the line. But loads on the line rose, and the margin became hair-thin. As a result, a routine surge tripped the line.

The offending relay and others like it, reported the FPC, had been readjusted and would not be likely to cause such a mishap again. But that was not the point. The important thing was that the tripping relay should never, in any case, have caused the cascading failure.

IT SHOULDN'T HAVE SPREAD

Companies to the east *could* have cut loose and confined the blackout to a relatively small area, say many experts, but they didn't; their operators had not been properly instructed. There is a strong tradition of hanging on in an emergency to help a fellow company recover. The decision to cut loose is consequently hard for a system operator to make. There *is* another way in which he can relieve the strain and try to ride out the trouble—a method called load shedding. He simply douses the lights over part of his system to save the rest. If the strategy works, he can usually relight the dark areas within seconds or minutes. But turning out the lights is a hard decision, too.

Operators' instructions, said the FPC, simply told these key people to hold on as long as possible and cut loose as a last resort. Although some system operators eventually tried to cut loose or shed load, few acted in time. Their instructions, said the FPC, should have been clear and unequivocal: if system frequency drops below a certain specified point, the operator is to cut loose at once.

The FPC has not yet decided whether adequate instructions alone are sufficient, or whether automatic equipment ought to be installed to shed load or cut loose immediately if the power demands from outside get too great. It has been noted that utilities in western New York were knocked out of business less than one second after the Beck line went out. No human operator could react that fast.

In addition to the inadequate instructions to employees, said the FPC, the companies had not made enough stability studies. They had not calculated what would happen when extreme disturbances hit the system.

The report also rapped the companies for their policies on spinning reserve. They should give thought, it said, not only to the total reserve available, but to its type and distribution, so that it can be put into use fast enough for an emergency. Since the fastest-starting equipment is hydro, companies should have at least part of their reserves in hydroelectric generators if possible.

The need for better communications between companies was also made clear. "It is evident from the studies made by the Commission that despite the panoply of dials and lights some of the system operators were working in the dark," Joseph Swidler, then FPC chairman, reported to a special subcommittee of the House Interstate and Foreign Commerce Committee investigating the blackout. "... In several control rooms operating personnel could not believe what their meters indicated. Thus, at Boston one operator was trying to adjust his frequency meter, which had correctly changed scale, when his system blacked out."

IN THE LONG RUN

Better communications, clear instructions to operators, more automatic protection, more coordinated planning—all will help improve reliability of the CANUSE system. But the real cure is far more fundamental.

The CANUSE system, in common with many pools elsewhere in the country, is a haphazard collection of weak and strong interties among participating companies. "CANUSE is not a truly a power pool," says Wilford D. Wilder, systems supervisor of Niagara Mohawk, one of CANUSE's major members. "It is a working group of companies that have mutually collected together for coordinated operations." CANUSE, adds Mr. Swidler, consists of many separate entities "which have planned and built their systems independently and have not yet even established a central staff for coordination of system planning."

CANUSE, in fact, may be the most vulnerable kind of pool. It does have some strong interties, particularly the massive 345-Kv line stretching across New York and into New England. Yet many of its other ties are relatively small; they are capable of carrying comparatively small amounts of power. Such ties can be easily overloaded, and they break apart if the current flow rises sharply. "It is possible that the very mixture of strong and weak interties within the CANUSE area ... may have contributed to the inability of the affected companies to ride out the initial occurrence and hang together," said the FPC.

Had *all* ties in CANUSE been weak, the system might have splintered on November 9, allowing most of the companies to continue operating. Maine, in fact, connected only by weak links, maintained its lights for precisely this reason.

Far to the south, relatively weak interties with the adjoining Pennsylvania-New Jersey-Maryland (PJM) pool also broke, saving most of PJM from any danger.

The fact that these weakly interconnected areas did not go down would seem to argue that all ties in a pool should be weak. Such an arrangement, however, would defeat one of the basic objectives of the pool—the ability to draw on neighboring reserves in emergencies.

ONE KEY: STRONG INTERTIES

A far more attractive alternative is a pool with only strong interties. Power engineers almost universally agree that if a pool is strong enough, it can take almost any kind of shock.¹ They likened it to a strong, taut net. A heavy weight falling on any part will cause it to "stretch." But the lines hit directly by the weight transmit part of the strain to other parts, and the entire net helps absorb the shock. No single part takes more strain than it can handle. "In the blackout, you had excess energy coming in that tore everything apart," says T. J. Nagel, head of systems planning for the American Electric Power Company. American Electric, a combine of seven utilities stretching from Michigan down into western Virginia, is probably the strongest, most tightly interconnected power pool in the country. "If you had had ties capable of handling this," he explained, "and I don't think it would take too many, that energy would have been distributed over a wide area, and I don't think there's any question that it would have been absorbed."

There is ample proof that strongly interconnected systems can ride out massive shocks. Nagel's own AEP system suddenly lost 1125 Mw of load a few years ago, and the lights didn't even flicker. (The total reversal on November 9 was 1600 Mw.) In 1964, some sheet metal blew into a TVA high-voltage distribution station during a storm knocking out 1250 Mw of generation. The lights dimmed, but within 4½ minutes other generators had picked up the load and everything was normal. Examples could be multiplied. "You can take a terrific blow if you have the interconnections to withstand it," says Mr. Nagel.

Some authorities have suggested that huge, long-distance lines spanning several states at a jump could help in emergencies by piping power in from far away. TVA reserves, for example, could have been brought in to help on November 9. But such immense ties may be unnecessary. The eastern part of CANUSE was almost able to ride out the storm. More than enough reserves were available right in eastern New York and New England—only they weren't able to respond quickly enough. In any case, there was plenty of emergency power available much closer to home than TVA. Had there been strong enough internal ties and strong links to neighboring pools, such as PJM, a small amount of extra power from them could have made up the difference. The trouble wasn't a shortage of power; it was a lack of a strong system to carry it where it was needed.

The FPC, meanwhile, is convinced, even before it completes its long-range study, that CANUSE should be strengthened as quickly as possible. "We recommend an acceleration of the present trend toward stronger transmission networks within each system and stronger interconnections between systems in order to achieve more reliable service . . ." says the report.

And finally, the FPC recommends that companies take steps to insure that if another blackout occurs, it won't last so long. One problem in November was that the steam plants, once shut down, needed outside power to get into production again. Electricity must be furnished to drive the fuel and water pumps for the boilers, for example, before the generator can be started. In some instances, it took hours to reestablish connections with companies outside the blackout area to get in enough power to restart. In addition, New York City had a special problem: most of its electric cables are underground. And though underground cables have advantages (they're relatively invulnerable to weather and they don't clutter up the landscape), they can't be turned on all at once. An underground cable acts like a capacitor; load must be built up slowly or dangerously high voltages can develop. Overhead lines, on the other hand, go on with a flip of the switch.

¹One interesting sidelight on the blackout was the statement by one power executive, whose company was involved, to the effect that had a more tightly interconnected grid such as the nationwide network advocated by FPC been in existence, the incident would have escalated into a nationwide catastrophe. "The only explanation for such a statement," said one expert, "was that he must have been trying to defend the inadequacy of his own system." When CU questioned the company involved, a public relations official pointed out that the executive had been "speaking as an individual, and not as an official company spokesman."

Many companies in the blackout area have already begun making improvements. Consolidated Edison, for example, is installing auxiliary generators in many of its stations to supply start-up power. The company is also installing devices called shunt reactors on many of its underground cables to allow far more rapid energizing. And the company is preparing to install load-shedding devices so that power in outlying areas will be doused automatically should the system be threatened again.

Boston Edison has rewired one of its big generators so that, in case of trouble, the unit will cut out of the grid automatically and keep spinning. Then it could be used to supply start-up power if the entire system goes dead. To tackle the larger question of basic system design and possible interconnections, 19 utilities involved in the blackout have hired the engineering firm of Stone and Webster to make a study. But changes resulting from this study lie far in the future.

Reviews of electric pools since November have not been confined to the Northeast, Stuart Crum, chief of the FPC Division of Electrical Resources and Requirements, reports that "At the last meeting of our executive advisory committee, made up of top executives from across the country, each of them reported what was being done in his area. And *all* systems are examining their procedures to see if something should be corrected."

It's about time. Although some parts of the country—the TVA area, the Pacific Northwest, and a swath of the Midwest surrounding the AEP system, for example—are strongly interconnected and relatively invulnerable to cascading failures, most of the nation is still in a transition period, with mixtures of strong and weak interties, and their vulnerability is evident in the widespread breakdowns already cited.

WILL IMPROVEMENTS RAISE RATES?

Since improvements are clearly needed in power systems all across the country a question immediately arises: will the extra facilities and new construction needed raise electric rates? "While their dollar value is considerable," says Charles Hoppin of Consolidated Edison, "it's peanuts compared to our total plant investment."

Over the long run, basic measures to strengthen the country's pools should actually reduce rates. The economies of pooling—greater exchange of peak powers, use of large, economical generators, savings in reserve generation capacity—increase as pools grow larger and stronger.

Since strengthening the pools will, in the long run, be good business, it would seem that no compulsion would be necessary. Yet some utility managers resist increasing their pooling commitments. "There are several things that have held the industry back," former FPC chairman Swidler told CU. "One is a kind of parochialism in some industry management. There is a determination to have complete control of the system, even if it consists of a bunch of teakettle plants. And some companies are willing to go to considerable lengths to avoid coming under FPC jurisdiction, even at the expense of economies and service advantages from interconnection outside the state." What they are resisting in avoiding interstate connections is FPC jurisdiction over rates charged for this wholesale power and some control over bookkeeping methods used.

For a truly effective grid to operate, whether or not it crosses state lines, each member utility must agree to run its system at least partly under mutually agreed-on rules. In the most effective grids, a central controller tells the various companies involved when to turn their generators on and off, when—in an emergency—to douse their customers' lights, and how to run their plants on a minute-by-minute basis. "You have an awful time with people when they first move into a pool," says William H. Keating, chief of the Bureau of Reclamation's power division, which is in charge of many Federal hydro-electric projects and has much experience in pool operation. "They hate to give up any control of their own system."

Because of such influences, lagging parts of the country will continue to lag unless the public makes modernization a condition for its permission to operate a power monopoly. Many experts see Federal regulation as the only way to achieve this push. Among them is the FPC's ex-chairman Swidler. "I think," he said shortly after the blackout, "this is too important to be left to unsupervised private industry." When he appeared before the House subcommittee, Mr. Swidler recommended that laws be passed empowering the FPC to set minimum standards for system design and operation. And he specifically said that *all* power facilities should come under the law—even those not now engaged in interstate

transmission. The logic is that a blackout in New York or Detroit is a national disaster whatever the source of the area's power may be. "The role of the Federal Government comes into sharper focus when we realize that the overriding technological facts of the industry mean that each company depends not only on itself but on its brothers over whom it may not have any control," he said.

Even business-oriented *Fortune* magazine expressed somewhat the same view, although stopping short of specifically calling for new laws regulating the power companies. Said the magazine, "We simply must have a better, more self-protected national grid system that the ones the utilities so far have given us. The failure... was not alone a failure of machines, it was a failure of men properly to use, organize, and develop them."

Power industry leaders, needless to say, are not looking happily toward the possibility of more regulation. But, at this point, it is by no means certain that the FPC will recommend any new laws. For one thing, not all of the FPC commissioners agree with all of Mr. Swidler's recommendations. And, since Mr. Swidler left on December 31 (before November 9 he had asked not to be reappointed), no new chairman has been appointed. The final decision on legislative recommendations may depend largely on Swidler's replacement. "The FPC probably won't do anything until they find out who the new chairman will be," says Marvin Zeldin, Executive Director of the Electric Consumers Information Committee and longtime observer of the Commission. "If the new chairman turns out to be somebody with a regulatory philosophy similar to Joe Swidler's, my guess is that there would be a majority vote for some kind of legislative proposal. If not, there's no telling what might happen."

Even assuming that the FPC does propose Federal regulations of pools, there is no assurance that the necessary law would be passed. The FPC has an extremely poor batting average for getting its recommendations enacted into law; for the last several years it hasn't even been able to get hearings on many of its proposals. And a law to encompass Swidler's recommendations would find itself in a touchy area. "Any fight to give FPC authority over reliability," Zeldin points out, "will evolve into another bloody fight between Federal and state regulation."

The House hearings at which Mr. Swidler and other FPC experts testified were just the first of a proposed series. At later sessions, not yet scheduled as of this writing, industry views are to be presented. The subcommittee chairman, Representative Walter Rogers of Texas, hasn't yet decided whether he favors recommending legislation or not. But, Rogers told CU, if the committee decides to press for legislation, the states' rights battle won't necessarily kill it. "I think the feeling of Congress at the present time with regard to the electric issue," he said, "is that this is a matter of national importance. A controversy over jurisdiction ought not to be allowed to overshadow the primary issue."

Though the fate of legislation designed to regulate power pools to increase their reliability remains uncertain, the lesson of the Northeast power failure is clear: some power grids are apparently in good shape; others are not. To increase the reliability of electric power for all consumers, the weaker grids must be strengthened so they can hold together and continue service in any foreseeable emergency. Meanwhile the vulnerability to further failure exists.

Your area could be next.

[From the Wall Street Journal, Nov. 9, 1966]

UTILITIES SAY THEY'RE BETTER PREPARED THAN EVER ON NORTHEAST POWER FAILURE ANNIVERSARY

One year after the lights went out for about 30 million people in the Northeastern U.S. and parts of Canada, utilities assert they've lessened chances of future massive power failures and sharply increased their ability to restore power in the event of a blackout.

Soaring orders from utilities and from a growing number of utility customers installing their own emergency power equipment have touched off a boom in the engine and turbine industries on top of already-heavy Vietnam business.

But there's also concern over a lag in equipping hospitals and public transportation with back-up power, and with continuing problems in what to do about running elevators, gasoline pumps and traffic signals if the electricity fails. Last weekend, the Federal Power Commission also asserted "there is still much to be done" by utilities, particularly in coordination of giant power pools.

"New equipment of many kinds has been installed all across the nation" by utilities, says William J. Clapp, president of Florida Power Corp., St. Petersburg,

and chairman of Edison Electric Institute, trade group for investor-owned utilities. "And programs have been improved to assure more rapid, effective handling of emergency situations."

Perhaps the biggest change has occurred in utilities' ability to restart individual power plants after a power failure. A year ago, most companies assumed they would have power available from another plant or from a neighboring utility to do this job. Now they're putting in fast-starting emergency equipment capable of getting the big generators rolling again without outside help.

In the first time nine months this year, utilities ordered 106 fast-starting gas turbine generators, about six times the total ordered in the like period last year, before the blackout, says the Edison Electric Institute. It is estimated orders for diesel-powered units have been equally heavy.

Consolidated Edison Co., New York, for example, "can now restart all 12 of our power stations independently, and the longest it would take for even the largest station to recover would probably be about two hours," says J. Eliot McCormack, senior vice president, operations. The company has installed 28 diesel generators and two gas turbines to perform this job, he says. During the blackout, it didn't have this capability, and took 13 hours to restore normal service, with about half of its customers still without power 10 hours after the blackout started.

Long Island Lighting Co., Mineola, N.Y., says it has spent \$16 million to add 11 emergency units with 180,000 kilowatts of power so that each of its plants can be restarted independently and in a "much shorter time," the company says.

Areas with access to hydroelectric power don't have this restart problem, since water turns the turbines. As a result the industry has sharply accelerated plans to build more so-called "pumped storage" units in areas without the advantages of natural hydro sites. In a pumped storage project, water is pumped into a man-made lake with outside power during periods of slack demand. Then water is released downhill through turbines to generate power when demand is high.

Utilities are also beefing up their transmission and distribution lines. For example, Con Edison, which has more miles of high-voltage underground lines than all other U.S. utilities combined, has installed devices called "shunt reactors" to handle immediate big flows of power. It didn't have these devices during the blackout, making it necessary to build up power flows slowly to avoid burning out lines.

The Northeast blackout was the first in which a power pool suffered a domino-like failure across the whole system. These pools are set up by groups of utilities to cope with power emergencies, and to share generating capacity for more economical operation.

But last Nov. 9, a relay at the Niagara Falls, Ontario, plant of the Ontario Hydro-Electric Power Commission was set too low. A sudden rise in demand tripped the "circuit breaker" designed to prevent damage to equipment from excessive power flows. This sent a sudden surge of power back across New York State, tripping circuit breakers that in turn overload successive circuits all across the system. A huge area from Toronto to Boston and south to New York City went dark.

Similar failures later occurred in the Southwest and Midwest.

But extensive government and industry studies of the blackouts have concluded that stronger and better coordinated pools are the best protection against power failures.

"EEI committees found that further development and strengthening of interconnections (between utilities) offer the most effective means of increasing still further the reliability of electric service," says the institute's Mr. Clapp.

The 20 utilities in the Northeast power pool, for example, formed the Northeast Power Coordinating Council after the blackout to undertake such strengthening. Ernest R. Acker, chairman of the council, reports "protective relay facilities have been developed and applied to prevent a repetition of the specific combination of events" that produced the blackout. The council is studying such things as use of computers to run the system, where to put its "spinning" reserve of generating capacity, and how to adjust load and supply to abnormal conditions.

One power expert predicts the blackout will hasten the introduction of computers to run pool systems and to provide a faster flow of data from points throughout the system to a central control point.

Meantime, customers are increasingly moving to provide their own blackout insurance. Rockefeller Center plans to install emergency generators on all 17

buildings of its New York City complex—the first has been installed. Others are going into the Corning Glass building, American Tobacco building, the United Nations and New York Life Insurance buildings in New York, among others. Kennedy and La Guardia airports in New York and Logan airport in Boston, which went dark a year ago, now have their own emergency power systems.

But only eight of New York's 21 city-run hospitals now have their own generators, up from five at the time of the blackout. The Empire State Building, where it was necessary to break through a wall to rescue trapped elevator passengers a year ago, still doesn't have any way to run elevators in a power failure. In fact, the big Pan American building has stocked picks and sledge hammers to break down walls. And Con Edison and the New York Transit Authority say about the best that can be done for subways in a blackout is a partial restoration of power to get trains to the nearest station.

But sales of emergency equipment are "skyrocketing—they've doubled since the blackout," says J. L. Kleinbrook, secretary-treasurer of Waukesha Motor Co., a major diesel maker in Waukesha, Wis. Worthington Corp., Harrison, N.J., expects to sell about 1.5 million kilowatts of turbine units this year, about triple its forecast before the blackout, says Albert G. Mumma, executive vice president. Cummins-Engine Co., Columbus, Ind., diesel maker, attributes "at least 50%" of its expected 25% to 40% rise in power equipment sales this year to the big blackout. And in San Diego, International Harvester Co.'s Solar division says sales of its turbine generators are up 20% and it has rushed into production a year ahead of time a new small generator. Caterpillar Tractor Co.'s New York dealer, H. O. Penn Machinery Co., has "nearly doubled" sales of diesel powered generators over a year ago.

A small but growing number of power users are even cutting themselves off from utility power lines and turning to so-called "total energy" systems that also provide heating and air-conditioning needs. The Energy Systems division of Garrett Corp., a subsidiary of Signal Oil & Gas Co., Los Angeles, reports a 50% gains in its sales of such systems, and a tripling of inquiries, since the blackout.

[From the Electrical World, May 29, 1967]

EDITORIAL—WHOM THE GODS WOULD DESTROY

Seldom in recent industry history has the need for cool heads and the exercise of restraint and sound judgment been greater than at this moment when legislative proposals are being circulated in Washington that would give the Federal Power Commission sweeping authority over power system coordination, planning and operation.

Details are lacking but what is apparently being proposed stems from FPC's own studies of reliability and regulation. From the scant information now available they appear to grant the Commission unprecedented authority in areas that have hitherto been realms of unquestioned management prerogative. Among other things, the proposals are said to: Authorize FPC to license EHV lines; direct the construction of ties and interconnections; review the planning and organize the coordination of interconnected system groups within FPC regional power supply areas; establish criteria and standards for power system reliability; direct companies to permit the participation of small systems in ownership or output of large plants, as well as set guidelines for assessing cost thereof.

These are shocking proposals. It is unbelievable that the Commission would go this far. Such a program, if adopted, would be punitive and confiscatory in the extreme. In drafting and circulating it among federal agencies, FPC puts itself in the posture of honing a legislative weapon for consideration by the President without counseling with its own industry advisory groups. This too is hard to comprehend. The least that can be said is that it is a case of poor judgment. Under the circumstances it is certain to produce not only an angry reaction from an industry already seeking to carry out a constructive reliability program of its own, but also a justifiable display of hard feelings from industry advisory groups who should have been told about the proposals before now. Opportunities remain, however, for the Commission to show good faith by opening its program to discussion now. Certainly this would be the council of wisdom and good judgment.

However shocking the FPC reported proposals may be, they should not be made the occasion for the display of a lack of restraint and good judgment on the part of industry leaders. On the contrary, the need is for a united, co-ordinated and constructive effort to communicate the industry's views and opinions to FPC.

This view was voiced repeatedly at the Edison Electric Institute convention in New Orleans only last month by spokesmen who called for an end to unilateral regulation, who saw scant sense in putting businessmen on one side of a high fence and statesmen on the other, and who sought creation of a continuing dialogue—a bridge of communication between the industry and its regulators.

Certainly there are ample grounds for vigorous industry dissent from the FPC's proposed program. But to be effective, this dissent needs to be presented in a thoughtful, reasoned and objective manner in a climate marked by restraint and good judgment. But certainly the first step is to establish the kind of bridge of communication over which such reasoned dissent can move with effectiveness and vigor.

[From the St. Louis Post-Dispatch, June 6, 1967]

THE SECOND MASS BLACKOUT

The massive electric power blackout that struck New Jersey, eastern Pennsylvania and parts of Delaware and Maryland Monday may serve as a renewed warning that stronger preparations, covering a widened range of contingencies, are becoming necessary to assure continuity of service if the unlikely happens. The Northeast blackout of Nov. 9, 1965 had already done so.

After four completely developed power pools operated in holding companies, the Pennsylvania-New Jersey-Maryland Interconnection (PJM) was considered by the Federal Power Commission one of the next strongest grids in the United States. Among the standard requirements of full-fledged pools its principal lack was a central authority for co-ordinated planning of transmission pattern and interconnections system.

According to reports, PJM was operating Monday with a larger than standard reserve and at a smaller demand than it had previously handled. But if trouble appeared unlikely, so did the kind of trouble that actually developed.

It has been tentatively traced to a fault of undetermined cause on a transmission line which made a generating unit close down and in turn damaged 12 other units.

It is not yet known whether there was any relevance to the blackout in the fact that officials of PJM companies had in recent weeks discussed with FPC their anxiety about sufficiency of supply in the coming summer. As in Union Electric's power shortage here last July, unexpected delay had been encountered in getting new generating capacity into operation.

[From the Washington Evening Star, June 6, 1967]

THE BLACKOUT

There was considerable comment, following yesterday's massive northeast power failure, to the effect that things could have been much worse. It might have come last night, for instance and might have included Washington. And, considering the national tension over the Mideast war, that might have touched off a first class national panic.

As it was, the blackout came in daylight, the morning rush hour was over, the afternoon rush hour was not under way, power consumption was at a low ebb. The shutdown, so this line of reasoning goes, came at the best of all possible times.

Our way of looking at it is that the blackout should not, under any circumstances, have happened at all.

No doubt there will be a protracted investigation into the causes of this latest outrage, followed by an explanation fully comprehensible to everyone with an advanced degree in electrical engineering.

That, remember, is what happened following the blackout of 1965. The power companies insisted that it was a one-in-a-million type accident. President Johnson assured the nation that steps would be taken to make certain it would never

happen again. "Never," in this case, meant just about one year and seven months. And in the course of those 19 months, there have been 17 other lesser blackouts.

Surely somewhere in this nation there must be someone with the technical ability to isolate trouble spots as they occur in the national power grid system; in effect to set up circuit breakers in the system so that trouble will be confined and will not spill over to create area blackouts. And surely there must be, somewhere in this vast bureaucracy, someone who comprehends the almost limitless potential for disaster such blackouts carry with them, and some agency with the power to insist that corrective steps be taken.

We're not particularly interested in the explanations about what happened and even less in any more platitudinous assurances that it will never happen again. It never should have happened last time, or the 17 times before that.

[From the Washington Daily News, June 6, 1967]

SURPRISE BLACKOUT

In the eastern part of the country, another power failure crippled several cities (Philadelphia and Newark the largest) and disrupted industries, hospitals, office buildings, transit systems and about everybody.

This is something that is not supposed to happen, ever. And shouldn't.

Yet it happened in New York and that area in November, 1965, causing enormous distress and danger to millions of people, not counting the economic losses.

Later that year, a similar breakdown blacked out large areas of Texas, New Mexico and Mexico. Just last month a ruptured power station darkened Cincinnati and parts of northern Kentucky.

These experiences were caused by "accidents"—and the fact that power was restored as quickly as it was in all instances can be attributed to the huge interlocking pools the electric companies have set up around the nation.

The question, raised again by the shutdown yesterday in Pennsylvania, New Jersey, New York and Delaware, is whether the system is yet good enough.

We are so dependent on electricity that any sudden interruption imperils not only essential business but life itself. (There were several deaths in the New York blackout.) And if the nation were in an emergency where sabotage could be expected, the danger would be even more crucial.

The latest blackout is a new warning. Let the best brains in the business answer it, without delay.

[From the Pittsburgh Post-Gazette, June 7, 1967]

WHEN THE LIGHTS GO OUT

Americans were again reminded of their extreme vulnerability to power failures when electric service for 13 million people in a four-state area, including eastern Pennsylvania, broke down on Monday.

Since the breakdown occurred on a spring morning and lasted only three hours, the interruption of service was not nearly as alarming as the massive Northeast power failure of November, 1965, which brought an evening blackout to 30 million people and lasted in some places for 16 hours. Yet even this week's more limited interruption of service demonstrated the far-reaching dependence on electric power of today's urban society. Schools and businesses shut down; traffic was snarled in the absence of signal lights; railroad service was interrupted; an electric-driven sewer system in Trenton failed, causing pollution to pour into the nearby river.

As in 1965, there was a delay this year in tracing the cause of the breakdown. As in 1965, there was no ready source of auxiliary power in some key installations. The desirability of remedial action at least in these two areas is evident. But even more obvious is the need for steps to prevent future power failures which are foreseeable. Utility officials are already anticipating other power failures this summer if excessive heat should entail heavy use of air conditioners, which in turn would put an undue burden on power supplies.

Even though utilities in different regions have pooled their systems so that they can supply power to each other in emergencies, the interconnections between the systems sometimes are inadequate for carrying the necessary power. To add to their difficulties, the utilities serving the latest breakdown area are

behind schedule in constructing two major generating plants, including one at Indiana, Pa.

With utilities across the entire nation tied into grid systems, necessary coordination and surveillance will probably have to come from the federal government. The Federal Power Commission, however, is only now completing its final report on the 1965 blackout. That report is expected to recommend ways of insuring the maintenance of adequate interstate transmission lines and other facilities. The nation will be lucky if it experiences no paralyzing power failures before the report can be introduced and implemented.

[From the Washington Post, June 7, 1967]

PREVENTING BLACKOUTS

The lesson to be learned from the second massive electrical power failure in less than two years—this one involved 13 million people in four states—is that the utilities must be required by Federal law to strengthen their interstate grids with additional generating and transmission capacity. Large capital outlays will be required, but since inaction can only result in the recurrence of paralyzing blackouts, the real costs will not be high.

The formation of grids, which automatically route electrical power to areas where demand exceeds the locally generated supply, is perfectly rational. Indeed, the Federal Power Commission is correct in encouraging their formation. But when individual power systems are closely linked, each becomes vulnerable to accidents that may occur anywhere within the grid. Safety lies in providing such integrated systems with buffers that isolate disturbances before they are magnified and proliferated.

If future blackouts in densely populated areas are to be prevented, the participating utilities have got to install the following facilities. First, in order to prevent overloading, interconnected utilities ought to have "spinning reserves"—spare turbine generating capacity equal to about 15 per cent of their normal demand. Second, load shedding capability—automatic devices that detect massive overloads and permit participants to break away from a power grid—must be greatly enlarged. Only one member of the Pennsylvania-New Jersey-Maryland Interconnection is equipped to drop 30 per cent of its load automatically. Third, much stronger transmission links between grid members—especially lines that span state boundaries and rivers—have got to be forged.

In order to be certain that participating utilities build an adequate margin of reserve capacity into their power grids, the Federal Power Commission should be authorized to establish and enforce minimum standards of safety. It may be possible to cover the costs of such facilities by deferring future rate reductions. But, however the cost of safety is to be defrayed, it is obvious the Government must act and act quickly if the country is to be shielded from the threat of future blackouts.

[From the New York Times, June 7, 1967]

POWER BLACKOUT—AGAIN

The massive power failure that cut off electric service for thirteen million persons in four Middle Atlantic states Monday brought proof that the country's interconnected utilities have still not found a dependable way to guard against major blackouts.

The clear lesson of the first rolling blackout in New York and New England in November 1965 was that the grid system on which power companies count to draw electricity from one area to another in response to peak demands can be a menace as well as a lifesaver. A breakdown in one part of the system can send such an overload charging through the rest of the system that one community after another finds itself deprived of light and of energy vital to industry, transportation and virtually every other service.

The speed with which the paralysis spread through New Jersey, Pennsylvania, Maryland and Delaware, plus the many hours of confusion over its cause, make a mockery of the assurances that constantly come from utility spokesmen in all parts of the country about the great progress they have made in forestalling any recurrence of the 1965 trouble.

It is taking the Federal Power Commission inexcusably long to come up with its promised recommendations on what additional safeguards are required, although officials report that their proposals are now in an advanced stage of preparation. This second proof of the country's vulnerability is a prod the commission should not have needed for still faster action.

[From the Fort Worth Star-Telegram, June 9, 1967]

STILL ANOTHER WARNING GIVEN ON POWER SYSTEM

Through the massive Northeast power failure in November of 1965, and some lesser ones in other parts of the country not long after, the nation learned a lesson. It was that the electrical transmission grids as then hooked up were unreliable and in urgent need of alteration.

The lesson apparently didn't stick. A short circuit in a single high-voltage line in Pennsylvania has caused another blackout affecting Pennsylvania, New Jersey, Maryland and Delaware. It cut off electricity for some 13 million people for as long as 10 hours, resulting in an economic loss estimated as high as \$50 million.

The trouble was, according to testimony before the Senate Commerce Committee, basically the same as that responsible for the 1965 power failure: Too little reserve power for the network, transmission tie-ins between states not strong enough to prevent a blackout from spreading from state to state over a vast region.

Having received ample warning in duplicate and triplicate, the power companies and the government should be seeing that something is done to correct this situation. And in anything as vital to the military security and economic well-being of the nation as this, the government certainly has an interest.

[From the New York Times, June 9, 1967]

UNITED STATES ACTS TO CURB POWER FAILURES—CONGRESS GETS BILL AIMED AT REDUCING THEIR LIKELIHOOD

(By Eileen Shanahan)

WASHINGTON, June 8.—The Administration proposed today legislation aimed at reducing the likelihood of future wide-area power failures by giving the Government authority to compel better planning and safer operation of both local and regional utility systems.

The bill, which had been considered and worked on since shortly after the Northeast power failure of November, 1965, was hurried to completion late today following Monday's power failure in four Middle Atlantic states.

It is certain to arouse considerable controversy in Congress, although Lee C. White, the chairman of the Federal Power Commission, said today that he hoped it would have considerable industry support "because it makes good sense."

BACKED BY PRESIDENT

Though as a technical matter the legislation was submitted to Congress by the Federal Power Commission, a regulatory agency that does not come under full White House control, it is backed in its entirety by the Johnson Administration.

The legislation would give the following new authority to the power commission:

The agency would be able to force local electric utility systems to get together with others in the region and plan safe and reliable regional power systems. The plans put forth by the regional groups would be subject to veto or modification by the commission.

The commission could require construction of interconnections—between major utilities—over which the utility companies could supply each other with electricity to meet emergencies and also normal variations in demand.

The commission would be authorized to prescribe and enforce standards for the safe operation of both local utilities and regional pools of utilities.

The legislation also provides for some new forms of Federal assistance to utilities meeting the power commission's standards, and it specifies that the

commission take into account the interests of conservation groups and others concerned with the use to which land is put.

PROMISED BENEFITS

The promised benefits are these:

A limited antitrust immunity would be conferred on the utilities whose plans and operations had received commission approval. The limited immunity—which an official of the Justice Department's Antitrust Division said "has no precedent so far as I know"—would preserve the right of the Justice Department to bring suit against commission-approved plans that it considered illegally harmful to competition. But it would bar all private suits for damages under the antitrust laws.

The Federal Government would use its right of eminent domain, if requested by the utilities involved, to secure land for the construction of generating facilities and transmission lines that conformed to its standards for reliable electric power service.

The Interior and Agriculture Departments, which currently prescribe standards under which power lines may cross federally owned lands, would drop these rules and permit erection of all such lines that were part of a commission-approved regional power plan.

The legislation specifies that the commission must consult with these two departments—and with any other Federal, state or local agency concerned with land use—and "defer to their views when it can do so consistently with objectives" of the proposed law.

Provision has also been made for public views of interested members of the public to be heard, not only on land use questions but also on all other aspects of the regional planning decisions.

The legislation would give the commission authority it does not now have to license extra-high voltage power lines, which are those that carry 200 kilovolts or more of power. Such lines are used to transmit large loads of electricity over relatively long distances.

SPECIFIC WEAPON

The authority to approve or disapprove such lines is the specific weapon that would be given to the commission to enforce its ideas about safe design of regional power systems.

Without an ever increasing number of such extra-high voltage lines, no large electric system can operate. The demand for electricity has recently been doubling every 10 years and thus new generating facilities and transmission lines are continuously needed.

The regional planning organizations prescribed by the legislation would consist of all the utilities in an area, whether they were privately owned companies, cooperatives, or municipalities, state or Federal systems. The exact number of regions to be set up has not yet been determined.

Every aspect of the development of safe designs and safe standards, would be worked out by utility and Government officials cooperatively.

Federal Power Commission experts would sit in on the regional planning conferences.

[From the Atlanta Journal, June 9, 1967]

POWER FAILURES

Some 13 million persons in four Eastern states had to make do without electricity when another of those huge power failures took place.

The most recent blackout affected almost all of New Jersey, and populous parts of Pennsylvania, Delaware and Maryland.

It was the biggest blackout since 1965, when 40 million people in New York and other Northeastern states were left powerless by an outage.

Apparently it could happen most anywhere.

But the chances of its happening here are slimmer, apparently, because of a step taken by the Southern Co., holding company for Georgia Power and others in the South, to avoid just such power blackouts.

Southern signed an agreement with a neighboring pool of power companies to coordinate planning, construction and emergency procedures.

The agreement is expected to improve the reliability of Southern and the neighboring companies and reduce the chances of an isolated incident's causing a mass regional power failure.

It is good to know that decisive steps are being taken in this area to prevent power failures on a grand scale.

[From the Wall Street Journal, June 9, 1967]

FPC ASKS CONGRESS FOR REGULATORY CONTROLS OVER HIGH VOLTAGE TRANSMISSION

(By a Wall Street Journal staff reporter)

WASHINGTON.—The Federal Power Commission, with White House approval, asked Congress for sweeping regulatory controls over extra-high-voltage transmission lines.

An extra-high-voltage line is defined as one transmitting more than 200 kilovolts.

Such lines are essential to the construction of regional power grids linking local utility systems. Concern over their effectiveness has been growing as the result of area-wide blackouts, including Monday's failure affecting 15,000 square miles and some 13 million people in Pennsylvania, New Jersey, Maryland and Delaware, and the much larger Northeast blackout which occurred in November 1965.

The FPC's proposed Electric Power Reliability Act calls for:

- Establishment of regional organizations by electric utilities "to coordinate planning for further interconnection and construction of bulk power supply facilities." Every system in a region would be represented and the FPC would have its own nonvoting representatives on each.

- Standards covering reliability, planning and operation of extra-high-voltage transmission lines, to be established by the commission.

- Authority for the commission to require utility companies to make interconnections and "energy exchanges" wherever "the public interest so required."

- Government consideration of all land-use issues affected by construction of extra-high-voltage lines, "including preservation of scenic or historic sites."

The new proposals contain several innovations not included in earlier bills which died for lack of much Congressional support. Chief among these is the regional council concept which could permit the utilities and the FPC informally to hammer out mutually acceptable interconnection arrangements. Another sweetener for the power industry would enable a utility to acquire high-voltage right-of-way under Federal aegis rather than more troublesome state statutes.

In the past, however, electric utilities have resisted expansion of Federal regulatory powers over them. FPC chairman Lee C. White, commenting on the bill's prospects, said that "in all candor" he has received no indication of industry support for the legislation so far. "But, on the other hand, there hasn't been any opposition, either," Mr. White said.

Should Congress agree to the commission proposals, the FPC will hold hearings on what sort of standards it should adopt. As for the regional organizations, "the FPC would pass on their basic organization to insure fairness," but they would "function independently," an FPC explanation of the legislation stated.

Once a council had formulated an extra-high-voltage plan for its region it would submit it for FPC approval. Presuming it was found acceptable, the FPC would be empowered to grant "limited immunity from antitrust suits" provided there was "insubstantial" impact on competition, or loss of competition was "clearly outweighed by other public interest factors."

Earlier in the day a meeting of utility company representatives and state and Federal officials, held at FPC headquarters in Washington, heard that "human failure" was responsible for the overload on an extra-high-voltage transmission line in southeastern Pennsylvania that set off Monday's massive four-state power failure.

The human error that triggered the overload on the Nottingham-Plymouth Meeting 230-kilovolt transmission line occurred at two points: Philadelphia Electric's central dispatching office in Philadelphia, and at the company's Conowingo hydroelectric plant on the lower Susquehanna river.

Chairman White gave the following summary of facts supplied by Philadelphia Electric and the Pennsylvania-New Jersey-Maryland utility network serving the four-state blackout area:

—Using an operating plan that is in effect until a new 500-kilovolt transmission line goes into service this summer, Philadelphia Electric ordered the Conowingo plant to switch half of its output to a transmission line parallel to the Nottingham-Plymouth Meeting line at scheduled times during the day when all four Muddy Run generating units are making power. Conowingo, for reasons not yet explained, failed to do this on Monday. As a consequence, full output from both stations was moving through the single transmission line.

—The Nottingham-Plymouth Meeting line normally carries a 450,000-kilowatt load, and has a maximum load rating of 550,000 kilowatts. However, Monday's recorded peak of 606,000 kilowatts might have been sustainable—and, in fact, seems to have lasted between 13 minutes and 18 minutes. But the day happened to be warm and windless, aggravating the normal heating of the cables and causing them to sag toward a distribution line crossing beneath them at right angles. The resulting "flashover" tripped off the Muddy Run units, unbalancing most of the grid's other generating plants.

—Instruments in the Philadelphia Electric dispatcher's office registered the existence of the overload, "but no action was taken."

In response to reporters' questions, Mr. White said the Philadelphia Electric control board is not equipped with automatic warning devices, but that meters merely "are marked at various (load) levels." He added that "normally there is not a criticality of time. There is nothing magic about 550,000 kilowatts."

Asked if company engineers were aware that the affected transmission line could, under certain conditions, sag to the "flash-over" point, Mr. White answered, "Obviously not." He noted further that there are numerous other crossings along the same line where a "flashover" could occur.

AT THE MERCY OF SQUIRRELS

Even if the electric power failure which last week left some 13 million people in the Middle Atlantic area without electricity—some for as long as 10 hours—had been the first since the Great Blackout of 1965 in New York and the Northeast, it would have been one too many. But since 1965 the nation has had 17 lesser service interruptions known as "cascading power failures."

Once upon a time a major breakdown in an electric utility affected that utility's customers only, since each company operated in a sort of geographical island. The cascading, or domino, effects of a failure now are due in part to the close interconnections, established in recent years, of electric companies serving a particular region.

So when somewhere on a line in eastern Pennsylvania a short circuit occurred the other morning, it resulted in tripped switches across a 15,000-square-mile area served by five companies linked to what is called the "PMJ interconnection" in Pennsylvania, Maryland and New Jersey and part of Delaware.

Acknowledging that it is not known yet why a short circuit on one line resulted in a wholesale failure, Federal Power Commission Chairman White observes that even something seemingly so trivial as a squirrel getting trapped in a high tension circuit could trigger a massive power failure.

And two of the New Jersey utilities involved admit that there is no assurance a massive failure could not happen again. In Washington, the Administration is pressing for quick action on legislation to give the Government additional authority through the FPC, to bring about more reliable operation of the nation's electric systems.

Although the industry contends that the evident dangers of an intertie system do not outweigh its advantages, in terms of safety and operating economies, the public is beginning to wonder whether it is not true that the bigger they are, the harder they fall.

Plainly a close look at the whole intertie theory is needed. Present agitation for protection against failures ought not to be used as an excuse for new strictures in an industry heavily regulated already. But if the industry can't find answers on its own, the public well may figure that tighter Federal control is worth a try.

A large group of investor-owned companies for years has been conducting an advertising campaign assuring consumers that there is an abundance of electricity and always will be. To the consumers told by the FPC that their electric supply is at the mercy of squirrels, that scarcely is assurance enough.

[From the National Observer, June 12, 1967]

TALE OF POWER INTERTIES—THE ANATOMY OF FAILURE: WILL SUMMER MEAN MORE BLACKOUTS?

(By Patrick Young)

Power-industry and Federal officials fear that summer may bring more major electricity failures, perhaps even a repeat of last week's blackout in parts of our Eastern states.

Their uneasiness is well founded. Since the paralyzing Northeast power failure of November 1965, there have been 16 "cascading" power disruptions in the United States, blackouts that began in one power system and spread to others through transmission lines interconnecting them. Last week's failure, coming at the beginning of the months when demands for electricity are heaviest, seemed to some industry experts an unfortunate omen.

"There is concern about individual utilities and their ties with other utilities," one Federal Power Commission (FPC) official acknowledged. "There is a danger, and a very serious concern on our part. But I don't want to give the impression that the nation faces a massive blackout."

The concern is not that the ties exist, but that they might not be strong enough. Increasingly over the past three decades, power companies have interconnected their systems to exchange electricity. Today nearly all of the nation's more than 3,600 public and private electric utilities exchange power with at least one other company.

The companies argue, and the FPC agrees, that such interties not only are more economical but also provide greater reliability. The nation can now generate 23 per cent more electricity than it needs. If one system's power supply suddenly drops below its demands—because a generating facility kicks out, for example—excess power can be brought in from other companies, if the interconnecting lines are strong enough.

But such interties also open up the possibilities of blackouts spreading over much larger areas. This is what happened in the early evening of Nov. 9, 1965. An equipment failure at a generating plant on the Canadian side of the Niagara River triggered a cascading power disruption that covered 80,000 square miles in eight states and Canada and left 30,000,000 people groping in darkness.

Last week's failure wasn't so widespread. Nor was it so disruptive, since it came in daylight hours. But it was hardly a minor matter. The power failure affected 13,000,000 people in parts of New Jersey, Pennsylvania, Delaware, and Maryland—15,000 square miles in all. Businesses and schools closed because of the blackout. Traffic lights failed, snarling traffic. People were trapped in elevators, and 1,500 persons had to be led to daylight from Philadelphia's subway tunnels.

The trouble began on a 230-kilovolt transmission line of Philadelphia Electric Co. Two of the company's generating plants use the line, which supplies electricity to the Philadelphia area. The company says its dispatchers were to switch half the power flowing from its Conowingo plant to another line whenever its Muddy Run plant was generating at full capacity.

OVER ITS LOAD RATING

This was not done on June 5, however. As a result, the company was sending 606,000 kilowatts across the line, about 150,000 kilowatts above normal and 50,000 kilowatts over its maximum load rating. The extra kilowatts raised the line's temperature, causing it to stretch and sag to within 18 inches of a low-voltage distribution line. This caused a short circuit of both lines, knocking them out of service at 10:18 a.m.

Then things happened fast. Philadelphia Electric is a member of the Pennsylvania-New Jersey-Maryland Interconnection (PJM), 12 power companies that

pool their electricity to serve nearly 49,000 square miles in five states and the District of Columbia. The short circuit automatically shut down the Muddy Run operation. Two other PJM generating plants also closed down, denying PJM 1,400,000 kilowatts of power almost instantaneously.

It was too great a power loss for the system to absorb. The lines that under a lesser emergency would have brought power simultaneously to the stricken area were themselves taxed too heavily. Within five minutes Philadelphia Electric and four other companies were knocked out of operation.

Power was restored to Philadelphia by 11:10 a.m., but Trenton, Newark, Wilmington, and several other cities were without electricity until the afternoon, and complete service wasn't restored to the four-state region until 8:20 p.m. One New Jersey community unaffected by the disruption was Menlo Park, where Thomas Edison developed the electric light bulb.

Though engineers determined the initial cause of the blackout within two days, the reason why it spread so far continued to puzzle them. Lee White, the FPC's chairman, eased no one's nerves with a warning it could happen again. Noting that PJM utilities were behind schedule in constructing two powerful generating plants, he called the area's reserve power capacity "not all it should be." PJM, said Mr. White, "must be exceedingly cautious this summer."

He said the FPC was concerned also that a hot summer—in which electricity-consuming air conditioners would place huge demands on power systems—might create conditions for cascading power failures elsewhere. He specifically mentioned the states of Wisconsin, Illinois, Missouri, and Iowa as potential trouble spots, though he refused to predict they would suffer blackouts.

The PJM failure raised questions about the wisdom of creating interlocking power systems, sometimes called grids. The Federal Government and the power industry, however, strongly defended the practice. The argument is that while the possibility of widespread blackouts exists, the likelihood that an area will experience a power failure diminishes with the pooling of electricity.

"YOU CAN RIDE THROUGH"

"The thinking is that if you can get your grid strong enough," explains one power-company engineer, "you can ride through these emergencies."

In support of this, Mr. White said that before last week's disruption, PJM had had more than 200 equipment failures in 10 years, and only once did any customer lose power. A power-industry official relates that when a generating plant near Cleveland suddenly shut down a few weeks ago, other companies in Ohio supplied the needed power to the area and a utility in Florida even sent excess electricity into the state. There was no loss of service.

Nonetheless, the PJM failure focused attention anew on the blackout problem and expedited the announcement of new FPC legislative proposals to meet the danger. The proposed bill received President Johnson's blessings.

Blackouts, said Mr. Johnson, "do not respect the season of the year or the hours of the clock. The next failure could just as easily strike in the cold of the winter, in the dark of night. We must take every proper step to avert such a possibility."

WHAT THE FPC IS SEEKING

The FPC will ask Congress for power to set standards covering the reliability, planning, and operation of transmission lines carrying 200 kilovolts or more. These extra-high-voltage lines are essential to the construction of regional power grids.

The FPC also wants regional organizations established by electric utilities "to co-ordinate planning for further interconnection and the construction of bulk power supply facilities." The measure would give the FPC power to require the companies to make interties and to exchange electricity wherever "the public interest so required."

The FPC will also release later this month a report by an advisory commission it appointed after the Northeast blackout to study the power industry's reliability. That report will recommend a series of design criteria for the power industry, and it will suggest that the power companies test their systems on computers to see if they meet the criteria.

Such a computer test was run after the November 1965 blackout on the power pool that failed. Once the engineers ascertained what went wrong in Canada, they programed a computer with what they knew about the entire system.

Then they asked it what would happen if the Canadian plant failed in the way it had. The computer's answer was almost identical with what had happened the night of Nov. 9.

"It was," says one FPC official, "a very impressive confirmation of the accuracy of computer testing."

[From the Washington Post, June 12, 1967]

KEEPING THE LIGHTS ON

The Federal Power Commission lost little time in drafting an imaginative and far-reaching legislative proposal for reducing the recurrence of paralyzing electrical blackouts. Congress should respond by holding hearings as soon as it is feasible.

The "Electric Power Reliability Act," submitted by Chairman Lee C. White and his colleagues, would make the FPC responsible for coordinating and strengthening the interrelated grids of utility systems. The FPC would be empowered to review and approve the construction of the extra high voltage lines that link individual utilities. It would be empowered to require interconnections between utilities when they are in the public interest. And the FPC would be authorized, after consultation with regional councils of utilities, to "set forth reasonable criteria" for "reliable planning and operation," criteria that would include the provision of "reserve capacity for reliability."

There is some question as whether the provisions (sections 401(b) and 408) for ensuring adequate reserve generating capacity are sufficiently strong. But with the exception of that possible weakness, the FPC proposal is commendable. It would also establish a National Electric Studies Commission, designed to stimulate scientific interest in the provision of reliable service.

With a few distinguished exceptions, the electric power industry is not noted for its willingness to innovate. The FPC, which is principally concerned with rate regulation, is not now in a position to provide the leadership and technical guidance that are required to enhance the reliability of interconnected electric utilities. But a country that is capable of devising intricate systems for the exploration of space can surely solve the problems of keeping its lights on. The place to begin is in the Congress which ought to adopt and if possible strengthen the FPC's admirable proposal.

[From the Office of the Special Assistant to the President for Consumer Affairs,
June 12, 1967]

BETTY FURNESS PRAISES MOVE OF FEDERAL POWER COMMISSION TO IMPROVE ELECTRIC POWER SERVICES

Betty Furness, Special Assistant to the President for Consumer Affairs, today praised action of the Federal Power Commission to improve services for electric power consumers.

Following the recent four-State blackout, Commissioner Lee C. White proposed legislation which would "set and enforce standards of reliability for the Nation's 3600 electric power producers."

Basic aim of the bill is to prevent electrical blackouts.

President Johnson urged Congress to give the bill "prompt and favorable" consideration.

Betty Furness—the new Special Assistant to the President said: "Commissioner White acted quickly and responsibly to meet what is a basic need and right of most Americans. Nearly everybody depends on electric power. When that power fails, whole areas are paralyzed and everybody suffers. The bill Commissioner White proposed would help prevent blackouts which threaten human life, cause needless suffering and inconvenience, and result in astronomical economic waste. I strongly urge the bill's passage."

The proposed legislation calls for authority to order stronger interstate standards for power producers. The bill also calls for more high-power lines, and would give the FPC authority to insist that producers have more available power plants in reserve than they now have.

"This emergency back-up of electrical power is an absolute must for the American consumer," Betty Furness said.

[From the Pittsburgh Post-Gazette, Tuesday, June 13, 1967]

POWER OVER UTILITIES

The need for new federal legislation to regulate electric utilities for the protection of the public has been dramatically illustrated by unexpected events in recent weeks.

Last week the public was reminded of its dependence on electricity when a sudden power failure cut off electric current for 13 million people in four states, including Pennsylvania, and caused a temporary paralysis in transportation, industry and many vital services. Two days passed before investigators determined that the power failure was triggered by a short circuit which occurred when a long distance, high voltage power line near Philadelphia expanded under the heat of its power load and sagged into a local distribution line. The reason why this power failure spread to a 15,000 square mile area may take several weeks to trace.

This latest breakdown in electric service quickly showed, however, why the federal government should have authority to compel better planning and safer operation of both local and regional utility systems. The Federal Power Commission has now offered a number of legislative recommendations, which it began to put together in 1965 after a massive power failure shut off electric service to 30 million people in several Northeastern states.

Under the FPC proposals, the agency could: (1) force utilities to get together and plan safe, reliable regional power systems; (2) could require the construction of interconnections between major utilities, over which the utility companies could supply each other with power to meet emergencies and also normal variations in demand; (3) could prescribe and enforce standards for the safe operation of both local utilities and regional pools of utilities. The legislation would also call upon the FPC to take into account the interests of conservation groups and others concerned with the proper use of land.

The conservation proposal is a necessary recognition of the need to prevent utilities from arbitrarily defacing the countryside with their transmission lines. It was only a few weeks ago that citizens and public officials of the affected area discovered that the Potomac Edison Co., using its blanket condemnation powers, was quietly planning to build a gigantic 150-mile-long high voltage line from Hatfield's Ferry, Pa., to Doubs, Md., traversing and marring a large scenic area in the vicinity of the Antietam National Battlefield. In direct response to this threat, Senator Lee Metcalf of Montana introduced a bill to empower the FPC to block, change the size, or reroute proposed high voltage transmission lines.

In view of the experience that citizens of many states have now had with power failures and with the blighting of the landscape by unsightly power lines, the time for giving greater regulatory power to the FPC is obviously at hand.

[From the Washington Evening Star, June 14, 1967]

UNANSWERED QUESTION

There is one thing that the recent blackout of Middle Atlantic States shares with the Northeast power failure in 1965: Both, according to the Federal Power Commission, were products of human error by employees on the scene.

In the latest blackout, dispatchers at Philadelphia Electric Co. failed to re-route power as they had been ordered, thereby overloading a line. Others at a control unit simultaneously failed to detect the overload on their meters until it was too late. In the 1965 episode, someone at a plant in southern Ontario set an automatic power relay device too low, and it reacted to an overload by shutting down. The problem was compounded when a New York City Utility employee let the blackout keep rolling.

Now the FPC has come up with proposed legislation. It asks for better regional planning, new authority over extra-high voltage transmission lines and authority to tie states together more closely. The theory is that such a strengthened network will provide more reserve power to channel into an area where the lights have gone out.

That sounds good as far as it goes. But the record of the last two years makes us wonder if the FPC really shouldn't also focus on the weakest link. Regional planning and interstate links may help overcome the blunders of inadequately-trained or careless employees who fail to read meters and follow instructions.

As Lee C. White, FPC chairman, puts it, "You have to program into the system the things you know are bound to happen."

But are such operating errors bound to happen? These episodes raise a question about how adequately the power companies are training and supervising their help. Chairman White has suggested "establishment of planning and operating standards." We believe Congress should provide the FPC with clear authority, perhaps under this clause, to investigate the quality of such training—an authority it does not now have.

The public must be protected against these blackouts. The government cannot afford to neglect the area of human error when the evidence points so clearly in this direction.

[From the Chicago Tribune, June 14, 1967]

ANOTHER BLACKOUT

An overburdened transmission line near Philadelphia is found to have triggered the latest power failure in the east, this one leaving 13 million people in four states without electricity for up to 12 hours.

Perhaps the only individual to blame for this is Ho Chi Minh, because the construction of new generating and transmission facilities all over the country has been delayed by war time bottlenecks. In Philadelphia, the demand for electricity is already approaching capacity, and the season's first hot weather, with the accompanying demand for air conditioning, may simply have been too much.

What should chiefly concern us, however, is not the initial cause of the trouble. As Lee C. White, chairman of the Federal Power commission, says, there will always be unexpected loads and equipment failures. The real problem is how to link the lines of utility companies in such a way as to minimize the impact of these failures. Most companies have been working on this problem for years—since long before the government took a paternal interest in the affairs of the power companies [an interest which stems largely, we suspect, from a desire to take over more of the electric power business itself].

It was easy, after the big blackout of 1965, for the commission and its then chairman, Joseph C. Swidler, a notorious advocate of public power, to say that there should be more extensive ties between companies. But a new link which was established in North Dakota only four months ago, putting virtually the whole country on one circuit, didn't prevent Monday's blackout.

It is likewise easy for Mr. White to say now that there should be bigger links between companies—lines that can carry a greater load. And it has been easy for both of them to say that the solution lies in new federal laws giving the commission the authority to force companies to do what it wants them to do. Indeed, the interior department wants to put in its own transmission lines all over the country.

In both of the big blackouts, the existence of interties worked to aggravate the result instead of to alleviate it. One power system after another was knocked out like a row of dominoes. This doesn't mean that the interties are not a good idea, but it does mean that things can be rushed too fast, especially under the aegis of a government commission which, like all government commissions, is eager to boast of its achievements. We hope Congress will consider this before it plunges into any new federal controls.

[From the Philadelphia Daily News, June 14, 1967]

POWER PLAY IN WASHINGTON

The recent blackout in this area produced at least one tangible benefit.

The power failure roused the Federal Power Commission from its torpor and induced it to submit long-delayed legislation to Congress aimed at reducing the risks of future widespread blackouts.

The legislation was actually drawn up after a Congressional investigation into the Big Blackout of 1965 but the FPC was still crossing t's and dotting i's when the local failure occurred.

Under the proposed legislation the FPC, now principally concerned with rate regulation, would be responsible for coordinating and strengthening the inter-related grids of utility systems.

It would be empowered to review and approve the construction of the extra high voltage line that link individual utilities and to require interconnections between utilities when they are in the public interest.

The legislation would also give the FPC power to set "reasonable" criteria for utility planning and operation, including reserve capacity.

No one expects the electric power industry to applaud the legislation. Government interference in its operations is sure to arouse opposition.

At the same time, the public must be protected as much as possible from a recurrence of the blackouts that came close to being disasters.

[From the Hartford Courant, June 19, 1967]

A REMEDY IS SOUGHT FOR POWER BLACKOUTS

The Federal Power Commission has assured the country that regional power pools serve a useful purpose and should be expanded. The Commission is responsible, along with the industry, for seeing that these giant networks covering several states are organized to prevent breakdowns of service. So far it has failed. Questions are being asked by the public and its representatives in Congress. One consequence is an FPC bill in Congress providing for new controls over the construction and operation of extra-high-voltage power lines. In the absence of general agreement on measures that should be adopted to prevent future blackouts, it may be necessary to prepare to cope with them until the basic cause can be removed.

The power failure earlier this month was caused by human error. A dispatcher fed too much power into a transmission line. As with other failures, it is not clear why the resulting short circuit threw out the system in four states affecting 13 million people. The element of mystery in such accidents hints that one of the causes may be the complexity of the system, making it vulnerable to a slight mishap.

The lack of safeguards against the accidents was noted by President Johnson. In a complex society the machinery that supports it is liable to break down and reveal the artificiality of the whole structure. A power failure is catastrophic because so much of the nation's machinery depends upon electricity.

The demand for power is increasing rapidly. The supply has not kept far ahead in some areas. Peak demand has forced companies to cooperate in meeting it by forming regional power grids covering most of the country. A failure in one part of the system can cause a regional catastrophe and has done so often enough to emphasize the need for better safeguards. The increasing use of air-conditioners has made a summer a time of high demand. Power pools are the best way of meeting this demand if a way can be found to make them more reliable.

[From the New York Times, June 23, 1967]

PREVENTING BLACKOUTS

The second massive power blackout in less than two years has spurred the Federal Power Commission to submit a comprehensive legislative program to guard against future breakdowns.

In presenting its proposals to Congress the F.P.C. reaffirms its faith in regional grid systems. But it recognizes that they must be strengthened by increased planning and integration on the part of local utilities, supplemented by interconnections—lines between major utilities—that could be used to iron out variations in demand.

Without such safeguards, which call for extending the authority of the commission, there is always a danger that a breakdown in one area of a regional system will trigger failure elsewhere. The F.P.C. does not favor retreating to an entirely local system, which would make for many small blackouts. Instead, it is hoping, with the cooperation of the nation's utilities, to set up conditions that will provide maximum assurance against paralyzing power failures, large or small.

This is a tall order, but a society that is increasingly urbanized and so wholly dependent on power cannot be satisfied to aim for anything less. Although New York City's Commissioner of Water Supply, Gas and Electricity, James L. Marcus,

says New York's electric reserves are adequate, the Public Service Commission has warned that reserves may be too low for peak demands, indicating this area could be in trouble again. So could other metropolitan centers.

There may have been some excuse for the commission's long deliberations in drawing up its plans. But there is no excuse for further delay. After the crippling failure that recently struck twelve power companies in four Middle Atlantic states, Congress should give its swift approval to the F.P.C.'s reasonable and realistic proposals.

[From Life, June 23, 1967]

THE SECOND BATTLE OF ANTIETAM

In the holy writ of the engineers who design high voltage transmission lines, the first commandment reads, "Thou shalt not deviate from a straight line between Point A and Point B." To stray from the straight and narrow costs money, even though a detour might save a choice historic area or beautiful vista from festoons of cables and the Eiffel towers used to support them.

When, occasionally, outraged citizens attempt to save an area they soon come up short against an extraordinary fact. The majority of power companies in the country can take what land they want by eminent domain. Twenty states allot full control over choice of routes—from which there is essentially no appeal—to private companies. Other states require certificates of necessity, but since electric power is an unquestioned necessity today, the companies' right to condemnation is seldom hampered. In the majority of such proceedings, even though the landtaker is a private company, the only appeal possible is one against the amount of money offered, not the land-taking itself.

The latest group to make this discovery is now fighting the second battle of Antietam. The Potomac Edison Company has laid out a right of way that cuts straight through one of the most historic areas of Maryland. The towers, up to 110 feet tall, built on a 200-foot right of way, would dominate an area that includes the Antietam and South Mountain battlefields, John Brown's farm and the Chesapeake and Ohio Canal near Sharpsburg.

The proposed power line has been condemned by everybody from members of the local zoning boards on up to Interior Secretary Stewart Udall. But nobody has the power to stop the march of the towers.

There is no argument with the country's multiplying needs for electric power—the demand doubles every 10 years. And since nobody wants transmission lines in their own backyard, some form of eminent domain taking is inevitable. But it is a perversion of the democratic process to allow the private power companies to be the final judge of what they will take.

In effect, the companies have been ceded one of the great powers of government—without having to accept the responsibility that goes with it. Deciding what is the greatest good for the greatest number in an eminent domain proceeding is outside the province of a private company responsible to its stockholders.

The final decision on whether a land-taking creates values greater than those it destroys must be returned to the government which is responsible to all the people involved. And since high voltage transmission lines are now mainly interstate in nature, the logical arbiter would be the Federal Power Commission.

A number of bills now before Congress would accomplish just that end. Though designed primarily to avert massive intersystem blackouts, the best of the measures would also direct the FPC to consider esthetics in the granting of licenses. The need for such a law is urgent if the latest battle of Antietam is not to be lost.

[From Electrical World, June 26, 1967]

WASHINGTON COMMENT—FPC BILL: SAW THAT CUTS MANY WAYS

(By N. Burkey Musselman)

President Johnson says officially that he wants the Congress to give the Federal Power Commission reliability legislation [EW, June 19, p 19] prompt consideration and speedy enactment. But just beneath this Potemkin facade of apparent bureaucratic benediction, the FPC proposal is stirring up old and new irritations within other federal agencies.

The FPC proposal was left loosely constructed on purpose to permit resolution of such difficulties, perhaps taking some years to work out. For example, there is no definition of regions for planning councils; there is the undefined membership and voting structure of the councils; there is the unspecified impact of council attitude or vote on transmission proposals that go subsequently to the FPC for certification.

There's a general consensus in Washington's power agencies that the legislation has many long-range advantages to federal and preference systems—in coordination, power-pooling, and cooperation. After these generalities, consensus seems to dwindle.

Interior's Bureau of Reclamation is reported to be the most unhappy agency, facing the prospect of going through FPC certification procedures before seeking Congressional authorization of funding for transmission facilities. One wonders how such a law might have changed the outcome of Congressional debate over the Upper Colorado project lines and the West Coast intertie.

Bonneville Power Administration, by contrast, is more favorable, as its administrator, David Black, helped draft the bill while he was an FPC commissioner. Southeastern Power Administration has no procedural problem, since it doesn't build lines anyway; while Southwestern Power Administration is just moving into jurisdictional transmission of over 200 kv.

TVA, also, would need FPC certification before building big lines—a new step before financing them.

REA, like SWPA, isn't much involved with the larger lines, but philosophically, it questions FPC review of its loans for such lines. REA probably would make loans for the big lines, conditioned upon subsequent FPC certification—as REA now makes state-commission approval a condition of generation loans. Though REA is fairly silent on criticism, a key co-op supporter in the Congress indicates possible FPC jurisdiction over REA loans. Only recently, the House Agriculture Committee rejected FPC review of REA generation loans in a major amendment to the REA bank bill.

Both the National Rural Electric Co-op and American Public Power Associations have no comment yet on the bill, but both have special committees due to decide their positions, most likely by early July. They could easily propose critical amendments suggesting exemption of co-op or public systems, while generally supporting the majority of the bill's provisions.

Congressional committees also are potential sources of opposition. The Senate Commerce Committee almost certainly will take up the bill by mid-July, followed later by its House counterpart; but the Senate and House Public Works, Interior, and Appropriations Committees could challenge the bill as eroding their prerogatives. Congressional opposition could come through testimony before the Commerce Committee, or another, but more distant, possibility would be additional hearings before these other committees.

[From the Wilmington (Del.) Morning News, June 28, 1967]

MINIMIZE BLACKOUT BLIGHT

After the second blackout in two years all Americans have serious concern as to the reliability of the interconnected power systems.

The chairman of the Federal Power Commission, Lee C. White, is urging, fortunately, that the FPC and the industry should develop "planning and operating standards to enhance power reliability." He deplores the "cascading power failure" of June 5 as affecting over 15 million people in a four-state area—and he and his agency are submitting to Congress a bill entitled the Electric Power Reliability Act as a supplement to federal power legislation on the books.

The FPC comes out for more and better, not fewer, interconnections for "bulk power transmission" between power companies and their territories. This it declares to be necessary as a guard against blackouts. It encourages development of power resources—but only "while maintaining proper regard for conservation of land, of scenic values, and of other limited resources."

This respect for the countryside is contained in the proposed act, which, in Chairman White's words, "includes a procedure for consultation of responsible local, state, and federal agencies concerned with land use, and requires the FPC to defer to their views when it can do so consistently with the objectives of the bill."

That fact is that never before has the FPC's regulatory authority included any specific policy for the protection of natural resources, the outdoor scene, and related values that public planning agencies seek to protect. But now, the FPC has been forced into seeking such new responsibility by the pressures being exerted in every part of the nation in behalf of these very values of resources and esthetics.

The new bill offers some dubious concessions to the industry, such as federal eminent domain, rights-of-way across federal lands, and immunity from certain antitrust actions, which need a good airing in committee hearings.

Wholly welcome, meanwhile, is the central thrust of this bill in its providing that federal, state, and local agencies have reviewing authority in cases of new extra-high voltage lines.

Today in Delaware the question is whether or not the state should grant eminent domain to electric utilities, as requested anew by the Delmarva Power & Light Co. The firm says it must connect power plants at Delaware City and Millsboro with a high-voltage line, on a course it has selected.

This line would cut across a beautiful part of the state hitherto unscarred by parades of tall power towers and wires. Before eminent domain is granted, the state and county planning agencies and civic groups are, we submit, entitled to disinterested technical advice as to the practicality of running such a line along the railroad for at least a large part of the way.

The need for reliable electric power in Delaware—as in the country at large—must no longer be allowed to blight the landscape whenever a more sightly and economically possible alternative is available.

[From Public Utilities Fortnightly, July 6, 1967]

WASHINGTON AND THE UTILITIES—THE PROPOSED ELECTRIC POWER RELIABILITY ACT OF 1967

"The Federal Power Commission lost little time in drafting an imaginative and far-reaching legislative proposal for reducing the recurrence of paralyzing electrical blackouts," *The Washington Post* editorialized recently. But just before that, *The New York Times* saw fit to comment: "It is taking the Federal Power Commission inexcusably long to come up with its promised recommendations on what additional safeguards are required. . . . This second proof [backout] of the country's vulnerability is a prod the commission should not have needed for still faster action."

The length of time it took the FPC to come up with a draft bill designed to enhance the reliability and efficiency of electric bulk power systems, of course, lies somewhere between the two extremes. The massive outage in four Middle Atlantic states, of June 5, 1967, probably did hurry along the introduction of the bill before the final report on the 1965 Northeast blackout was ready to be published. But the commission certainly did not just begin to work on it in the past few weeks. The bill is the result of nearly a year and a half of deliberations. This may still appear to be a long time to some, but the end product reflects a great deal of effort and soul-searching on a very complex problem. The FPC produced a bill it believes will help insure the nation against future blackouts and yet one which it thinks the electric industry will be able to live with.

The proposed Electric Power Reliability Act of 1967, which in reality would add a new Part IV to the Federal Power Act, was submitted to Congress on June 8th. It was first introduced in the House (HR 10721) by Representative Macdonald (Democrat, Massachusetts), chairman of the Communications and Power Subcommittee of the Interstate and Foreign Commerce Committee. A number of duplicate House bills have been introduced, including one by Representative Staggers (HR 10727), the chairman of the full committee. Senator Muskie (Democrat, Maine) introduced the Senate bill (S 1934) in the absence of, but at the request of, Senate Commerce Committee Chairman Magnuson (Democrat, Washington). It has unquestionable support from the administration. (The press, perhaps not so unmistakably, repeatedly refers to it as a White House proposal.) The extent of push that will be behind this bill is indicated by the fact that House Majority Leader Albert (Democrat, Oklahoma) took to the floor shortly after its introduction to demand, as well as promise, quick congressional action.

Now that the FPC has taken the wraps off its recommendations for "reliability" legislation, the provisions have been dubbed "sweeping" and "far-reaching."

The draft bill does unquestionably suggest new, broad regulatory authority that, at one time, the commission might never have dreamed of asking. This does not mean, however, that the electric industry had been taken by complete surprise. Electric utility managers probably had some rough idea of what legislation the FPC would think was needed for prevention of blackouts. Commissioner Ross, early in May, made a well-publicized speech before the American Public Power Association in which he gave some fairly broad, but close to the mark, hints on what the bill would contain.

PROVISIONS OF THE BILL

In essence, the bill, if enacted, would establish regional planning councils charged with the responsibility of insuring that plans for bulk power facilities are adequate. It would permit the FPC to establish, after consultation with the regional councils, "reasonable" planning and operating standards; authorize commission review and approval of proposals for construction of extra-high-voltage transmission lines (higher than 200 kilovolts); and give the FPC the power to order interconnections, on its own motion, between bulk power-generating systems. The FPC could exempt power suppliers from parts or the whole of the act. Some of these "barebones" of the bill may sound somewhat familiar and have been opposed in the past. But, the foregoing is just a broad-brush outline.

First, it might be noted that the FPC tried to anticipate two possible objections. It ostensibly adopted a "hand-off" attitude towards distribution systems. A bulk power supply system, as outlined in the bill, would be comprised of the facilities which generate power and deliver it to points of distribution, but not distribution lines or distribution facilities themselves. But then, too, the commission made it clear that it firmly believed that, if it is given this responsibility of overseeing the reliability of the nation's electric service, then it must be able to exercise it over all segments of the industry—investor-owned, cooperatives, and government-owned. On the basis that a "chain is no stronger than its weakest link," the bill presupposes that the FPC would have to exercise the same authority over all—publicly as well as privately owned and cooperatives. The so-called "self-regulated" segments of the industry might have taken exception to *any* FPC jurisdiction for fear of being subjected to total regulation at the federal level.

The commission anticipated this, however, and inserted the proviso that nothing in the new Part IV would "modify or abridge" the provisions of the existing Federal Power Act; i.e., the co-operative and government electric systems could be assured of greater access to the nation's bulk power supply facilities and lines without becoming subject to FPC rate or other regulation. The National Rural Electric Cooperative Association, at its last annual meeting, adopted a resolution opposing FPC jurisdiction generally, but did leave the door open to consideration of "limited FPC regulation in some areas of power supply," according to General Manager Ellis. On the other hand, if interconnections or co-ordinated efforts are stipulated by the FPC to help assure reliability, such orders could be conditioned so as to make now unregulated systems bring their facilities up to par.

One of the more important features of the bill is the provision for the establishment of the regional councils. In fact, Chairman White called it the "key" to improved co-ordination. All bulk systems in a region (as yet undesignated) would be entitled to, or even forced into, membership. (Some electric utilities could be a member of two or more regions.) The FPC would have nonvoting representatives on each council. The councils would review existing facilities and propose future plans which would be subject to FPC approval.

Then, the commission added a sweetener. If a plan received the commission's blessings, then limited immunity from antitrust suits could be granted provided that it was also determined that the impact on competition was insubstantial or clearly outweighed by other public interest factors. The councils, assertedly, would act independently of the FPC. They would also conduct studies to enhance reliability of service and could propose reliability criteria for issuance by the commission as mandatory requirements.

Chairman White has praised the efforts of the electric utilities in voluntarily establishing similar regional planning groups on their own initiative. But in the report to the Senate Commerce Committee on the June 8th outage, he made clear that the FPC does not believe that such organizations are enough: Membership is selective; decisions may not be binding; co-ordination among the groups is lacking; and, by inference, the commission is being left out.

EHV lines are given special consideration in the bill. All proposals, both public and private, to build such lines would be filed with the FPC. Public notice would be required and service made on the regional councils and interested government agencies and persons designated by the FPC. Construction could begin after six months unless the plan was disapproved or suspended. If the proponent intended to take advantage of the federal eminent domain powers that are provided by the bill, suspension would be automatic. The initial suspension period would be up to a year, and could be extended. The commission could "recommend" modifications, or accept, or reject (after hearing), the proposed line. In emergencies, the FPC could allow construction to commence immediately. Thus, while the commission has been split in the past on what kind of authority it should have over construction of transmission facilities, it is no longer.

MISCELLANEOUS PROVISIONS

A copy of all oral or written agreements for co-ordinated planning or operation of bulk power supply facilities (including but not limited to agreements for joint ownership) will have to be filed with the commission. Another innovation is the "land review" provision. Issues of land use, including preservation of scenic or historic sites, would be specifically considered in the approval of any regional plans or formal proposals. The FPC would take written comments from responsible government or local agencies and would defer to their views on local land-use questions. But the commission could ignore any particular resolution that it determined was inconsistent with the overall objectives of the new Part IV of the act.

The bill would also authorize the establishment of a National Electric Studies Committee, representative of all elements of the industry. It would be charged with facilitating interregional viewpoints, studying bulk power supply problems, and stimulating scientific and engineering interest "in the challenges to achieving reliable and efficient" service for the nation. Additionally, the FPC could establish one or more advisory review boards, drawn from experts in the industry or from the public, but not employed by the commission.

The very broad objectives of the bill may be illustrated by the following excerpt. It states, in part, that the proposed Part IV is intended to provide

"... that all utility systems and their customers shall have access to the benefits of coordination and advancing technology on fair and reasonable terms; by assuring to the extent feasible that extra-high-voltage facilities include sufficient capacity to meet area, regional, and interregional needs for transmission capacity, including reserve capacity for reliability; by respecting the territorial integrity of utility service to the extent consistent with the public interest; and by drawing upon the cooperation of all segments of the electric utility industry."

The bill has been generally acclaimed by the public press and individual members of Congress as a good one. As congressional preoccupation with railroad strike legislation and the Senator Dodd censure motion comes to an end, action will be forthcoming. Despite criticism of any particular provision in the bill, and some of them may be controversial, Congress and the electric utilities themselves are going to be hard pressed to explain to the American public the failure to pass some such bill in the event of another massive blackout. The FPC has done what was asked of it. It has made its recommendations. Despite claims that this bill would permit the commission to control almost every aspect of all segments of the electric industry (and it does go in that direction somewhat), a more workable and attractive alternative will have to be suggested if recriminations are to be avoided. Industry concern over power shortages, as well as earlier shortages, seems to make some sort of federal regulation inevitable.

[From the Newark (Del.) Evening News, July 28, 1967]

AVERTING BLACKOUTS

After the massive Northeast power blackout of 1965, the Federal Power Commission sought to comfort the afflicted by asserting "the likelihood of recurrence would be so remote it would not constitute a major worry."

Well, the assurance lasted just about 18 months. To the discomfort of some 13 million paying customers in New Jersey, Pennsylvania, Maryland and Delaware, it happened all over again early last month. In the interim, wiser judgment

prevailed at the FPC, and a thorough look at blackout causes, effects and possible remedies was ordered.

The results of that inquiry are now at hand. Absent are the earlier glib assurances. Instead, the public is warned that in some areas supply may be inadequate to peak demand and that overloads could again produce rolling blackouts.

As a corrective, the power industry is asked to increase anticipated spending for urgently needed interconnection lines, improve the testing of heavy equipment for short-circuit effects, and join with the government in breaking through bottlenecks that enable power needs to outpace supply.

The FPC has issued a large order. But it's a realistic one if the experience of the last two blackouts is to count for anything. Even the total recommended expenditure of \$8 billion over the next seven years is not excessive when laid against the economic loss and danger to public safety and national security that occurs when the power goes off.

It's possible, as FPC Chairman White suggests, that the \$8-billion over-all investment need not increase the cost of power to customers since improved interconnections could produce operating economies. Such optimism has been heard before without the anticipated economies ever reaching the customer's bill.

At this stage, however, priority must be assigned to minimizing the chance of another cascading power failure. Legislation requiring more thorough coordination in the planning and construction of interconnections is before Congress. Prompt action should be forthcoming so that the FPC recommendations don't wind up as another dusty volume on the shelf.

[From the Norfolk (Va.) Virginian-Pilot, July 30, 1967]

BETTER EDUCATION FOR EDUCATORS—TO KEEP THE LIGHTS ON

The nation's electric utilities are planning to invest \$5 billion in new transmission facilities by 1975. But they were told last week that the investment is not enough to meet the needs of an urban-industrial society that makes increasingly heavy demands on electric power.

Specifically, the Federal Power Commission said the utilities ought to spend \$3 billion more during the same period to help prevent a recurrence of cascading power failures such as blacked out Northeastern states in November 1965 and pulled the plug on residents of parts of Pennsylvania, New Jersey, Delaware, and Maryland last June 5.

As the utilities tell us, electric power is clean and convenient. It also is vital, as the blackout demonstrated dramatically when it brought 30 million people to a halt in the most technologically sophisticated region on earth. Our society is as dependent upon electricity for its life in the form that we know it as a diver beneath the sea is upon his oxygen supply. Any major rupture of service is a grave crisis.

The FPC's recommendation that the utilities up their investment was made in a voluminous report delivered to the White House. The report is the result of an investigation ordered by President Johnson into the causes of the 1965 blackout.

FPC Commissioner Lee C. White stressed the need for a great expenditure of money to improve coordination among neighboring electric transmission systems to assure continuous stable operation despite rapidly increasing power loads. Effects of the June 5 power outage would have been rapidly increasing power loads. If automatic load-shedding devices had been available.

A final report on the causes of the June 5 power outage will be made at a future date. But the findings on the Northeast failure are in—it was massive surge of power that knocked out connections to the south and west of the system. The danger of a recurrence is still with us.

Commissioner White said the \$8-billion investment would "greatly reduce" the probability of region-wide outages. He thought that the size of the expenditure would be offset by savings resulting from enhanced efficiency of operation. If not, he added, "I'm satisfied the people of the United States are willing to pay more for reliability of service if that is required."

Assuredly so.

[From the San Mateo Times and Daily News Leader, Aug. 3, 1967]

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Well, the assurance lasted just about 18 months. To the discomfort of more than 13 million paying customers in New Jersey, Pennsylvania, Maryland and Delaware, it happened all over again early in June. In the interim, wiser judgment prevailed at the FPC, and a thorough look at blackout causes, effects and possible remedies was ordered.

The results of that inquiry are now at hand. Absent are the earlier glib assurances. Instead, the public is warned that in some areas supply may be inadequate to peak demands and that overloads could again produce rolling blackouts.

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[From the Pittsburgh Post-Gazette, Aug. 8, 1967]

AVOIDING BLACKOUTS

With the formal issuance of its report on the "prevention of power failures," the Federal Power Commission has taken another step in its effort to reduce the dangers and inconveniences resulting from the cutoff of electric service. A few weeks ago, on the commission's recommendation, federal legislation was introduced to require electric utilities to get together and plan safe, reliable regional power systems and to authorize the FPC to set forth criteria for the safe operation of power systems.

Now the FPC has released a comprehensive report which contains additional recommendations aimed at avoiding crippling power failures. Some 20 major power failures have occurred in various parts of the country since November, 1965, when a massive blackout in the northeast led the FPC to undertake its just completed study. The report, based on this 18-month study, proposes, among other things, that federal, state and local governments establish requirements for emergency power sources and see that they are met. It points out, for example, that only 22 states have taken adequate steps to supply emergency power for essential services and that less than half of the nation's hospitals have adequate emergency power.

A major key to the prevention of blackouts, the FPC said, is the installation of stronger interconnections between power systems. To provide reliable power, the nation's power industry, according to the commission, needs to spend \$8 billion on high voltage lines between now and 1975. This is an outlay of about \$3 billion more than is being planned. Yet, as FPC Chairman Lee C. White observed, "reliability must have priority over economy," even if this means increased costs to consumers. A rise in costs, however, is not necessarily required, since better interconnections could bring economies for the industry.

In any event, steps must be taken to assure the public of the reliability of the electric power on which so many life-saving services depend. If industry cooperation, based on federal criteria, does not provide an adequate guarantee against breakdowns, then the government will have to be given broader power than that envisaged in the pending legislation.

[From the Deep River (Conn.) New Era, Aug. 10, 1967]

SOME FEDERAL CONTROLS NEEDED

We do, however, favor a Federal Power Commission request, made with White House approval, to have Congress give it certain regulatory controls over extra-high voltage transmission lines.

The authority sought provides, among other things for government consideration of all land-use issues affected by construction of extra-high voltage lines "including preservation of scenic or historic sites".

Such a regulation, we feel, is long overdue, if for no other reason than to avoid another situation such as Connecticut finds itself in now, where two different state agencies, the Water Resources Commission and the Public Utilities Commission, both claim jurisdiction over the new power lines and towers erected by The Hartford Electric Light Company at a scenic spot along the Connecticut River, in the Haddam-East Hampton-Middletown area.

The two state agencies came up with conflicting rulings, the PUC issuing a permit for the overhead lines and towers without restrictions, while the WRC said the lines would have to be removed and either buried under the river or moved to a less objectionable location within five years. The result is that the issue is now hung up in the courts.

Some utilities, unfortunately, are motivated only by economic considerations—how to get the most power to the most customers for the least amount of money. Recognition must also be given to the fact that certain scenic and historic sites belong to all of the people and cannot be arbitrarily sacrificed at the whim of a power company, or anyone else, on the basis of economics alone.

Where such proper regard for scenic and historic sites, and the will of the people, is not voluntary, then the Federal Power Commission, representing the people, should be authorized to intervene.

The FPC also seeks authority to establish standards covering reliability, planning and operation of extra-high voltage transmission lines, primarily to avoid recurrence of the "blackouts" that have hit several widespread sections of the nation, including Connecticut, in recent years. And we believe this, too, is justified.

We know that the power companies themselves have taken steps in an effort to avoid similar blackouts in the future, but again, because the public interest and safety is deeply involved, we do not see why the FPC should not be permitted—indeed, be given the responsibility—of seeing to it that everything possible is done to prevent such massive power failures from ever happening again.

[From the St. Louis Post-Dispatch, Aug. 12, 1967]

LIGHT ON BLACKOUTS

The final report of the Federal Power Commission on the Northeast electric power blackout of November 1965 puts into fully understandable perspective for the first time how such a massive failure could occur and can recur in a system generally deemed so nearly perfect. In doing so it draws a detailed blueprint for making blackouts much less likely in future.

With notable but few exceptions, electric utilities are still pursuing methods of planning, construction and operation relevant to the past but increasingly deficient for the present, the report shows. Their remarkable reliability record of better than 99.99 per cent has produced an apparent complacency with the old ways.

Yet electric utilities are no longer predominantly isolated and self-contained, responsible only for their own limited service areas. With interconnections to other systems and various degrees of pooling arrangements their responsibilities are becoming more and more regional and inter-regional. A deficiency in one can disturb the reliability of many.

Air conditioning and home heating with electricity have created demands beyond utilities' preparations to meet them, their forecasts of growth having been too largely based on past experience which the commission says is now "of little significance." Completion of new generation plants has been scheduled, for the sake of reducing costs, too closely upon the time when their production will be required to avert a shortage, and with too little allowance for contingencies, which frequently occur, the commission says.

Transmission line construction has lagged behind increased generating capacity. A system in trouble from short supply is "frequently" unable to obtain

enough help from another with an abundance on hand, because of inadequate means for conveying it. The ability of pooling to enhance reliability by backing up a system with the support of its partners has been hampered by the absence of systems which should have been included and by the inadequacy of joint functions.

Facilities for testing new equipment are too few and in some respects inadequate for testing actual operating conditions, the commission finds, and it urges the "early" construction of additional ones. The study is particularly critical of the failure of utilities to arrange for research to advance design and operating practices and to train technical talent, shortages in which are growing and pose "a threat to the future reliability of the nation's power supply."

Taken altogether the study comprehensively documents the need for the Electric Power Reliability Act now before Congress. That measure would empower FPC to establish standards, regulate construction of extra-high-voltage transmission lines and require interconnections and energy exchanges when required "in the public interest."

The commission is unstinting in its recognition and praise for the industry's accomplishments and more particularly those responding to its Northeast blackout study. It is no denigration of a preponderantly fine record for reliability to say that the new powers proposed for the commission are essential to cope with radically changed conditions, and that they can benefit the industry as much as the customers it serves.

[From the Washington Post, July 27, 1967]

CONTROLLING POWER LINES

The simultaneous movements in Washington and in Annapolis to curb the erection of power lines without public approval is indicative of the widespread public interest in the issue. Maryland's Legislative Council is considering a bill that would give the state's Public Service Commission authority to decide the location of controversial power lines. On Capitol Hill Senator Tydings laid the same problem before the Senate Commerce Committee. Mr. Tydings' bill would prohibit the construction of so-called electrical turnpikes "adjacent to land which has been determined by the Secretary of the Interior to have national, historic, recreational or scenic value."

Both bills are important. The power that utility companies now have to condemn land for their immense towers and high-voltage lines, without the consent or approval of any public body, is a carry-over from the era of reckless exploitation. It is the negation of planning for appropriate use of all our resources, for it may result in destruction or grave impairment of priceless scenic and historic sites without a public voice being raised.

A sound Federal law is likely to be more effectively used, however, than a state statute. Most of the high-voltage lines carrying electricity from mine-mouth plants to large urban centers across state lines and are therefore properly subject to Federal regulation. In general, moreover, the Secretary of the Interior is more likely to be alert to esthetic values which should be protected than are public service commissions in the states.

One aspect of the Tydings bill needs special attention. Apparently it is designed to operate only in those cases where the states do not control the location of power lines. But the states, even when they have regulatory statutes, cannot always be relied upon to protect national parks, Federal recreation areas, historic sites and so forth, especially if the power to act is lodged in utility-oriented public service commissions. We think the Secretary of the Interior should have authority to intervene in the case of all interstate power lines and in the case of intrastate lines that impinge upon a Federal interest.

[From Rural Electrification, September 1967]

CAN RELIABILITY BE LEGISLATED?

The Northeast blackout of November 1965 has produced a series of dramatic developments, but perhaps none as significant as introduction of the Electric Power Reliability Act of 1967. Public indignation surrounding that first major blackout plus other more recent outages prompted President Johnson, in his message to Congress on consumer protection, to state "... power systems must

be carefully planned, coordinated, and strengthened to protect the customer against cascading power failure." The Federal Power Commission was deputized by the President to draft legislation which would serve as the statutory basis for achieving his objective. After long, deliberate study, the FPC transmitted this proposed legislation to Congress on June 8, not coincidentally three days after another major blackout in the Middle Atlantic states.

This proposed legislation would add a new Part IV to the Federal Power Act, and in the words of FPC Chairman Lee C. White has the following four main goals:

- (1) Establishment of regional planning organizations to insure that plans for bulk power facilities are adequate;

- (2) Give authorization to the FPC to establish planning and operating standards to enhance reliability;

- (3) Provide for Commission review and approval authority over extra-high (over 200 KV) voltage transmission lines; and

- (4) Authorize the Commission to require interconnections between bulk power generating utilities.

Although directed to various phases of utility operation, these goals share the common objective of consumer protection.

The bill is designed to bring reliable electric service to the consumer at lowest possible cost, a goal long sought by rural electric cooperatives. For this reason, NRECA's Special Committee on FPC Jurisdiction, in accordance with authority vested in them by the membership at the San Francisco Annual Meeting to formulate policy in this area for the Association until the next Annual Meeting, approved a resolution endorsing "the purposes and objectives of the proposed Electric Power Reliability Act of 1967." The Committee, by the same resolution, appointed a special Subcommittee to formulate whatever proposed amendments it might deem necessary or desirable to strengthen the bill in the interests of rural electric cooperatives, their consumer members and other consumers. A list of proposed amendments was compiled and forwarded to Chairman White July 20.

ALL BULK POWER SYSTEMS INCLUDED

It is difficult to argue with the need for reliability, but can it be achieved through this legislation? The FPC realizes that any legislation which excluded large segments of the electric industry because of the nature of their ownership would have been a futile gesture; therefore, the bill was written to include all bulk power supply systems, even ones operating solely in intrastate commerce. The jurisdiction given FPC by this proposed act would be quite limited and would not affect the outcome of the *Dairyland et al* litigation, pertaining to the question of full FPC jurisdiction over REA-financed rural electric systems.

ROLE OF REGIONAL COUNCILS

Conditions of membership and authority of proposed regional councils illustrate the dilemma in which the FPC found itself. By deciding to include all segments of the electric industry, the FPC knew that unless strict guidelines were included to give all entities a meaningful role on the councils, cooperative and municipally owned systems would block passage of the bill. On the other hand, if FPC carved out too large a role for small systems, investor-owned utilities would vigorously oppose the bill. As with most problems of this magnitude, a good faith effort to solve the problem failed dismally, since smaller systems still fear an ineffectual voice on the councils while the investor-owned utilities have already publicly opposed the legislation.

The present bill states "each regional council shall be open to membership, direct or indirect, by each electric system in the region whatever the nature of its ownership." This language implies that distribution systems will be members of the councils and yet, without more explicit guidelines it is certain the voluntary organizational plans of the councils will relegate the smaller systems to virtual obscurity.

What, then, can the Commission do to prevent domination by the larger systems? It is here the dual nature of the bill, with regard to FPC compulsory authority, is most evident. When dealing with EHV lines, reliability standards, and compulsory interconnections, FPC has effective remedies to enforce its decisions. However, FPC's authority to compel a regional council to submit or revise a regional plan is at best vague. It is doubtful whether the Commission has prescribed a remedy to assure that a new plan in conformity with Commission desires will be forthcoming after one has been set aside, or whether a new

plan will be submitted at all. It was the feeling of the Subcommittee of the NRECA Special Committee on FPC Jurisdiction "that protection of the public interest requires that some compulsion be available to assure the formulation and adherence to a regional plan, and power in the Commission to periodically review such plans and require changes if necessary."

Two major concessions are granted utility systems acting in conformity with provisions of the bill: First is Federal eminent domain rights for EHV lines; second is immunity from private treble damage antitrust suits if the effect upon competition from the regional or interregional plan is insubstantial or clearly outweighed by other public interest considerations. The eminent domain concession should be of little consequence to smaller utility systems; however, the antitrust provision has already aroused grave concern in these quarters. Requiring a system to enter an agreement which might subject it to an antitrust suit could be seen as a form of entrapment, but in this area of the law there have been so few reported cases no one (I suspect the FPC can be included) really knows what is being given away. The courts would have an extremely difficult time determining when and if "the effect of the [regional] plan upon competition will be insubstantial" without some legal precedents.

COMPULSORY INTERCONNECTION

The Federal Power Commission has intimated that the language of Section 411 gives the Commission authority, upon its own motion, to direct one system to wheel energy to another. It has been suggested by the NRECA Subcommittee that Section 411 should expressly include language to this effect rather than inviting contrary interpretations. Advantages to the rural electric systems of having this authority vested in the FPC cannot be overestimated, as there have been numerous instances where cooperatives were unable to secure reasonable wheeling arrangements.

COMPETITION BY EXAMPLE

Key to this legislation is the regional council concept. If the regional councils become nothing more than investor-owned utility planning committees, the bill will have dealt the electric consumer a cruel blow. As the FPC-sponsored National Power Survey of 1964 recognized, the concept of pluralistic power supply has proven to be the most effective brake against unwarranted monopoly practices by the dominant members of the industry. The competition by example, or "yardstick" theory, should be vigorously protected as this bill wends its way through the legislative process.

CONCLUSION

As befits an organization dedicated to securing reliable low-cost electric service, NRECA is on record supporting "the purposes and objectives" of the proposed Electric Power Reliability Act of 1967. This support should not be construed as total acceptance of the bill as now written. Much work is needed to insure that rural electric cooperatives are afforded their proper status on the proposed regional planning organization. This can only be accomplished by having all interested rural electric systems testify at the various regional hearings to be held in the near future. The tentative extensive schedule for hearings almost definitely means that no final Congressional action will be taken before next year.

Most observers agree that the public interest is being well served by the Federal Power Commission of 1967. A bill such as the one under consideration will help keep it that way regardless of the men who will serve on the Commission in the future. The FPC will continue to play a larger and larger role in the regulation of the electric utility industry—here is an opportunity for the rural electric systems to effectively define that role.

[From the Washington Post, Sept. 13, 1967]

POWER LINES

Your Editorial of Sunday, August 27, entitled "Controlling Power Lines" raises a number of questions.

We agree that there is widespread public interest in the field of the erection of power lines without public approval.

The difficulty seems to be that the consideration of aesthetics and the preservation of scenic and historic sights is a comparatively new facet of public utility regulation. We agree that there should be some control over the utility company's eminent domain condemnation powers. We believe that the weakness in the present situation is that there is no one agency in Maryland which is charged with the authority and responsibility to review plans of this nature and to make decisions in the public interest on the location of power lines of this type.

We do not agree, however, that the solution to this problem rests with giving the Secretary of the Interior or any other Federal agency the sole authority to make these decisions. Aesthetics cannot be separated from the other public interests involved in decisions of this kind. A regulatory body must attempt a sometimes uneasy balance between high quality electric service, economically priced electric service, and the minimum impact on the environment. The authority to regulate only one of these factors without the responsibility in the other areas would result in senseless confusion.

This Commission, therefore, proposes to introduce in the coming Legislature a bill which would require public utilities whenever they exercise their eminent domain condemnation powers to install transmission facilities to secure from the Public Service Commission, after due notice and hearing, a certificate of public convenience and necessity based on the three elements which must be considered in providing orderly growth. We sincerely believe also that State Commissions are much closer to the people of the State than the Secretary of the Interior or any other Federal agency could possibly be. We believe also that the exercise of jurisdiction in the field of aesthetics and the preservation of scenic and historic sights, without at the same time considering quality and economy of service, would be a disservice to the public. We are hopeful that when you have seen the bill which is presently being prepared that you will agree with us that State level control, in the first instance, is more suitable than Federal jurisdiction.

There is one other problem which will require cooperation between the States and the Federal Government. Many of these high voltage lines that are erected in connection with the electric turnpikes traverse several states. There is already in existence in the Northeastern Corridor an informal organization of the members of the Public Service Commissioners of Pennsylvania, New Jersey, the District of Columbia, Delaware and Maryland.

Baltimore.

SOLOMON LISS,
Chairman, Public Service Commission.

[From Washington Post, Sept. 23, 1967]

POWER RELIABILITY BILL

One of the many pieces of legislation that ought to be moving more promptly toward enactment is the electric power reliability bill. This measure went to Capitol Hill some time ago at the unanimous request of the Federal Power Commission. It is designed to protect the public against massive power failures such as that which left 30 million people without electricity in the Northeast nearly two years ago. But the bill is still in the Senate Commerce Committee, and hearings have not yet been completed.

Several major blackouts have put this proposed remedial legislation in an emergency category. The gist of the problem seems to be that many utilities have been interconnecting their transmission facilities, but without adequate planning and buttressing for the system as a whole. The existence of one weak link in such an arrangement, the experts say, may endanger the reliability of all.

After elaborate studies the FPC concluded that the power networks must be strengthened, and this will entail the construction of more extra-high-voltage transmission lines and the creation of regional organizations in which investor-owned companies as well as public, Federal and cooperative power producers will participate. In his recent testimony before the Commerce Committee, Chairman Lee C. White of the FPC estimated that \$8 billion will be needed for new transmission lines between now and 1975.

These lines ought to be planned and built so as to knit the regional power systems more closely together and thus enhance the reliability of the power supply. The Commission's bill seeks to accomplish that objective through the establishment of strong regional organizations of the power-producing units

themselves. The pattern for this regionalization appears to have been provided by the existing East Central Area which includes 23 large power companies in Maryland, Virginia and seven other states.

Each regional council would plan for greater power reliability in its service area with the advice and criticism of an FPC representative. One notable dividend of the arrangement would be advance discussion of the location of new power lines so as to avoid parks, historic shrines and scenic areas. The FPC is wisely laying a great deal of emphasis on this aspect of the problem. With the prospective increase in extra-high-voltage lines, it recognizes the immense public interest in protective restrictions. The regional councils would be expected to work closely with state and Federal agencies concerned with land and water use to avoid unreasonable encroachments. And in the case of national parks, monuments and other Federal lands the agency in control would be given a veto over the construction of transmission lines in disregard of esthetic or historic values.

In our view, this measure merits the most thoughtful consideration. It is not an extreme bill. It avoids the remedy of creating regional bulk power corporations which some people have advocated as a remedy for blackouts. But it would provide a mechanism for greater cooperation among the diverse units in the power industry and extend public protection in areas where it is now flagrantly lacking.

Memorandum of

LELAN F. SILLIN, JR.

President and Chief Executive Officer

Central Hudson Gas & Electric Corporation

concerning

THE FEDERAL POWER COMMISSION'S

PROPOSED

ELECTRIC POWER RELIABILITY ACT OF 1967

August 10, 1967

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I. Introduction

The following are my observations concerning the Federal Power Commission's proposed Electric Power Reliability Act of 1967.

These comments are drawn from my experience as an executive in the electric power industry and from my work during the last two years as Chairman of the Executive Advisory Committee to the Federal Power Commission. It has been my privilege in this latter capacity to work with the members of the Federal Power Commission and its staff and to gain an insight into the relationships between the electric utility industry and the Federal Power Commission. All segments of the industry, investor owned, cooperative and governmental, are represented on the Executive Advisory Committee.

After the last meeting of the Executive Advisory Committee on August 2, 1967, at which the Commission discussed its proposed legislation with the Committee, I circulated a draft of this memorandum to the members of the Executive Advisory Committee who attended that meeting. In its present form, the memorandum has been concurred in by Mr. Thomas G. Ayers, President of Commonwealth Edison Company of Chicago, Mr. Donald S. Kennedy, Chairman of the Board of Oklahoma Gas & Electric Company, Mr. Rod J. McMullin, General Manager of Salt River Project Agricultural Improvement & Power District, Mr. Shermer L. Sibley, President of Pacific Gas & Electric Company, and Mr. Charles H. Whitmore, President of Iowa-Illinois Gas & Electric Company.

As I hope the memorandum will indicate, I have examined the proposed Act in detail, recognizing the serious issues involved, and have tried to present my analysis as objectively as possible. It is my conclusion that the inevitable thrust of the proposed Act will be to affect adversely the reliability of the Nation's bulk power supply.

The FPC proposal, which would add a new Part IV to the Federal Power Act, must be considered against the background of the electric utility industry and the operation of the Federal Power Commission under the present Federal Power Act. The electric utility industry has a history of great traditions and achievements. It is not only one of the largest industries in the Nation, but more importantly is an industry which has made a significant contribution to the high standard of living of the American people which is so much the envy of all the world.

In considering this major legislation, which will so vitally affect the industry, the Commission and the Congress should test its effect on the industry's ability to meet the Nation's ever increasing power requirements. We should be assured that any proposal will enhance the ability of the industry to improve on its demonstrated past performance.

Information is readily available regarding the magnitude of investment in power production, transmission and distribution facilities; the projected growth in power requirements; the resourcefulness of the industry in expanding power resources in advance of need; and the industry's contribution in developing and managing a technology that has provided a high level of service reliability as well as a declining cost of service in spite of national inflationary pressures. It is an industry which has been consistently successful in attracting new capital and in handling its labor relations in a constructive manner. It would be unfortunate under these circumstances to experiment with an industry of such vital importance to the Nation, and which has such a fine record of achievement.

Because of the electric industry's highly complex technical, financial, and managerial problems, it is important for it to maintain the qualities which are essential to the industry's ability to continue making available to the American people the benefit of a developing technology. Under these circumstances, it is imperative for the Federal Power Commission and the industry it regulates to strive for the most effective communication, best understanding, and greatest mutual confidence. Under the Federal Power Act, the Commission is currently directed to promote and encourage voluntary interconnection and coordination of the Nation's electric power facilities in the interest of economy and conservation. It is also empowered to conduct investigations regarding the generation, transmission, distribution and sale of electric energy. The Commission, accordingly, in 1962, sponsored a major voluntary program of cooperation to foster the development of guidelines in joint consultation with the industry to promote the industry's maximum development. Under that program, there was created a National Power Survey Executive Advisory Committee and twelve regional and technical advisory committees. As a result of its work with these committees, the Commission produced the 1964 National Power Survey. The Commission, while recognizing the assistance of the advisory committees in the conduct of the Survey, emphasized that the conclusions in the report were its own and did not necessarily reflect the views of the advisory committees.

Following the publication of the 1964 survey the Federal Power Commission, late in 1965, appointed a new National Power Survey Executive Advisory Committee and in 1966 established six Regional Advisory Committees. The ostensible assignment of these committees is to work with the Commission in updating the 1964 survey, in developing new guidelines required because of changing technology and circumstances, and in extending projections to the year 1990.

It is clear that the thrust of the 1964 survey was to encourage the industry to accelerate the building of extra high voltage transmission, to interconnect systems and regions, and to extend on an equitable basis to all segments of the industry

the economies of scale in both generation and transmission. One shortcoming in the 1964 survey was its failure to recognize the importance of reliability and problems associated with an emerging technology.

The November 9, 1965 Northeast power failure introduced a new dimension to the current work of updating the power survey. Since November 9, 1965, the principal purpose of the work of the Executive Advisory Committee in updating the survey has been to seek the best solutions and establish additional guidelines to foster increased reliability.

The Commission has expressed appreciation for the extensive industry co-operation and assistance it has received. In addition to the industry resources committed to the 1964 survey and to its updating, the industry has cooperated with and aided the Commission in its examination of the 1965 Northeast power failure. It has assisted the Commission in the examination of the problem of underground transmission lines. An industry Advisory Committee on Reliability of Electric Bulk Power Supply was created which developed and submitted to the Federal Power Commission an extensive report entitled "Reliability of Electric Bulk Power Supply". Although this report was completed in January, 1967 the Commission deferred making its contents public until July 19, 1967 when it was released as volume II of the Commission's report entitled *Prevention of Power Failure*.

Throughout the work of the advisory committees, since 1962 and up until the time the Commission announced its legislative program, the industry had been assured by the Commission that neither the Commission nor the advisory committees would assume management functions but that the advisory committees would be encouraged to offer advice and express opinions regarding significant industry issues which would be valued by the Commission as it proposed guidelines to foster the industry's further development. The Commission had repeatedly stated it believed in the pluralism of the present electric power system of the United States and that it was not embarked on a program to reorganize the present structure of the industry. It has been my understanding the Commission believed it was possible, within the framework of the industry as now constituted, to adopt a number of alternatives to assure co-ordination of operations for reliability, and to achieve economies.

In an address at the Annual Convention of the Edison Electric Institute in April of this year, I reviewed with the industry what I felt was the realistic spirit of cooperation which the Federal Power Commission was sponsoring and the desire of the Commission to have the confidence of the utility industry's leadership. I urged the industry at that time to believe that there was no dark conspiracy

in the Commission to bring about a total reorganization of the industry noting, however, that:

"Hard issues will have to be discussed in the course of the committees' work with the Commission relating to the vital questions of reliability, coordination and economies of scale, all in the context of proposals to extend the authority of the Federal Power Commission in these areas. The Commission is suggesting that our changing technology is giving rise to new public interest questions. One of these is the role of the Commission relating to reliability of bulk power supply. A second, and related question, is the Commission's role in fostering area and interarea coordination of utility systems. A third, on which also there is no consensus at this time, is the means by which economies of scale should be shared throughout the industry. While the industry is demonstrating initiative in all three of these areas, the scope and nature of the Commission's authority has yet to be fully determined and delineated.

"These issues pose serious questions as to those functions and responsibilities which belong to government and those which had best be left to the initiative of management if the public interest is to be served.

"The President in his recent special message to Congress on various consumer programs singled out the question of increased electric power reliability and stated that, after reviewing the final report on the Northeast power failure, he would recommend legislation to strengthen coordination among the electric power utilities.

"The resolution of these fundamental questions will require the utmost good will and forbearance on the part of both the Commission and the industry, and the willingness of both to recognize, admit and correct mistakes. It is indeed fortunate we have a reservoir of good will to draw upon that has grown out of our experience of working together through the advisory committees. . . .

"In considering the legislative question the Commission and the industry should exercise restraint. The Commission should avoid seeking management's fundamental and essential responsibilities to plan, finance, construct and operate the facilities necessary to supply the power demands of a utility's service area and should avoid regulation which would impair the industry's ability to construct essential facilities on time to meet projected loads. I hope the Commission will recognize how much it and the industry are accomplishing through the joint voluntary program which is being conducted under the Commission's sponsorship. Under this program where there is a give and take of ideas, objectives are being achieved without creating a rigidity or restraint which might be harmful to the industry's future. Similarly, I hope the Commission will not confuse the public interest in reliability of bulk power supply with issues such as economies of scale and land use questions. Most important I hope it will not offer a program designed to centralize the planning and operating functions of the industry in it or any other governmental agency. In making these comments I do not deny there is a public interest in the matter of reliability of bulk power supply.

* * *

"Complete candor by the industry and the Commission as to objectives and the means for accomplishing objectives is necessary to insure the fullest development of the industry and the proper discharge of the Commission's public responsibility. The atmosphere that is so essential to this end result must be one that is based on mutual confidence, and an understanding of the responsibilities of each."

In the light of the massive voluntary program in which the industry has been and is now engaged under the Commission's sponsorship it is hard to understand the basis for the proposed Electric Power Reliability Act. The proposed Act is contrary to, and appears to reject, the cooperative program which the Commission has been fostering and which is an essential part of any attempt to increase reliability of bulk power supply.

The importance of a cooperative program was stressed by Mr. F. Stewart Brown, Chief, Bureau of Power and Chief Engineer of the Commission, in an address to the Electric Club of Oregon on July 13, 1967:

"I know that some people view the bill as giving the Commission too much authority and that the Commission may take bold actions to master-plan electric bulk power facilities. I can assure you that no such intentions or ideas prompted the formulation of this legislation. It would be infeasible and a great folly to attempt to do so. The successful improvement in the reliability of bulk power supply must be a cooperative effort of the industry and the Commission."

It is not sufficient to say that it is not the intent of the bill to master-plan electric bulk power facilities. Instead, the bill should be written so that no such plan is expressed or can be implied by the bill.

Members of the Commission have stated that it is their duty to assume the fullest responsibility of any authority delegated to them by Congress. Further, the history of public agencies demonstrates that, as the years pass, the agencies tend to expand to the full authority expressed by any statute or possibly construed from its wording. Even where an agency has disavowed authority under an Act in which it is not clear that such authority does not exist, the courts can construe such authority to exist and require the agency to exercise it. *Phillips Petroleum Co. v. State of Wisconsin*, et al. 347 U.S. 672 (1954).

The Commission stated at its meeting with the Executive Advisory Committee on August 2, 1967 that it believes that the bill does not give the Commission authority to order the industry to do anything. However, the language of the bill and the Commission's analysis which is a part of the legislative history of the bill indicates that there will be an extensive increase in the scope of the Commission's authority. We have to be concerned with the interpretation which will be given to the bill by future commissions, the staffs of the commission and the Courts.

Specifically the Commission's new authority is as follows:

SECTION 404(a) gives the Commission the authority to "secure the establishment of appropriate and effective regional organizations and procedures to carry out regional and interregional coordination." The use of the word "secure" means that the Commission has the authority, after deciding what it believes to be appropriate and effective regional organizations and procedures, to cause such organizations and procedures to come into being. See, in connection with this authority, sections 404(c) and 404(f). The word "procedures" is broad and general and can be construed to include "plans"; thus, in this section alone there is support for the power of the Commission to order the creation of plans and their observance. See also sections 404(d) and 404(f).

SECTION 404(b): The Commission analysis of section 404(b) indicates the wide scope of authority and duties it proposes for the regional organizations and there are no limitations in this section on the authority and duties which the Commission can require.

SECTION 404(c) gives the Commission the authority to approve, modify or set aside any statement of organization, with the result that the Commission will control all statements. While the section does not by its terms require the Commission to take any action on a statement, as a practical matter it is unlikely that any regional organization would proceed without approval by the Commission. If the Commission did not hold a hearing immediately, it always could make a subsequent determination that the statement was inconsistent with the objectives of the Act. No utility would want to proceed under a statement of organization until this matter had been determined. Furthermore, if the issue was not raised by the Commission, it could be raised by undefined interveners who had received the public notice or subsequently by a utility which the Commission was seeking to order to "participate" under section 404(f).

SECTION 404(d) gives the Commission the same kind of control over plans as it has over statements (see above). If it is said that the Commission cannot, under this section, order the development of plans or compliance with plans, it can, nonetheless under 404(a) "secure" regional coordination and under 404(f) (below) require participation in the work of regional organizations. See, in addition, comment under sections 404(b) and (c) above.

SECTION 404(f) gives the Commission authority to order any person engaged in generation or transmission to do anything the Commission feels required to achieve effective regional or interregional coordination. Under section 404(f), the Commission may order any person engaged in generation or transmission, whom it determines unreasonably refuses to participate in the creation of a regional council or in "effective regional or interregional coordination," to participate in the creation and work of a regional council. Section 404(f), therefore, empowers the Commission to compel compliance with a regional plan and to do many other things.

There are fourteen instances under the Act where the Act's broad and general "objectives" are controlling. In ten cases, the objectives are criteria for Commission action. In four cases, the Commission is empowered to initiate action to "carry out" the objectives of the Act. (See sections 404(e), 404(f), 411 and 413). This section 404(f) is one of the cases where the Commission is empowered to initiate action in order to carry out the objectives.

Thus, under this section, the Commission is the sole judge of what is necessary to carry out any one or all of the seven objectives; and may order any person engaged in generation or transmission who unreasonably refuses to engage in effective coordination (which must include failure to comply with a regional plan for generation and transmission) to participate in the work of a regional council.

SECTION 408 provides for the Commission's adoption of regulations setting forth reasonable criteria to enhance reliable planning and operation of bulk power supply facilities. The Commission comments on this section, "As specified in Section 402(b), the existing provisions of Part III of the Federal Power Act would be available to enforce compliance with such rules."

SECTION 409 requires the filing of plans for extra-high-voltage lines and permits the Commission to disapprove a plan if inconsistent with a regional plan. In addition to the granting of certification powers to the Commission, this section provides an important element in Commission powers with respect to regional plans.

SECTION 410 gives the Commission land use powers, broad in scope, and tied in with the "regional planning process under section 404".

SECTION 411 gives the Commission power on its own motion to order interconnections in order to carry out the objectives of Part IV. This gives the Commission authority to order implementation of any approved regional plan.

SECTION 412 provides for prior approval of the Commission for abandonment of bulk power supply facilities or services.

SECTION 402 extends the enforcement provisions of Parts I, II and III of the Federal Power Act to the proposed Part IV.

The above analysis indicates that in view of the breadth of the objectives, which are the *only* criteria for Commission action, the bill in effect authorizes the Federal Power Commission to do whatever it thinks might be desirable without imposing any effective limits on the range of the Commission's actions.

If the bill gives the Commission the authority mentioned above, my fears are justified; if it is not intended to grant such authority, then this should be made clear in the legislation.

Ostensibly, the area of concern is that power failures in interconnected systems indicate the need for greater reliability of service. In this regard, I have stated on several occasions that there is a public interest in the reliability of bulk power supply and believe that a constructive legislative proposal based on the voluntary program could be developed to deal specifically with the question of reliability.

The industry, on its own initiative, has recognized that improved reliability under existing technology of large generating units, extra-high-voltage transmission and interconnections of systems and areas requires close coordination of interconnected utilities in planning and operation. Accordingly, the industry developed new review mechanisms which are providing for regional utility coordination. The Northeast Power Coordinating Council was the first of such new regional groups to be formed. Since November 9, 1965, six regional councils have been developed and other regions of the Country are in various stages of planning for similar coordination arrangements. Those which are now in existence include the following:

- Northeast Power Coordinating Council
- East Central Area Reliability Coordination group
- CARVA — Southern Companies Reliability group
- Texas Interconnected Systems Coordination group
- Mid-Continent Area Power Planners group
- Mid-America Interpool Network group

The coordinating councils being established by the industry have as their primary purpose the fundamental objective to improve the reliability of the interconnected systems and these councils should not be confused with the regional organizations that are proposed by the Commission under its bill.

The overtone of broad industry economics and the interweaving of this and other subjects throughout the proposed Electric Power Reliability Act of 1967 detracts from what should be its central issue. Review of the proposed Act leads me to believe that it covers far more than the matters referred to in the President's messages to Congress earlier this year.

As presented, the proposed legislation provides for national planning for the electric utility industry. The legislative recommendation fails to recognize the institutional diversity as well as the geographic and technological diversities which over the years have been key elements in the development of the industry and its ability to effect interconnections throughout the nation. It is only this latter achievement which permits consideration to be given at the present time to co-

ordination and interconnection on a larger scale than has been considered possible in the past. If the character of the industry is fundamentally changed, there is no assurance that the kind of progress which has been made in the past automatically will ensue in the future. The legislative proposal, in my opinion, would adversely affect reliability and the future vitality of the electric utility industry.

I have prepared, with legal and technical assistance, a summary discussion of the bill which in turn is based upon an analysis of each section of the bill. Both the summary discussion and the detailed analysis are included as a part of my memorandum.

II. Discussion of Proposed Electric Power Reliability Act

1. The bill in general terms authorizes the Federal Power Commission to establish and control a new type of regional organization through which centralized planning of the electric utility industry would be effected.

The bill provides for the establishment of regional coordination organizations open to membership by each electric system in the region. Each regional coordination organization is required to file a statement of organization with the Commission and, as noted above, to develop and file regional or interregional plans.

The Commission has the authority to modify or set aside any statement of organization. The statement of organization is to be consistent with the objectives of the bill.

It is apparent from the recitation of objectives in section 401(b) that the regional coordination organizations are going to be concerned with many matters other than reliability.

It appears from the Commission analysis, as published in the Congressional Record, that permanent large-scale legal entities are being contemplated which will have the characteristics of a corporation including having a charter and by-laws. The statement of organization is in effect a charter, and the statement of objectives becomes the broad statement of corporate powers, familiarly found in corporate charters. Interpreted by the Federal Power Commission's statement of duties, these powers are extremely broad. When the last paragraph of the FPC statement of duties, (see Federal Power Commission Analysis of section 404(b)) is expressed in the familiar "catch all" language of the last provision of a statement of corporate powers section of a corporate charter, i.e., "to do all other things necessary and appropriate for the most efficient development, coordination and use of the power resources of the region", the scope of the powers becomes practically unlimited.

It is further evident from the proposed anti-trust immunity that the bill envisions that the regional organizations are entities capable on their own responsibility to engage in activities requiring such immunity. If the organizations have such capacities, they become legal entities and not simply committees or councils which are agents of the electric system members.

Having a formalized structure with a grant of extensive powers and capacities for legal acts, the organizations become involved with the obligations which pertain to such status and will be subject to the operation of other areas of law, including taxation, regulation (by other commissions) and liability. For example:

The organizations will have to be concerned with the obligations of Federal income tax laws.

The organizations will have to be concerned with State and local taxation.

Since the organizations will have employees they will have to be concerned with the usual responsibilities of an employer including wages, wage taxes, insurance, labor relations, and employee benefits.

The organizations may be liable to local State regulations. For example, Section 70 of the Public Service Law in New York provides that no electric corporation shall contract for the operation of its works without the written consent of the Public Service Commission. Query whether a utility in applying for membership in a regional organization is contracting for "the operation of its works".

In contrast with the existing regional coordinating groups, which have only limited authority, the regional organizations proposed by the Act may well be considered to be holding companies under the provisions of the Public Utility Holding Company Act of 1935 which in part defines a holding company to be:

"any person which the Securities and Exchange Commission determines, after notice and opportunity for hearing, directly or indirectly to exercise (either alone or pursuant to an arrangement or understanding with one or more other persons) such a controlling influence over the management or policies of any public-utility or holding company as to make it necessary or appropriate in the public interest or for the protection of investors or consumers that such person be subject to the obligations, duties, and liabilities imposed in this title upon holding companies."

and all the members thereof to be subsidiary companies, subject to regulation under the Holding Company Act. If such a result should ensue, it would indeed be an anomaly to have the utility companies by the act of complying with the FPC requirements become subject to the jurisdiction of the Securities and Exchange Commission.

While the bill is silent as to the regional organizations' ownership and operation of generating and transmission facilities, the language is sufficiently broad to permit the Commission at some future date to authorize regional organizations to own and operate generating and transmission facilities. Certainly, as provided in the bill, subject only to the ultimate control and management of the Commission, such organizations will perform many of the services which one would normally expect to be provided by a service or management company. The regional organizations will make major determinations regarding substantially all operating, planning, constructing and financing questions involving new bulk power supply facilities.

One is forced to the conclusion that in its present form the bill will give the Commission the authority for planning and operating the industry which it

also must regulate. This raises a question whether the Commission would have a conflict of authorities. Historically, it has been viewed as being in the public interest to keep the role of regulation independent of the role of management. If it is ultimately determined that this new type of authority is to be vested in the Commission then it suggests that the attempt of this bill to fill what some have called a regulatory gap will in fact eliminate effective regulation.

If the Commission is given the complete authority for the success or failure of the electric industry, a further question will inevitably arise as to the Commission's ability to regulate the natural gas industry. Thus, for example, if the Commission in exercising its authority for the planning and operation of the electric industry should modify a regional plan to specify the installation of generating and transmission capacity to serve a particular area to meet the Commission's projected load, would a future Commission be concerned about certifying additional natural gas supplies to serve the region if it found there were excess electric resources already available to meet the energy needs of that region?

2. In spite of the fact that the bill provides for extensive new authority, the bill is vague and uncertain in many of its significant provisions. A serious constitutional question would be raised since the Federal Power Commission would become a legislator without definitive standards on matters vitally affecting the industry.

The bill is drawn in general and unspecific terms. In fact, the bill is an authorization to the Federal Power Commission to make rules with respect to several generalized topics.

Its scope is broad and indefinite, and its vagueness is recognized by its sponsors. For example, Chairman Lee C. White of the Federal Power Commission is reported in *The Oliphant Washington Service* to have said at a press briefing on June 8, 1967, at which the bill was released to the public, that it was too early for anyone to have a definite idea of the scope of authority to be set up. In the course of the Executive Advisory Committee meeting with the Commission on August 2, 1967 the Commission expressed similar views regarding the vagueness of the bill.

The design of the bill is to provide authority to the Commission by reference to generally described objectives.

In accordance with this design, objectives are set forth in section 401(b). The basic objective is stated to be the furtherance of the national policy declared in section 202(a) of the Federal Power Act; but the seven stated objectives by which such national policy is to be furthered are given in broad, general, and vague terms.

The seven objectives by which such national policy is to be furthered are:

To enhance the reliability of bulk power supply;

To strengthen existing and to establish new mechanisms for coordination in the electric utility industry;

To encourage the comprehensive development of the power resources of each area and region of the United States, to take advantage of advancing technology with due regard for the conservation of land, scenic and other limited resources;

To provide that all utility systems and their customers shall have access to the benefits of coordination and advancing technology on fair and reasonable terms;

To assure to the extent feasible that extra-high-voltage facilities include sufficient capacity to meet area, regional, and interregional needs for transmission capacity, including reserve capacity for reliability;

To respect the territorial integrity of utility service to the extent consistent with the public interest; and

To draw upon the cooperation of all segments of the electric utility industry.

A real difficulty arises out of the fact that these objectives are referred to as the criteria for Commission action in several sections of the proposed Act. Thus, in the following fourteen instances Commission action is to be guided basically by the objectives:

1. Section 404(c) provides that the Commission may determine whether a statement of the organization of any regional organization is consistent with such objectives and if not the Commission may modify or set such statement aside.

2. Section 404(d) provides that the Commission may determine whether any coordination plan submitted to it is consistent with such objectives.

3. Section 404(e) provides that the Commission shall require such reports in addition to annual reports from each regional organization as the Commission may determine necessary or appropriate to carry out such objectives.

4. Section 404(f) provides that the Commission may require any person engaged in generation or transmission to participate in the creation and work of any regional organization to the extent necessary to carry out such objectives.

5. Section 408 provides that the Commission may promulgate regulations setting forth criteria of national or regional applicability to enhance the reliable planning and operation of bulk power supply facilities in accordance with such objectives.

6. Section 409(a), with respect to the proposed construction of extra-high-voltage facilities, requires the filing with the Commission of such information as the Commission may require to enable it to determine to what

extent the proposed construction and operation of such facilities are consistent with such objectives.

7. Section 409(b) provides that the Commission, with respect to the construction of extra-high-voltage facilities, shall issue an order suspending construction whenever the Commission concludes, in its discretion, that the proposed construction and operation of such facilities are inconsistent with such objectives.

8. Section 409(b) further provides that the Commission may terminate such suspense order upon a finding that a construction proposal will be consistent with such objectives.

9. Section 409(d), with respect to the construction of extra-high-voltage facilities, provides that in the event that a proponent of such facilities does not accept modifications suggested by the Commission the suspense order mentioned above shall remain in effect until the Commission formally determines whether the proposal is consistent with such objectives.

10. Section 409(e) provides that if the Commission determines that the proposed construction of extra-high-voltage facilities is consistent with such objectives the proponent may obtain necessary rights-of-way over federal or other lands.

11. Section 410, concerning land use, provides that the Commission shall defer to the views of responsible federal, interstate, State or local agencies with respect to proposed extra-high-voltage facilities unless the Commission determines that a particular view would be inconsistent with such objectives.

12. Section 411, concerning compulsory interconnections, provides that the Commission may direct any person to establish physical interconnection of its transmission facilities with one or more other persons if the Commission finds that such action is necessary or appropriate to carry out such objectives.

13. Section 412 provides that the Commission shall give its prior approval with respect to the abandonment or curtailment of any bulk power supply facilities if the Commission finds that such abandonment or curtailment is consistent with such objectives; and

14. Section 413 states that the Commission may provide for an exemption from the proposed Act whenever the Commission determines that such exemption is necessary or appropriate to carry out such objectives.

Therefore, in each of the above instances where the Commission is required to make decisions those decisions are, in turn, to be guided by objectives which are broad, general and vague.

Not only are these objectives fundamentally significant to an understanding of the proposed Act as well as providing criteria by which the Commission shall act, but, in those instances where the Commission has been delegated authority

to promulgate rules and regulations, the lack of clarity, precision and definiteness in these objectives reflect upon the constitutionality of such delegation. With respect to the standards which are expected in a federal act which delegates legislative authority to support its constitutionality, I have been advised by counsel that the following paragraphs set forth considerations pertaining to this question.

There is a long line of cases which deals with the limitations which are imposed upon Congress in delegating its legislative function. The line of demarcation between appropriate delegation and inappropriate delegation is obviously not hard and fast; however, delegation must be directed to a particular area and must be accompanied by standards for the guidance of the agency or officer empowered to execute the law. The principles of permissible delegation are best set forth in the following often cited decisions of the Supreme Court:

Schechter v. United States 295 U.S. 495 (1935)

Panama Refining Co. v. Ryan 293 U.S. 388 (1934)

Although the foregoing cases have been distinguished in subsequent decisions of the Court involving issues of permissible delegation, the principles set forth therein are still valid law and of fundamental importance, as indicated in the following judicial decisions:

Kent v. Dulles, 357 US 116,129 (1958)

Carter v. United States, 333 F. 2d 354, 355 (10th Cir. 1964)

United States v. Zions Savings and Loan Association, 313 F. 2d 331, 336 (10th Cir. 1963)

Mr. Chief Justice Hughes considering the constitutionality of the promulgation of certain Codes under the National Industrial Recovery Act in the *Schechter* decision reviewed the basic principles applicable to the constitutional limitations on the delegation of legislative authority stating at 529-31:

"The Congress is not permitted to abdicate or to transfer to others the essential legislative functions with which it is thus vested. We have repeatedly recognized the necessity of adapting legislation to complex conditions involving a host of details with which the National Legislature cannot deal directly. We pointed out in the *Panama Ref. Co.* Case that the Constitution has never been regarded as denying to Congress the necessary resources of flexibility and practicality, which will enable it to perform its function in laying down policies and establishing standards, while leaving to selected instrumentalities the making of subordinate rules within prescribed limits and the determination of facts to which the policy as declared

by the Legislature is to apply. But we said that the constant recognition of the necessity and validity of such provisions, and the wide range or administrative authority which has been developed by means of them, cannot be allowed to obscure the limitations of the authority to delegate, if our constitutional system is to be maintained. . . .

"Accordingly, we look to the statute to see whether Congress has overstepped these limitations,—whether Congress in authorizing 'Codes of Fair Competition' has itself established the standards of legal obligation, thus performing its essential legislative function, or, by the failure to enact such standards, has attempted to transfer that function to others."

Chief Justice Hughes, in finding that certain sections of the National Industrial Recovery Act provided for an unconstitutional delegation of legislative power, in *Schechter* and *Panama* reiterated the need for precise standards, rules and policies, stating in *Schechter* at 541:

"To summarize and conclude upon this point: § 3 of the Recovery Act is without precedent. It supplies no standards for any trade, industry or activity. It does not undertake to prescribe rules of conduct to be applied to particular states of fact determined by appropriate administrative procedure. Instead of prescribing rules or conduct, it authorizes the making of codes to prescribe them. For that legislative undertaking, § 3 sets up no standards, aside from the statement of the general aims of rehabilitation, correction and expansion described in § 1."

and stating in *Panama* at 430:

"Thus, in every case in which the question has been raised, the Court has recognized that there are limits of delegation which there is no constitutional authority to transcend. We think that § 9(c) goes beyond those limits. As to the transportation of oil production in excess of state permission, the Congress has declared no policy, has established no standard, has laid down no rule. There is no requirement, no definition of circumstances and conditions in which the transportation is to be allowed or prohibited."

Under these principles, general standards, such as "fair and reasonable," or "as public convenience, interest or necessity requires" have been upheld. However, delegations "are valid only as subordinate rules and when found to be within the framework of the policy which the legislature has sufficiently defined". (See *Panama Refining Co. v. Ryan* (Supra), at 429). Furthermore, such general words apply to specific things; thus "fair and reasonable" applies to rates; and, "as public convenience, interest or necessity requires" applies to certificates for defined physical installations.

Where the delegation of legislative power relates to a new field where there is no settled law or custom, the principles set forth above should be strictly applied. In *Fahey v. Mallooney*, 332 U.S. 245, (1946), the Court, in distinguishing the *Panama* and *Schechter* cases, stated at 249:

"Both cited cases dealt with delegation of power to make federal crimes of acts that never had been such before and to devise novel rules of law in a field in which there had been no settled law or custom. . . . Chief Justice Hughes emphasized these features, saying that the Act under examination was not merely to deal with practices 'which offend against existing law, and could be the subject of judicial condemnation without further legislation, or to create administrative machinery for the application of established principles of law to particular instances of violation . . . '".

The proposed Reliability Act delegates authority to make rules and regulations in an area in which there is no precedent by which the delegated authority may be guided and for the violation of which criminal sanctions are provided pursuant to the Federal Power Act. For this reason alone, the policies, objectives and standards of the proposed Act must be clear, precise and definite. The persons and facilities covered by the Act should be defined and the rights, duties and objectives prescribed therein should be delineated.

The proposed Reliability Act is in some respects similar to the National Industrial Recovery Act of 1933 which provided, among other things, in general terms for approval by the President of industry Codes of Fair Competition upon application therefore by one or more trade or industrial associations or groups. The court in reviewing that Act in the *Schechter* decision to establish whether Congress, in authorizing such Codes, had transferred its legislative function to others, first questioned whether there was any adequate definition of the subject to which the Codes were to be addressed. As in the proposed Reliability Act, the Court found that for a statement of the objectives of such Codes of Fair Competition reference had to be made to the stated declaration of the policy of that Act. The Court indicated that the policy of that Act, as set forth therein, went far beyond dealing with unfair competitive practices, which concerned only one of the authorized aims of that Act. In addition, the Court questioned whether such delegation could be "made valid by such a preface of generalities as to permissible aims" as set forth in the policy provisions of that Act.

Next, the Court in reviewing the limitations on the delegation of such power to the President found that there were only three such limits in that Act, namely:

1. That those who proposed the codes were representative of the industry as a whole;
2. That the Codes would not permit monopolistic practices; and
3. That the Codes "effectuate the policy of the Act."

Chief Justice Hughes in finding that the National Industrial Recovery Act was unconstitutional not only mentioned its vagueness but also commented on the broad scope of such delegations stating in *Schechter* at 541-42:

"In view of the scope of that broad declaration, and of the nature of the few restrictions that are imposed, the discretion of the President in approv-

ing or prescribing codes, and thus enacting laws for the government of trade and industry throughout the country, is virtually unfettered. We think that the code-making authority thus conferred is an unconstitutional delegation of legislative power."

and, in a concurring opinion, Justice Cardozo said about the Codes at 551-53:

"Here, in the case before us, is an attempted delegation not confined to any single act to any class or group of acts identified or described by reference to a standard. Here in effect is a roving commission to inquire into evils and upon discovery correct them.

* * *

"The extension becomes as wide as the field of industrial regulation. . . . This is delegation running riot. No such plentitude of power is susceptible of transfer. . . ."

In view of these considerations, and as was done in Parts I, II and III of the Federal Power Act and in the several Federal Securities Acts, the specific and factual need for new legislation should be established. The policy or objectives to be pursued should be enunciated, and the acts to be authorized, done or prohibited should be specifically stated. Where rule making is authorized, the area for rule making should be specified and the standards to be employed should be stated.

3. The bill divorces the authority for planning and operation of utility facilities from the responsibility of obtaining the funds with which to finance such facilities.

The bill fails to recognize the role of securing capital funds in the utility industry. In the eventual working out of the provisions of the bill, the ultimate authority for planning utility systems will reside with the Federal Power Commission, but the responsibility for securing capital funds and of pricing services at levels appropriate to encourage maximum usage and to provide reasonable economy in capital will continue with the local utility unless ultimately pre-empted by the regional organizations.

The bill, which, in its ultimate effect, would permit generating and transmission facilities to be planned and required by the Commission to meet the objectives set forth in section 401(b), may impose critical burdens and risks of a financial nature on any given entity of the electric utility industry. If the "feasibility" standard of section 401(b) involves the commitment of significant new facilities to one entity rather than to another, (a) may this adversely affect its earnings available for bond interest (and hence its credit position) or for dividends (and hence its capability of issuing new stock), and (b) may this

affect the integrity of other systems and their posture and independence, from an investor's viewpoint, within the pluralistic structure of the industry as a whole? What standards may the Commission use to determine that earnings to be derived from a particular new investment shall be sufficient to carry the cost thereof without dilution of earnings related to existing investment; or that such earnings, in the form of charges to other entities of the industry, shall be supportable and economically productive to them?

New capital is today a commodity in much greater demand than supply. Investors are, and will be, as they have always been, free to invest their capital in any area. Characteristically they have shown a natural disposition to invest in industries characterized by initiative, creative evolution and reasonable government regulation, and in those units within such industries where the opportunities of able and aggressive management are recognized. Substitution of a centralized, national, government agency for individual utility managements in the determination of major business commitments will, in my opinion, both alienate investors on a wide scale and serve to increase the average cost of capital to the industry and the prices at which electricity can be delivered and sold.

In general, the principal concerns of an investor prior to committing his capital to an enterprise is the quality of the management of that enterprise and the prospect that the enterprise will, with efficiency and economy and at fair prices for its services and products, produce adequate future earnings. Inherent is the principle that ownership and control should be separated as little as possible and where there is such separation the owner is accorded various legal protections.

Thus, in corporate law a stockholder commits the control of his money to the corporation but in return he is entitled to hold the directors and officers of the corporation responsible for the conduct of the business. The Business Corporation Law of New York (which I cite as an example because the company for which I work is subject to that Law) provides that the business of a corporation shall be managed by its board of directors. This is a non-delegable duty which must be personally discharged by directors. A director cannot act by proxy and the enforcement of his responsibility resides in the stockholders who may bring actions against officers and directors.

In the case of public bodies the powers of officials are usually closely prescribed by statute and if an expenditure of money is involved there must be specific and prescribed statutory authority without which the officer is open to censure by governmental auditing authorities and law suits by tax payers.

Illuminating, too, in this regard is the Public Utility Holding Company Act of 1935 which was designed to eliminate the abuses of controlling persons "bearing no relation to the economy of management and operation of the operating properties." (section 1(b) thereof).

These legal considerations are cited to demonstrate that there is expressed in these statutes a significant public interest in maintaining a unity in the authority for planning and operation of an enterprise and the responsibility for the obtaining of funds to finance it.

4. Sound management principles require that there be authority and the ability to make timely decisions. Separation of authority from responsibility leads to inefficiency, poor service, delay and confusion as to accountability. The bill authorizes governmental assumption of authority and control and substitutes for timely decision making the slow process of rule making and formal decisions.

Managements are the consequences of institutional growth and in the complex, diverse society of today are relatively unrelated to the forms of ownership. Thus, both public and private enterprise can be efficiently managed and the efficiency is not related to the form of ownership, but, in both public and private enterprise, efficiency depends upon a competent, autonomous administration.

One of the characteristics essential to an effective enterprise is the development of a management which systematically evaluates technological processes, anticipates needs, and plans and provides for the necessary facilities and their operations. In today's society, managements are required to balance the interests of the public, consumers, employees, and investors, and to so manage the utility that all of these interested parties benefit. In administering the economic resources of the utility, the management must consider important social obligations not only in the communities where its activities are conducted, but in relation to the regional, state and national needs. Essential in this total process is the requirement for accountability. Where authority and responsibility are either divorced or become obscure or ambiguous, accountability is lost. To be accountable, the management must have the necessary responsibility and authority to conduct the affairs of the utility.

To enhance the utility industry's ability to provide the most reliable and economic electric service compatible with the environment, it is essential that the utility industry managements be answerable for the plans and operations of their respective utility systems. The managements within the industry must

accordingly have, subject to appropriate safeguards of regulation, the essential authority and responsibility to meet these objectives.

The proposed Act as presently drawn would seem to leave the accountability with the utility managements, but would give the authority for the plans and operations of the industry first to a new legal entity called a regional organization and ultimately to the Federal Power Commission. This divorcement of authority, responsibility and accountability can only lead to inefficiency, poor service, delay and confusion.

In stressing the necessity for lodging authority and responsibility in the same hands, John Kenneth Galbraith, in his book *Economic Development*, makes precisely this point in respect of both private and public entities. In his chapter entitled "Development and the Industrial Corporation," he expresses the following:

"The external authority has an even more damaging effect on the time dimension of decision-making. I need not mention again the importance of timeliness as compared with precision in industrial decisions. But the man who must answer to a parliamentary committee or brief a minister will always reserve to himself the right to review the decisions that he must later defend. Moreover, executive departments and parliaments are ordinarily aroused over the wrong decision. It is on these that a man can score points and, hence, on which others can lose points. The result is centralized decision to avoid error but with the greater wastes of delay. This is profoundly damaging to the corporate personality, which must have decision-making authority where it can be exercised with the optimal combination of accuracy and expedition. Even if slow decisions are criticized, they will not easily be expedited. For the need to protect against the wrong as compared with the untimely decision, even though the latter may be intrinsically the more damaging, will remain the prior concern.

"The problem, I repeat, is not of wisely motivated or of ill-motivated intervention. Rather it is of anything that interferes with or distorts and destroys the firm or corporate personality. This is a matter of the utmost importance, for external influence, with its impairment of autonomy, will always defend itself on the grounds of the wisdom or sincerity of its motivation. This is not a defense."

In the complicated industry reorganization proposed in the bill, it is inevitable that at each layer of new authority there will be the potential hazard of relying on someone else to carry out the necessary planning, operating, constructing, financing, and research functions; all of which are essential components of good utility service. If, which I do not believe, the industry has been inadequate or deficient in meeting its obligations to the American public, it

would be better directly to relieve all managements and assign the authority, responsibility, and accountability directly and completely to the Federal Power Commission. There would be greater chance of that unreasonable extreme being successful than the arrangements contemplated in the proposed Act.

The utilities, as they operate today, have the managerial and technical competence and resources to plan for the needs of the service areas which have been prescribed to them by law and they are accountable for insuring an adequate electric supply; further, their cost of service, financing and accounting are subject to regulation by appropriate public bodies. If the Commission preempts management's fundamental and essential responsibility to plan, and to direct the construction, operation and financing of the facilities necessary to supply the power needs of utility service areas, it will impair the industry's ability to construct essential facilities on time to meet projected loads and will weaken the industry's service reliability.

The consequence of the bill is to transfer authority and responsibility for utility planning and operation to the Federal Power Commission and the regional organizations which are under its control. Furthermore, it must be anticipated that important decisions of a regional organization will be appealed to the Commission by some interest, or be subjected to review by the Commission on its own initiative.

The Commission is thus proposing to subject major industry decisions affecting bulk power supply to the procedures involving adversary proceedings, namely: application, public notice, petition to intervene, answer to petitions to intervene, order fixing hearing date, prehearing conference, hearing, briefs to the Presiding Examiner, reply briefs to the Presiding Examiner, initial decision by the Presiding Examiner, exceptions to the initial decision, reply to exceptions, Commission's opinion and order, petition for rehearing, and final order subject to appeals. The time interval for each stage will vary with each case, but when the issues are considered difficult by the Commission, the time interval between just the replies to exception and a Commission order may exceed two years.

The proposed Act provides for seven instances of such hearings as follows:

1. Section 404(c) hearings with respect to statements of organization of regional councils.
2. Section 404(d) hearings with respect to coordination plans.
3. Section 404(f) hearings with respect to orders to participate in regional councils.

4. Section 409(c) hearings in the event of disapproval of a proposal for extra-high-voltage facilities or for conferring of rights of way.
5. Section 409(e) hearings for providing rights of way.
6. Section 412 hearings on abandonment of facilities.
7. Section 413 hearings on exemptions.

In addition, the proposed Act cannot become operative for a considerable period of time because it requires rule making by the Commission before it can be implemented. Rule making is a slow and tedious process. Furthermore, any rule adopted will be subject to the delays of appeals to the courts. In view of the experiences in connection with rule making applied to accelerated amortization and liberalized depreciation and in connection with the several matters under the Natural Gas Act, it is likely that rules under the proposed Reliability Act may take from three to five years to develop. The bill provides for rulemaking in six different instances as follows:

1. Section 404(b) provides for rulemaking with respect to filing statements of organization of regional councils.
2. Section 404(b) provides for rulemaking for the filing of regional or inter-regional plans developed by the regional councils.
3. Section 407 provides rulemaking for the filing of coordination agreements.
4. Section 408 provides rulemaking for the promulgation of reliability standards.
5. Section 409(a) provides rulemaking for filing proposals for extra-high-voltage facilities.
6. Section 413 provides rulemaking to determine exemptions from the provisions of the proposed Act.

In addition, the procedures for consultation to establish regional organizations referred to in section 404(a) may require a seventh rulemaking proceeding.

During the pendency of any of the foregoing, there will be uncertainty and confusion in the industry. The industry will be reluctant to proceed on its own initiative and it is difficult to see how the growing power needs of the nation can be supplied when the processes necessary for their satisfaction are fettered by the procedures prescribed by the bill.

5. Reliability is a highly complex technical problem. Reliability planning and criteria and costs of reliability should not be confused with broad industry economic planning and criteria.

Although reliability planning is a technical problem, the bill creates an institutional framework for the accomplishment of many different things.

Area coordination for reliability is a developing technology and the considerations involved in coordination need to be considered carefully and with understanding. It would be a mistake to reach conclusions before all of the relevant considerations have been fully explored. To achieve such exploration, reliability itself must be emphasized and be divorced from considerations of broad industry economic planning. One of my concerns is that the industry may be exposed to large-scale power failures if it is unduly pressed because of economic considerations to incorporate developmental apparatus and techniques in bulk power supply systems before the technology has been thoroughly proven by operating experience.

The Federal Power Commission in its 1964 power survey, placed a premium on economies, and, failed to give proper attention to reliability and problems associated with an emerging technology. Under this pressure and because size offered the opportunity for development of greater economies in the production of power, the Commission, the manufacturers and the utilities hastened to bring about the utilization of large plants and large-scale transmission lines.

Along with other representatives of the utility industry, I believe that considerations relating to reliability of bulk power supply are different from those considerations relating to the economic benefits of interconnection. However, reliability does cost money and no decisions concerning the facilities required to insure reliability can be made without balancing the cost thereof against the value of the reliability achieved. Nonetheless, even though the costs of reliability must be kept in mind, a distinction should be made between those approaches and mechanisms which power systems use to insure reliability of bulk power supply and those approaches and mechanisms which power systems use to attain the economic benefits of interconnection. The use of large generating units and extra-high-voltage transmission requires the consideration of the effect of system disturbances over large areas. At the same time, the economies of scale inherent in the industry and the other economic benefits of interconnection, such as economy energy transactions and diversity exchanges, need not take into consideration operating areas as large as those which must be taken into consideration in planning for the reliability of bulk power supply.

The various contractual arrangements among power systems to attain the economic benefits of interconnection are called pooling. Under this broad definition, pooling arrangements can range from simple bilateral agreements involving, for example, economy transactions to complex multilateral agreements in which the participating power systems agree to build and operate their systems as if they were under common ownership. These matters are now all subject to the jurisdiction of the Commission under Part II of the Federal Power Act.

Under these circumstances, our attention should be focused on how to avoid large scale power failures in our use of today's technology, and any proposed legislation should be considered first and foremost in the context of this issue.

III. An Analysis of Each Section of the Bill

For purposes of convenience, the text of each section of the bill together with the Federal Power Commission analysis is set forth in conjunction with my commentary. The Federal Power Commission analysis, having been printed in the Congressional Record and, thus, part of the legislative history of the bill, is essential to an interpretation of the bill.

SECTION 401(a)

TEXT

"This part shall apply to all bulk power supply systems in the United States."

FEDERAL POWER COMMISSION ANALYSIS

Section 401(a) of the proposed Part IV would make its provision applicable to all bulk power systems in the United States. Section 401(d) defines "bulk power supply facilities" as facilities for generation or transmission which furnish power to points of distribution.

COMMENT

The words "bulk power supply systems" are not defined and, indeed, this classification is never again used in the bill. Without definition or limitation, the phrase "bulk power supply systems" applies to electric systems not now considered to be within the jurisdiction of the Commission and possibly to industrial and commercial concerns which generate or transmit power. In order to "apply to all bulk power supply systems," Part IV must be based on a broader constitutional justification (which is nowhere identified in the bill) than Parts I, II and III.

SECTION 401(b)

TEXT

"This part is intended to further the national policy declared by subsection 202(a) of the Federal Power Act, in favor of assuring an abundant supply of electric energy throughout the United States with the greatest possible economy and with regard to the proper utilization and conservation of national resources, by enhancing the reliability of bulk power supply; by strengthening existing and establishing new mechanisms for coordination in the electric utility industry; by encouraging the comprehensive development of the power resources of each area and region of the United States, to take advantage of advancing technology with due regard for the conservation of land, scenic and other limited resources; by providing that all utility systems and their customers shall have access to the benefits of coordination and advancing technology on fair and reasonable terms; by assuring to the extent feasible that extra-high-voltage facilities include sufficient capacity to meet area, regional, and inter-regional needs for transmission capacity, including reserve capacity for reliability; by respecting the territorial integrity of utility service to the extent consistent with the public interest; and by drawing upon the cooperation of all segments of the electric utility industry."

FEDERAL POWER COMMISSION ANALYSIS

Section 401(b) would set out the objectives of Part IV: which is intended to further the National Policy, already mentioned, expressed by present section 202(a). This would be accomplished —

By enhancing the reliability of bulk power supply;

By strengthening existing mechanisms for coordination in the electric utility industry and establishing new ones;

By encouraging comprehensive development of power resources of each areas (sic) and region of the United States so as to take advantage of advancing technology while maintaining proper regard for conservation of land, scenic values, and other limited resources;

By providing that all utility systems and their customers have access to the benefits of coordination and advancing technology on fair and reasonable terms;

By assuring as far as feasible that extra-high-voltage facilities include sufficient capacity to meet area, regional and interregional needs for transmission capacity, including the reserve capacity needed for reliability;

By respecting the territorial integrity of utility service areas to the extent consistent with public interest; and

By drawing on the cooperation of all segments (public, private and cooperative) of the electric utility industry.

These objectives are referred to as the criteria for Commission action in several other sections of the proposed Part IV.

COMMENT

As stated in the Commission analysis, the broad, generalized "national policy" set forth in this subsection constitutes the *only* criteria for Commission action under the proposed Act. The Commission is given the ultimate authority on major economic, planning and operating decisions in the electric utility industry and need only justify its actions as falling within the scope of these criteria.

Under section 404(c), for instance, the Commission is authorized to change the charter setting forth the power and authority of the new regional coordinating organizations to be created under the proposed Act to make the charter "consistent with the objectives of this part". The Commission's judgment will determine the voting rights on the regional organizations according to these same criteria.

It should be made clear that "the greatest possible economy" is not achieved "by enhancing the reliability of bulk power supply" as stated in this subsection. Actions of the Federal Power Commission in recent years demonstrate this point well. In planning a national grid in the 1964 National Power Survey, the Commission in effect ignored reliability. For that reason, the costs included for transmission in the 1964 National Power Survey must be increased if a desirable degree of reliability is to be achieved.

Actually, the greatest possible economy would be achieved by limited attention to reliability. Reliability costs money and it is misleading to imply that the enhancing of reliability will provide the greatest possible economy.

In any Act providing authority to achieve "economy" in the electric utility industry, it is essential that the word "economy" be defined. The industry is made up of basically four types of institutional organizations; namely, investor-owned systems, municipal systems, cooperative systems and federal systems. From an economic point of view, there is a single national cost of capital, which includes the taxes required to support government, that is equally applicable to all these institutions. The FPC recognized this in the 1964 National Power Survey where it used a single annual fixed charge rate for all segments of the industry.

Nevertheless, accounting conventions and federal project justification procedures tend to ignore this fundamental truth and assume that these conventions and procedures measure differences in cost. For example, only three months ago the Commission was urged by its staff to interpret "the greatest possible economy," as that term is set forth in section 202(a) of the Federal Power Act, to mean "the lowest cost power" *City of Paris v. Kentucky Utilities*, Docket No. E-7249, Staff Brief on Exceptions. Using that rationale, the staff urged the Commission to order an investor-owned utility to wheel power from a cooperative utility, with which it coordinated operations, to a municipal system in the investor-owned system's service area. On the basis of these accounting conventions, the cooperative, financed by federal funds at 2% interest and paying no federal income taxes, was characterized by the staff as being able to produce power at lower cost than the investor-owned utility. In an opinion dated August 4, 1967, the Commission held that it did not have authority to order an investor-owned utility to wheel power for a cooperative system and consequently did not directly deal with its staff's contention.

Not only is the industry made up of four types of institutional organizations but as between utilities, because of the character of areas served, geography, management and governmental policies, one utility may either choose or be required to incur costs for environmental purposes whereas another utility may not incur comparable costs. Obviously such differences in standards or requirements could have a significant effect upon the economy of the particular utility and would certainly have a bearing on the definitions of the word "economy" as used in the bill.

Similarly, the enjoiner to respect "the territorial integrity of utility service to the extent consistent with the public interest" leaves the question open to the judgment of the FPC as to what is "public interest" in this regard without prescribing any standards upon which such judgment would be based. Furthermore, one wonders what is meant by "... assuring to the extent feasible that extra-high-voltage facilities include sufficient capacity. . ."? Does feasibility include consideration of the availability and cost of new capital required, whether by governmental appropriation or advance or by access to the commercial capital markets, and of economic return on such capital?

SECTION 401(c)

TEXT

"As used in this part, 'person' means a 'person', a 'municipality', or a 'State' as defined in section 3 of the Federal Power Act, and any department, agency or instrumentality of the United States. The term includes privately, cooperatively, federally, and other publicly owned persons."

FEDERAL POWER COMMISSION ANALYSIS

Proposed section 401(c) defines the term "person" for purposes of Part IV. The use of that term in Part IV differs from its use elsewhere in the Federal Power Act in that it is here defined to include a "person" a "municipality" or a "State," all as defined in section 3 of the Federal Power Act, and any department, agency, or instrumentality of the United States. This subsection also makes clear that the term covers all "persons", whether privately, cooperatively, Federally or otherwise publicly owned.

COMMENT

The terms as defined in section 3 of the Federal Power Act are as follows:

"persons" means an individual or a corporation.

"State" means a State admitted to the Union, the District of Columbia, or any organized Territory of the United States.

"municipality" means a city, county, irrigation district, drainage district, or other political subdivision or agency of a State competent under the laws thereof to carry on the business of developing, transmitting, utilizing, or distributing power.

SECTION 401(d)

TEXT

"As used in this part, 'bulk power supply facilities' means facilities for generation or transmission which furnish power to points of distribution. In the exercise of its authority under section 413 the Commission may classify or exempt facilities which are not material to the objectives of this part."

FEDERAL POWER COMMISSION ANALYSIS

Proposed section 401(d), already referred to, defines "bulk power supply facilities" as facilities for generation or transmission which furnish power to points of distribution. It further provides that under section 413 the Commission would be empowered to classify or exempt facilities not material to attaining the objectives of Part IV.

COMMENT

The definition of "bulk power supply facilities" is broad because of the vagueness of the phrase "points of distribution". Conceivably "bulk power supply facilities" could cover all facilities of an electric utility except those related to the small electric services to individual customers. Lines normally thought to be distribution lines could be classified as bulk power supply facilities under the definition.

In the Colton case (*FPC v. Southern California Edison Co.*, 376 U. S. 205 (1964)), the Commission refused to hold that 12Kv. lines which served the Colton City substation were local distribution lines. The Supreme Court upheld this FPC finding. 376 U.S., at 210, n.6. And see *Arkansas Power & Light Company v. FPC*, 368 F.2d 376, 383 (8th Cir., 1966).

There are a large number of such lines and their effect on bulk power supply reliability is insignificant. In addition, jurisdiction by the Federal Power Commission over such lines may conflict with State commission jurisdiction with respect to service, safety and reliability rules.

SECTION 401(e)

TEXT

"As used in this part, 'extra-high-voltage facilities' means transmission lines and associated facilities designed to be capable of being operated at a nominal voltage higher than two hundred kilovolts between phase conductors for alternating current or between poles for direct current, the construction of which is commenced two years or more after the enactment of this part."

FEDERAL POWER COMMISSION ANALYSIS

Proposed section 401(e) defines "extra-high-voltage facilities", which are subject to the special provisions of section 409. As used in the proposed Part IV, the term means transmission lines and associated facilities designed to be capable of operation at a nominal voltage higher than 200 kilovolts between phase conductors for alternating current, or between poles in the case of direct current, the construction of which is commenced two years or more after the enactment of Part IV.

COMMENT

This definition changes common utility practice by classifying 200 to 300 KV lines as "extra-high-voltage". Such lines are today used as internal transmission by many systems and with the expected increase in loads will be so used by many more in the future. Many miles of such lines will be needed every year and the planning and construction of such facilities must in many cases be accomplished in a short period of time if the needs of new load centers are to be met promptly. The section makes subject to the inherent delay of certification procedures a level of line which will be commonplace in the future.

The phrase "associated facilities" is left undefined. Could it be held to include all facilities at substations, metering equipment and the dispatching center and control room? Indeed, in view of *Hartford Electric Light Company v. FPC*, 131 F2d 953, 961 (2d Cir. 1942), *cert. denied* 319 U.S. 741 (1943), where Hartford's corporate charter, contracts, accounts, memoranda, papers and other records were held to be facilities required for interstate wholesale sales, it is hard to guess just what meaning will be given to the term "associated facilities".

The last part of the subsection provides a moratorium of two years before construction authorization under section 409 is required for EHV lines. Section 409 requires the filing of a construction "proposal" two years before contemplated construction in accordance with "such rules and regulations" as the Commission may prescribe. It is obvious that in this new area of rule making (one of six provided for in the proposed Act) the process will consume considerable time if the proposed Act is passed. It undoubtedly will require additional time after that to prepare a proposal in accordance with the rules and regulations.

SECTION 402(a) and (b)

TEXT

"(a) This part supplements parts I, II, and III in order further to promote the reliability, abundance, and efficiency of bulk power supply in the United States. Nothing herein shall modify or abridge authority granted under parts I, II, or III unless specifically so provided."

"(b) The administrative, procedural, and enforcement provisions prescribed by other parts shall apply to this part."

FEDERAL POWER COMMISSION ANALYSIS

Proposed section 402 relates Part IV to the existing provisions of the Federal Power Act. Sub-section (a) states that Part IV supplements Parts I, II and III in order further to promote the reliability, efficiency, and economy of bulk power supply, and provides that nothing in Part IV would modify or abridge authority granted under Parts I, II and III, unless specifically so provided. Sub-section (b) would make the administrative procedural and enforcement provisions of other Parts applicable to Part IV. These include provisions for filing reports, complaints by State agencies and other, investigations, hearings, rules and regulations, staff appointments, publication, judicial review, enforcement and penalties.

COMMENT

The use of the word "efficiency" in subsection (a) again demonstrates that the Act is designed to do much more than its name implies. The proposed Act appears to basically provide for a restructuring of the industry to accomplish a predetermined economic objective.

The carrying over by means of subsection (b) of the existing enforcement provisions of the Federal Power Act to the planning and operation of the industry—subjects on which even recognized experts in the field may differ—appears to be designed to insure uniformity of compliance with absolute standards to be promulgated by the Commission. These enforcement provisions include criminal penalties for anyone who fails to do any act, matter or thing required under the proposed Act or causes or suffers such omission or failure or who wilfully and knowingly violates any rule, regulation, restriction, condition or order of the Commission.

SECTION 403

TEXT

"The purposes of this part should be achieved as far as possible by cooperation among all persons engaged in bulk power supply, whatever their nature."

FEDERAL POWER COMMISSION ANALYSIS

Proposed section 403 expresses the policy that the purposes of Part IV should be attained as far as possible by cooperation among all persons engaged in bulk power supply, regardless of their nature.

COMMENT

This section can have little meaning in view of the comprehensive control given the Commission under other provisions of the proposed Act including the enforcement procedures of section 402(b). Thus, the utility can be compelled to comply with the desires of the Commission in everything from the charter and bylaws of the new regional coordination organizations (even the agenda of their meetings — see *post*, Federal Power Commission analysis of paragraph (3) concerning section 404(b)) to the planning and operation of each system. Under the proposed Act there is no choice but either voluntarily to accept the Commission's judgment on every matter or be required to accept it. There does not appear to be a single area of system planning and operation of bulk power supply (a term which must be broadly interpreted in the absence of any definition) in which the Commission is not the final authority. One wonders whether under such control the electric utility industry will continue to be characterized by diversity and vitality.

SECTION 404(a)

TEXT

"After appropriate consultation held under procedures to be prescribed by the Commission, with persons engaged or interested in bulk power supply, appropriate Federal agencies and State commissions, the Commission shall secure the establishment of appropriate and effective regional organizations and procedures to carry out regional and interregional coordination. Each regional coordination organization (hereafter 'regional council') shall be open to membership, direct or indirect, by each electric system in the region whatever the nature of its ownership. Some electric systems may in appropriate cases be admitted to more than one regional council. The Commission shall designate appropriate staff representatives, who shall participate in the work of the regional councils, except for the ultimate adoption of plans or any other council actions."

FEDERAL POWER COMMISSION ANALYSIS

Section 404 would deal with the organizations that would bear much of the responsibility for electrical coordination. Section 404(a) first provides that, after consultation, under procedures that would be prescribed by the Commission, with persons engaged or interested in bulk power supply, and with appropriate Federal agencies and State commissions, the Commission would secure the establishment of appropriate and effective regional organizations and procedures to carry out regional and interregional coordination. These organizations, or "regional councils", would be open to membership (either direct or indirect by appropriate representation) on the part of each electric system in the region regardless of the nature of its ownership. In appropriate cases, a system could belong to more than one regional council. The Commission would designate representatives from among its staff, who would participate in all aspects of the regional councils' work except the ultimate adoption of plans or any other council actions.

Administration of the provisions of section 404 might vary with the circumstances of time and place, and with the degree to which regional and interregional coordination had progressed. Nevertheless, the following suggests one general pattern by which it might be carried out.

The Commission, after consulting with persons engaged in bulk power supply, State commissions, Federal agencies having an interest in the matter (e.g. the Bureau of Reclamation, Bonneville Power Administration, and similar bodies), and distributors of electric energy, would establish (and from time to time modify) regions for the interconnection and coordination of bulk power facilities. Consultation would most probably be on an individual basis for major bulk power suppliers and State commissions, with group representatives for the smaller bulk power systems and the distributors. Consultation would cover all bulk power suppliers and distributors in the region and the State commissions of all States wholly or partly within the region.

The persons within each region that were engaged in bulk power supply or distribution of electric energy would be urged to create a regional council, which would be fairly representative of all such persons and be provided by them with sufficient funds to carry out its functions (including the employment of bulk power experts and other permanent staff). Representation on the council might be direct or indirect, but each major bulk power supplier should probably be directly represented while the total number of representatives is kept down to efficient dimensions.

COMMENT

The words "bulk power supply" are not defined. The phrase "persons engaged or interested in bulk power supply" which delineates the group which shall be consulted on the formation of regional coordination organizations should be contrasted with the phrase in section 404(f) "person engaged in the generation or transmission" which delineates the group which the Commission may order to participate in the creation and work of the regional organizations. Presumably, such participation will include contributing to the costs. The two phrases should also be contrasted with the phrase "electric system" which in this subsection delineates the group entitled to membership in the regional organizations. In short, persons interested in bulk power supply shall be consulted on the organization; membership is available to all electric systems but the economic burden may (despite the foregoing analysis of the Commission) be required only of persons engaged in generation and transmission.

The vagueness of language characteristic of the bill as a whole is illustrated by this section and is reflected in the use of the phrase "appropriate consultation."

In giving the Commission the authority to "secure the establishment of appropriate and effective regional organizations and procedures to carry out regional and interregional coordination" no standards are provided under which the Commission must act in determining whether an organization is

appropriate and effective. Neither does the bill contain any definition of coordination or set forth what the legal status of the regional organizations will be. The bill does not specify what will be the responsibility of operating entities for the acts of the regional organizations to which they belong or the responsibility of the regional organization for its own acts. Nothing is stated as to the responsibility of the regional organizations to the stockholders and/or bondholders of the operating entities which are either voluntary or compulsory members. The bill contains no limitation or direction concerning the manner in which decisions will be arrived at by regional organizations. Thus, since this section provides that the Commission shall "secure the establishment of appropriate and effective regional organizations," the Commission will have the authority to prescribe that decisions shall be unanimous or by a percentage of vote and to prescribe the qualifications for voting; i.e., one vote per entity, by generating capacity, by load, by investment, etc.

SECTION 404(b)

TEXT

"Under such rules as the Commission shall prescribe, each regional council shall file a statement of its organization with the Commission and any amendments thereto. Such statements will be available for public inspection. Within thirty days after adoption by the council, any regional or interregional plans developed by such regional councils shall be submitted to the Commission under such rules as the Commission shall prescribe and shall be made available by it for public inspection, and the Commission shall consider such plans in exercising its responsibilities under this Act, including parts I, II, III, and IV."

FEDERAL POWER COMMISSION ANALYSIS

The regional council's statement of organization, required by section 404(b) of the proposed bill, would set forth such matters as the following:

- (1) the number of representatives and the persons or groups represented by each;
- (2) how the council would arrive at final decisions, and a fair and reasonable method of hearing and publishing minority views;
- (3) any other rules or by-laws it might adopt, including provisions for notice to the Commission and to the State commission of any State wholly or partly within the region of meetings of the council or any subsidiary body it might create, in order that the Commission might participate as contemplated by section 404(a) by designating staff officials to assist in the formulation of agenda, council discussions and council studies and so that the State commissions might participate as they saw fit; and
- (4) such other information as the Commission requests. On submission of a statement of organization the Commission could call for consultation on any aspect of the statement it considered inconsistent with the objectives of Part IV or the proper functioning of the council, and could propose alternatives or modifications. The Commission might also determine by order whether the statement was consistent with the objectives of Part IV, and if not, modify it or set it aside. Amendments to a statement of organization would be treated in the same way.

On approval of its statement of organization, the regional council could be expected to undertake the following duties:

- (1) to prepare and keep current a forecast of the electrical needs of the region in which it functions covering a reasonable period of years in the future. The forecast should include a determination of the facilities (including generation) needed during such period to achieve the most efficient, economical, and reliable interconnection of the region, as well as appropriate interconnection and coordination between regions.
- (2) to conduct stability studies for its region, contemplating both present loads and the load forecast under the preceding paragraph.
- (3) to develop appropriate criteria for reliable planning and operation of bulk power facilities for recommendation to the Commission under Section 408 of the proposed bill.
- (4) to prepare outline plans for generation, transmission, and interconnection within the region (and to adjacent regions) which are best adapted to the reliability and power needs of the region.
- (5) to develop plans for the coordinated operation of generation and transmission facilities of the region (and of future or presently possible coordination with other regions). These plans should include provisions for automatic load shedding and other emergency procedures, regulation and inspection of system control devices, and provisions for restoration of service after an outage, as well as plans for operation under normal conditions.
- (6) to encourage and strengthen existing coordinating organizations within the region and new organizations where appropriate.
- (7) to provide a forum wherein projects for construction of bulk power facilities can be examined by all persons engaged in bulk power supply or in distribution of electric energy who would be affected by such projects, and modifications and legitimate objections thereto can be suggested and discussed.
- (8) to give at least preliminary consideration to land use problems raised by construction proposals, and to consult, where appropriate, with local, State, interstate and Federal agencies having an interest in these problems.
- (9) to consult with other regional councils on common problems and possibilities for interregional coordination.
- (10) to do all other things necessary and appropriate for the most efficient development, coordination and use of the power resources of the region.

Section 404 (b) would provide that each regional council would file an organizational statement with the Commission, together with any amendments later adopted. These statements would be available for public inspection.

Within 30 days after adoption by the council, any plan of coordination, either regional or interregional, developed by the council, would be submitted to the Commission under such rules as the Commission prescribed. Submitted plans would have quasi-official status. Since the planning process is continuous, Commission rules and participation in the council work will have to define the stages at which amendments must be filed with the Commission. The Commission would make these plans available for public inspection, and would consider them in exercising its responsibilities under all Parts (including Part IV) of the Federal Power Act. When any plan for bulk power coordination was submitted to the Commission under proposed section 404 (b), the council might accompany it with its comments or those of individual members. The Commission might, at any stage in the evaluation of a plan under section 404 (e), call upon the council to confer with it on any aspect of the plan that appeared to require modification.

COMMENT

The Commission's analysis of this subsection fortifies the need for answers to the legal and policy questions raised by subsection 404(a). The work and responsibilities contemplated for the regional organization are broad in scope even without the duty to do "*all other things necessary and appropriate for the most efficient development, coordination and use of the power resources of the region.*" There can be no question that new legal entities of some sort are contemplated which may be subject to taxation, liability, financing, regulation by other bodies, and all of the problems of existing bulk power suppliers. What does the Commission mean in requiring that the plans of the regional organizations be considered in the Commission's exercising its responsibilities under Parts I, II and III of the Act?

It is evident from the analysis that reliability is but a small part of the objective of the proposed Act. "Regional Council", the substitute name for "regional coordination organization" proposed in the preceding subsection, is truly a misnomer for an independently staffed, full time organization which shall, among other duties, determine "the facilities (including generation) needed. . . and to achieve the most efficient, *economical* [italics supplied] and reliable interconnection of the region as well as appropriate interconnection and coordination between regions". Does the Commission realize the number of people required for such planning? Does it believe that there is just one best plan for each region?

The authority of systems to enter into such regional organizations or to delegate the required authority to them requires examination, not only in the case of government organizations whose authority is usually prescribed by statute, but also in the case of investor-owned companies whose directors have a legal responsibility for the provident operation of each system. If money contributions are required, further questions arise in connection with participation by municipal systems. There is, of course, no provision in the proposed Act for the payment of the expenses of the regional organizations, but, in view of the scope apparently contemplated, such provisions should not be left to chance or to a future decision of the Federal Power Commission.

In reference to item (5) in the Commission's analysis, would each company receive detailed instructions from the regional organization? Who would exercise the judgment for required specific details necessary to meet the requirements of local conditions? Who would exercise the judgment required for implementation of emergency procedures? What does the reference to provisions for "regulation and inspection of system control devices" mean? Does this entail relay test procedures or provisions for field checking of relay settings by regional organization personnel?

By the next subsection, the Commission is given the authority to modify the statement of organization, the corporate charter of the regional organization, if it finds "the statement is not consistent with the objectives of this Part". There is an absence of any standards governing how the Commission would determine rules concerning membership, voting rights of members, overall authority to be vested in the organization and the liability of members.

SECTION 404(c)

TEXT

"After notice and opportunity for hearing, the Commission may by order determine whether any statement filed under this section is consistent with the objectives of this part. If the Commission determines that the statement is not consistent with the objectives of this part it shall modify it or set it aside. If the Commission approves a statement, and finds further that the effect of the statement upon competition will be insubstantial or will be clearly outweighed by other public interest considerations, actions pursuant to such statement shall not be subject to suit under section 4 of the Clayton Act (15 U.S.C. 15)."

FEDERAL POWER COMMISSION ANALYSIS

Section 404 (c) would permit the Commission, after notice and opportunity for hearing, to determine by order whether any statement of organization filed under section 404 is consistent with the objectives of Part IV (as set out in section 401(b)). If a statement were determined to be inconsistent with those objectives, the Commission could modify it or set it aside. Under this section and the next, the bill would give the Commission discretion to initiate review or not. If the Commission, having approved a statement, also found that its effect on competition would be insubstantial or would be clearly outweighed by other public interest considerations, actions pursuant to the statement would be immune from private antitrust suits.

COMMENT

Under this section, the Commission has the right to modify or set aside the statement of organization of each regional organization. This gives the Commission the power referred to earlier to prescribe the organization and authority of the organization. Its standard for modification or setting aside a statement is related only to the general objectives of Part IV.

If the Commission approves the statement and finds that the effect of the statement upon competition will be insubstantial or will be clearly outweighed by other public interest considerations, immunity from Section 4 of the Clayton Act is granted. However, immunity is not granted from the other provisions of the antitrust laws. Section 4 of the Clayton Act provides only for private treble damage actions and the immunity granted by this section would only pertain to actions based upon activities under the statement. Immunity is not granted from private damage actions for conspiring in the preparation of the statement, private injunctive actions under the antitrust laws, criminal and civil prosecution by the states or the federal government nor from governmental damage suits. Under Section 404(f) of the proposed Act, the Commission may order persons engaged in generation or transmission to participate in regional councils. It would be an anomaly that a person may be ordered by the Federal Power Commission to participate in activities which may be found to be criminal violations of a federal statute through prosecutions brought by another arm of the government; i.e., the Justice Department.

Indeed, failure on the part of the Commission to take action in accordance with this section with respect to any statement will leave the inference that there are possible antitrust problems involved. As a result the existence of a possible antitrust immunity as provided in this bill is worse than no provision.

Furthermore, the language in this section; i.e., "if the Commission approves a statement and finds further that the effect of the statement upon competition will be insubstantial," is difficult to understand. In the first place, it must refer to the effect of the organization upon competition, not the effect of the statement upon competition. Secondly, what is insubstantial or what is not insubstantial is without any guidelines. These words are not used in other statutes and, thus, have not been interpreted by the courts so that you have the result of a Commission with limited experience in the antitrust field endeavoring to interpret new and vague standards.

The antitrust immunity provision, however, points up the fact that the Federal Power Commission intends for the planning and operation authority of each utility system to be delegated to the regional organizations. If not, their organization would have no effect upon competition.

SECTION 404(d)

TEXT

"After notice and opportunity for hearing, the Commission may determine whether any coordination plan submitted under this section is consistent with the objectives of this part. If the Commission so finds, and finds further that the effect of the plan upon competition will be insubstantial or will be clearly outweighed by other public interest considerations, actions pursuant to such plan shall not be subject to suit under section 4 of the Clayton Act (15 U.S.C. 15), while the Commission's approval remains in effect. If the Commission determines that the plan is not in the public interest it shall modify it or set it aside."

FEDERAL POWER COMMISSION ANALYSIS

Section 404(d) would allow the Commission, after notice and opportunity for hearing, to determine whether a coordination plan was consistent with the objectives of Part IV. If the Commission found that the plan was not in the public interest it could modify it or set it aside. On a finding by the Commission that a plan it had approved would have an insubstantial effect on competition, or an effect clearly outweighed by other public interest considerations, actions pursuant to the plan would not be subject to private antitrust suits as long as the Commission's approval remained in effect.

COMMENT

Under section 404(d) the Commission may modify or set aside a "coordination plan" if it determines it is not in the public interest. If "coordination plan" is intended to encompass all of the plans which the Commission's analysis suggests should be prepared by the regional organizations, this means that the Commission would control the plans for every bulk power supply facility required to provide electric power throughout the country and the plans for their operation. Because of the temptation to standardize which will result from the extensive responsibilities placed on the Commission and the necessity of getting the job done, we may lose the experimentation and diversity which has heretofore characterized the industry, led to its vitality and dynamic technology.

Planning for electric utility systems is done on a continuous basis. Consider the length of a hearing on a regional plan which must take into account all public interest questions affected by the electric utility industry. It is likely a regional plan will have to be changed during the course of any such hearing.

In a pending FPC case involving only one plant in a region, hearings have been going on for almost three years. Many interventions were by organizations formed solely for the purpose of intervening. The issues, restricted just to one plant, include land use, aesthetics, ecology, geology, and water supply, in addition to the engineering and economic issues present in every facility case.

In another case, involving one plant in a region, the Supreme Court, after over ten years of litigation, recently reversed the Commission's decisions. The ground of the reversal was the failure of the Commission to make findings on certain public interest issues. While the latter case may be unusual, the proceedings involved in every license application for a new project are lengthy. Under the proposed section 404(d) the Commission would be required to find the everchanging plans for all of the nation's bulk power supply facilities to be consistent with all elements of the public interest.

The comments with respect to antitrust considerations referred to in connection with subsection 404(c) equally apply to this section.

While section 405 includes the worthwhile objective of stimulating scientific and engineering interest in the challenges facing the industry, unfortunately it will not be sufficient to overcome the counter effect of the rest of the bill on this objective. Since the major planning will be done by the Federal Power Commission through the regional organizations, what incentive will there be for able young people to go to work for a utility system?

Even under existing conditions the attracting of able people to the industry represents a critical problem and I believe that the proposed bill will further adversely affect the ability of the industry to recruit needed talented individuals. It is also extremely doubtful that the Commission will be able to attract and keep the able individual even though it is given final authority over all industry planning. The result of the bill will be to attract fewer competent people to the electric systems of the future.

SECTION 404(e)

TEXT

"The Commission shall require annual reports from each regional council and such additional reports as it may deem necessary or appropriate to carry out the objectives of this part. The Commission shall annually report to the Congress on the effectiveness of the regional and interregional coordination efforts."

FEDERAL POWER COMMISSION ANALYSIS

Section 404(e) would direct the Commission to require annual reports from each regional council, and such additional reports as it deemed necessary or appropriate to carry out the objectives of Part IV. The Commission would in turn report to Congress annually on the effectiveness of the efforts at regional and interregional coordination made by the regional councils.

SECTION 404(f)

TEXT

"If the Commission, after notice and after opportunity for hearings, determines that any person engaged in the generation or transmission unreasonably refuses to participate in the creation of a regional council or in effective regional or interregional coordination it may require such person by order to participate in the creation and work of such regional council to the extent the Commission finds necessary to carry out the objectives of this part."

FEDERAL POWER COMMISSION ANALYSIS

Section 404(f) would allow the Commission, if it found after notice and opportunity for hearing that any person engaged in generation or transmission of electric energy unreasonably refused to participate either in the creation of a regional council or in effective regional or interregional coordination, it could order such participation to the extent it found necessary to carry out the objectives of Part IV. The Commission would expect to utilize such compulsory powers only after all reasonable attempts at consultation had failed to persuade the party concerned to take part in the creation or work of a regional council.

COMMENT

This is an unusual provision.

This subsection must be considered in conjunction with the other subsections of Section 404 in order to appreciate the scope of authority which is being granted to the Commission. See the analysis of the Commission's authority contained in the Introduction of this memorandum.

No particular form of act is prescribed for the Commission to order; only generally "to participate". Furthermore, the participation which may be ordered is "to the extent the Commission finds necessary to carry out the objectives of this part". On its own motion, the Commission may determine what it considers "necessary to carry out the objectives of this part" and may order participation to carry out its determination.

The key words in section 404(f) are "to participate" which the Commission is authorized to require of a person engaged in generation or transmission. In giving the Commission this authority to require participation in the creation or work of a regional organization it is necessary to understand that the Bill (see section 404(a)) does not define the work of the regional organization. Thus, as drafted, the Bill without indicating what may be required by the words "to participate" gives the Commission the right to require a person, subject to penalties, to engage in activities of an organization whose work is yet to be defined.

The subsection does not take into account the financial questions which compliance might entail. For example, if a utility were required by a regional plan to install a facility which it could not finance, what does such a utility do? The subsection has no limitation such as now contained in section 202(b) that the Commission may order a public utility to establish an interconnection only if it finds that no undue burden will be placed upon such public utility thereby and that no order shall impair the utility's ability to maintain adequate service to its customers.

SECTION 405

TEXT

"The Commission, after consultation with regional councils, shall establish a national committee representative of all elements of the industry to facilitate interregional exchange of views and experience and to consolidate electric industry efforts to investigate major present and future problems in planning and operating of bulk power supply facilities. The committee shall seek to stimulate vigorous scientific and engineering interest in the challenges to achieving reliable and efficient bulk power supply for the United States."

FEDERAL POWER COMMISSION ANALYSIS

Section 405 would give the Commission authority, after consulting with the regional councils, to establish a national committee representative of all elements of the electric industry. This committee would facilitate interregional exchanges of views and experience, and would consolidate the industry's efforts to investigate major present and future problems in the planning and operation of bulk power supply facilities. It would also seek to stimulate interest among scientists and engineers in the challenges of achieving reliable and efficient bulk power supply.

SECTION 406

TEXT

"To assist it in considering matters coming before it under this part, the Commission may establish one or more advisory coordination review boards and provide for the appointment thereto of experts drawn from the electric utility industry, equipment manufacturers, the academic and research communities, and other persons, not employed by the Commission, drawn from the general public."

FEDERAL POWER COMMISSION ANALYSIS

Section 406 would allow the Commission to establish one or more advisory coordination review boards and to provide for appointment thereto of experts from the electric utility industry, the equipment manufacturers, and the academic and research communities, and of other persons (not Commission employees) drawn from the general public. These boards would assist the Commission in considering matters coming before it under Part IV.

SECTION 407

TEXT

"Subject to such rules and regulations as the Commission may prescribe, a statement or copy of all oral or written agreements for coordinated planning or operation of bulk power supply facilities (including but not limited to agreements for joint ownership of such facilities) shall be lodged with the Commission by or on behalf of the persons participating in such agreement."

FEDERAL POWER COMMISSION ANALYSIS

Section 407 would require, subject to such rules as the Commission might prescribe, that all written agreements and statements of all oral agreements, for coordinated planning or operation of bulk power supply facilities be lodged with the Commission. This would include, but not be limited to, agreements for joint ownership of such facilities.

SECTION 408

TEXT

"Upon the recommendation of a regional council or upon its own motion, and after consultation with the regional councils, and after public notice and opportunity to comment, the Commission may promulgate regulations setting forth reasonable criteria of national or regional applicability to enhance the reliable planning and operation of bulk power supply facilities in accordance with the objectives of this part, set forth in Section 401 (b)."

FEDERAL POWER COMMISSION ANALYSIS

Section 408 would provide that, on the recommendation of a regional council or on its own motion, and after consultation with the regional councils, and after public notice and opportunity to comment, the Commission could issue rules setting forth reasonable criteria to enhance reliable planning and operation of bulk power supply facilities in accordance with the objectives of Part IV. Such rules might apply to a particular region or regions or be of nationwide scope. As specified in Section 402(b), the existing provisions of Part III of the Federal Power Act would be available to enforce compliance with such rules.

COMMENT

Reference to subsection 401(b) which lists the general objectives of the bill, is needed to see that section 408 gives the Commission complete authority to legislate on the whole spectrum of electric utility system planning, construction, operation, and maintenance. The only standard is that the regulations be reasonable. Violation of these regulations would bring into play the enforcement provisions of the bill. For the many reasons given herein the Commission should have no such legislative authority. If it wishes to propose guidelines, it has currently sufficient authority to do so.

Fixed national and regional standards and criteria such as proposed in the legislation would become institutionalized and resistant to change, thus inhibiting innovations and useful experimentation.

SECTION 409(a) and (b)

TEXT

"(a) Subject to such rules and regulations as the Commission may prescribe, any person proposing the construction of extra-high-voltage facilities shall file with the Commission, two years before it proposes to commence construction, or such other time as the Commission may prescribe, its proposal which shall include such information, including information as to the routing of the proposed line, as the Commission may require to enable it to determine to what extent the proposed construction and operation of such facilities is consistent with any plan developed by a regional council and is consistent with the objectives of this part. The filing shall state whether the proponent elects to seek right-of-way pursuant to subsection (e) of this section. Notice of such filing and any subsequent changes shall be given in the Federal Register and shall be served upon appropriate regional councils, Federal, State, and local agencies, and such other interested persons as the Commission shall require. The Commission shall afford to any interested persons at least sixty days in which to comment upon such filing.

"(b) No person may commence construction of extra-high-voltage facilities for six months after acceptance of any filing containing the information required pursuant to subsection (a) of this section and for such additional period during which a suspense order of the Commission remains in effect. The Commission shall issue a suspense order whenever the proponent elects to seek right-of-way pursuant to subsection (e) or when the Commission concludes, in its discretion, within six months after acceptance of any such filing, that the proposed construction and operation of such facilities is inconsistent with an approved plan developed by a regional council or otherwise appears not to be consistent with the objectives of this part. The suspense order shall summarize the Commission's reasons for its action and shall be effective for an initial period, to be fixed by the Commission in its discretion, of not more than twelve months. The effectiveness of an unexpired suspense order shall be extended by any order of the Commission recommending specific modifications in the proposal and setting forth conditions for its approval or scheduling formal hearings or both until ultimate disposition of the matter by the Commission: Provided, That the Commission, may after public notice and consideration of such comments as are received within thirty days of such notice, terminate the suspense order upon a finding that a construction proposal will be consistent with the objectives of this part."

FEDERAL POWER COMMISSION ANALYSIS

Section 409 deals with extra-high-voltage (EHV) facilities, which are defined in section 401(e). By virtue of that definition, section 409 will not govern EHV facilities whose construction starts within 2 years of enactment of Part IV. Subsection (a) would require any person proposing the construction of such facilities to file with the Commission, two years before it proposed to start construction, or at such other time as the Commission directed, its construction proposal. The proposal would include such information, including information as to the routing of the proposed line, as the Commission required to determine whether the construction and operation proposed was consistent with a plan developed by a regional council and with the objectives of Part IV, the filing would also state whether the proponent elected to seek rights-of-way under section 409(e), which provide for Federal eminent domain and for the securing of rights-of-way over Federal lands. Notice of a filing and of subsequent changes would appear in the Federal Register and be served on appropriate regional councils, Federal, state and local agencies, and any other interested persons, as the Commission required. Any interested person would have 60 days in which to comment on the filing.

Section 409(b) would prohibit the construction of any extra-high-voltage facility within 6 months after acceptance of a filing under subsection (a), and for such additional period during which a Commission suspense order was in effect. The Commission would issue a suspense order whenever the proponent elected to seek rights-of-way under subsection (e), or when the Commission concluded, in its discretion, within six months after the filing, that the proposal was inconsistent with an approved plan developed by a regional council or appeared otherwise not to be consistent with the objectives of Part IV. The order would summarize the Commission's reasons for the finding, and would be effective for an initial period, fixed in the Commission's discretion but not more than 12 months. The effectiveness of a suspense order that has not yet expired by its own terms could be extended by an order of the Commission recommending specific modifications in the project and setting forth conditions for its approval, or scheduling the matter for formal hearings, or both. In such a case, the proposal would remain suspended until ultimate disposition of the matter by the Commission. The Commission could, however, after public notice and consideration of such comments as were received within 30 days, terminate the suspense order on a finding that the proposal would be consistent with the objectives of Part IV.

COMMENT

The standards to govern the construction of all transmission lines over 200 Kv in the country will require conformity with (1) a regional plan and (2) all of the broad objectives of the bill. The minimum period of time between filing and construction is two years, the maximum time between

filing and a Commission order is unlimited. While subsection 409(b) states that construction may commence in some cases six months after *acceptance of filing*, the filing itself must be made two years before construction is proposed and undoubtedly the public notice would state the construction date. Within six months after *acceptance of filing* the Commission "*in its discretion*" may issue a suspense order for twelve months. Any of several actions by the Commission within the twelve month period will extend the suspense order indefinitely.

It may be thought at first reading that the Commission must act within six months of filing to issue a suspense order. Such is not the case. It has six months after *acceptance of filing*. The way this procedure works currently under section 205 of the Federal Power Act, which gives the Commission thirty days within which to suspend a rate filing, is for the Commission staff simply not to accept the filing until its memorandum to the Commission is prepared recommending suspension, in some cases many months. The threatened alternative if a utility objects is staff rejection of the filing for failure to comply with the regulations. This is the significance of the use of the term "acceptance for filing".

It is clear that the Commission's suggested modifications under subsection 409(b) would have the force of edicts. In order to test the validity of a suggested modification, the utility would have to forego constructing the line even though the construction of the line at that time was necessary to fulfill the utility's obligation for service. A staff suggested modification would have the same effect since the proceeding which leads to a Commission order recommending modification is unilateral between the staff and the Commission.

Furthermore, the language of section 409(a), which permits the Commission to prescribe "such other time" for filing a proposal, will permit the Commission to require filings more than two years prior to proposed construction.

It is unfortunate that the Commission in drafting the Bill has not offered the industry a way to shorten the lead times that are increasingly adversely affecting the ability of the industry to keep pace with growing customer demand. This particular provision not only is an example of this failure, but also does not reflect normal industry practice. In most instances every effort is made by the utility to avoid condemnation and where this right is available to the utility it is only exercised as a last resort where negotiations with the landowner have reached an impasse. However, under section 409(e) the utility must anticipate the exercise of condemnation two years in advance of the construction of the line. Further, if the utility makes such determination it subjects itself to an automatic suspension indefinite as to time. Under these circumstances, it is doubtful that the utility would make use of the Federal condemnation procedures.

TEXT

SECTION 409(c), (d), (e), (f)

"(c) In reviewing extra-high-voltage facilities proposals, the Commission shall use informal procedures, including joint or separate conferences, to the fullest extent feasible. However, the Commission shall not finally disapprove a proposal or confer rights-of-way under this section except after notice and opportunity for hearing.

"(d) At or before the end of the period specified by the suspense order the Commission may issue an order recommending specific modifications in the proposal and setting forth conditions for its approval or setting the matter for hearing. If such modifications and conditions are accepted by the proponent, the Commission shall approve the proposal as modified and terminate the suspense order forthwith. If the modifications and conditions are not accepted by the proponent or if the Commission schedules a formal hearing, the suspense order shall remain in effect until the Commission formally determines whether the proposal is consistent with the objectives of this part and issues a final order permitting or prohibiting the construction of the proposed facilities.

"(e) If the Commission at any time determines by order, after notice and opportunity for hearing, that the proposed construction of extra-high-voltage facilities is consistent with the objectives of this part, the proponent may secure necessary rights-of-way over Federal or other lands as provided below.

"(i) If the proponent thereafter cannot acquire by contract, or is unable to agree with the owner of property as to compensation to be paid for the necessary right-of-way or other property to construct, operate, and maintain such extra-high-voltage facilities, it may acquire the same by the exercise of the right of eminent domain in the district court of the United States for the district in which such property may be located, or in the State courts. In any such proceeding brought in a district court of the United States, the petitioner may file with the petition or at any time before judgment a declaration of taking in the manner and with the consequences provided by sections 258a, 258b, and 258d of title 40, United States Code, and the petitioner shall be subject to all of the provisions of said section which are applicable to the United States when it files a declaration of taking thereunder.

"(ii) The construction and operation of such extra-high-voltage facilities located partly or wholly within the lands or reservations of the United States is authorized subject, in addition to the applicable requirements of this part, to such reasonable land use conditions relating to nonpower matters as prescribed by the department or agency administering the lands or reservations affected which the Commission shall include in its order. The department or agency administering the lands or reservations affected by such order shall have a period of sixty days after its issuance to protest its terms on the grounds only that it fails to give due regard to the preservation of identified esthetic or historic values. Such protest shall have the effect of staying the order until the protest shall be withdrawn.

"(f) Whenever the Commission determines that emergency conditions so require, the Commission shall have authority, upon its own motion or complaint, with or without notice, hearing, or report, and upon such conditions as the Commission deems necessary or appropriate, to exempt persons from any requirements of this section. For purposes of this section, emergency conditions shall be deemed to exist by reason of a sudden increase in the demand for electric power or energy, shortage of electric power or energy, a shortage of facilities or materials for the generation or transmission of electric power or energy including a shortage of fuel or water for generating facilities, or other causes."

FEDERAL POWER COMMISSION ANALYSIS

Section 409(c) would direct the Commission to use informal procedures, including joint or separate conferences, to the fullest extent feasible in dealing with extra-high-voltage facilities applications under section 409. Notice and opportunity for hearing, however, would be required before the Commission could finally disapprove a proposal or confer rights-of-way.

Section 409(d) would permit the Commission, at or before the period of suspension designated by the suspense order, to issue an order recommending specific modifications to the proposal and setting forth conditions for its approval, or to issue an order setting the matter for hearing. (Under the terms of section 409(b), this order would extend the effectiveness of the suspension.) If the modifications and conditions were accepted by the proponent, the Commission would be required to approve the proposal as modified and terminate the suspense order forthwith. If the modifications and conditions were not accepted, or if the Commission itself, set the matter for hearing, the suspense order would remain effective until the Commission formally determined whether the proposal was consistent with the objectives of Part IV and issued a final order permitting or prohibiting the construction of the proposed facilities.

Section 409(e) sets forth the procedures which are available for obtaining rights-of-way. These procedures need not be used by the proponent of an extra-high-voltage construction project, but if the proponent did elect to use them a suspense order would be issued automatically. The subsection provides that, if the Commission at any time determined (after notice and opportunity for hearing) that a proposal was consistent with the objectives of Part IV, the proponent

could secure rights-of-way over any lands except those owned by the United States by an eminent domain proceeding in the Federal district court of the district in which the land was located. The condemnor would be permitted to use the declaration of taking procedure provided by 40 USC 258a, 258b, and 258d. Alternatively, eminent domain proceedings could be brought in the state courts. Where a right-of-way over Federal lands was required, the finding that the proposal was consistent with the objectives of Part IV would automatically allow the proponent to have such right-of-way, subject to the applicable requirements of Part IV and such reasonable land-use conditions relating to non-power matters as the Federal department or agency responsible for the lands affected prescribed. The Commission would include these conditions in its order. The administering department or agency would also have the right to protest within sixty days, only on the grounds that the Commission's order failed adequately to protect identified aesthetic and historic values. A protest would, until withdrawn, stay the Commission's order.

Section 409(f) would permit the Commission, when it determined that emergency conditions so required, to exempt persons from any requirements of section 409. It could do so on its own motion or on complaint, with or without notice, hearing or report, and on such conditions as it deemed necessary or appropriate. An emergency, for purposes of this subsection, would exist by reason of a sudden increase in demand for power or energy, a shortage thereof, a shortage of facilities or materials for generation or transmission of power or energy, including a shortage of fuel or water for generation, or other causes. The wording of this subsection is largely based on section 202(c) of the present Federal Power Act.

COMMENT

The comments pertaining to the preceding subsection are also applicable here. There are no time limitations specified once the Commission issues an order upon *ex parte* application by its staff during the suspense period. There is no requirement that modifications so proposed must be reasonable or meet any other standard and there is no appeal from such orders until after a decision by the Commission on the merits of a proposal. A protest by a federal government department or agency on the grounds of aesthetics or preservation of historic values can block a right of way application across federal lands indefinitely since it stays any final order until the protest is withdrawn.

It should be noted that in many cases it will be necessary to get approval of a transmission proposal prior to construction of a large generating plant or risk being unable to get the power from the plant. There is no limitation on the length of line requiring approval and every short spur will be subject to all of the delays or indefinite postponement inherent in the bill.

No mention is made in the bill concerning state or local requirements, including zoning ordinances. Duplicative proceedings with inconsistent judgments could occur. If the bill is intended to preclude state or local requirements the bill should clearly spell this out. If both procedures are to be left extant, a town or property owner not satisfied with the results in state proceedings, would still have the right to a hearing on land use issues before the Commission even if federal condemnation were not requested.

Another cause for delays has already been mentioned in connection with the opportunity for hearings required for approval of regional plans. Once land use and aesthetics become issues, every property owner has a right to be heard. While state and local procedures have been developed to protect these interests, the procedures are applied in a multiplicity of forums, thus avoiding an unmanageable burden being placed on any one forum. The Commission is now proposing itself as the single forum to hear and decide such matters on a countrywide basis for all lines over 200 Kv, using its rather cumbersome procedures of application, public notice, petition to intervene, answer to petition to intervene, order fixing hearing date, prehearing conference, hearing, briefs to the Presiding Examiner, reply briefs to the Presiding Examiner, Initial Decision by the Presiding Examiner, Exceptions to the Initial Decision, Reply to Exceptions, Commission's Opinion and Order, petition for rehearing, and final order. The time interval for each stage varies with each case, but when the issues are considered difficult by the Commission the time interval between just the replies to exception and a Commission Opinion may exceed two years. In one case the Commission, after over two years, issued an Order postponing its decision indefinitely subject to appeal. *Alabama Power Company Project No. 82*, Order issued January 20, 1966. It is questionable whether individual rights will be better protected by this cumbersome machinery, but there is no question concerning the delays inherent in it — even if the Commission's legal, engineering staff and number of presiding examiners is increased many fold just to handle land use questions.

Section 409 is so broad that any promotional group could apply for the right to construct any line publicized in an approved regional plan and, if favored by the Commission, could be granted the federal eminent domain power. Other utilities could be required to interconnect with such persons, under the provisions of Section 411 on such terms and conditions as the Commission may prescribe.

SECTION 410

TEXT

"Whenever an issue arises, formally or informally, as to land use, including esthetic considerations, either in the regional planning process under section 404 or the review of extra-high-voltage facilities proposals under section 409, the Commission shall entertain written comments by Federal, interstate, State, and local agencies responsible for land use planning in the affected region. The Commission shall defer to the views of the responsible Federal, interstate, State, or local agency, if any, to resolve local land use matters unless the Commission determines that a particular resolution would be inconsistent with the objectives of this part. The Commission may use joint boards, as contemplated by section 209 of this Act, to resolve land use questions which come before it."

FEDERAL POWER COMMISSION ANALYSIS

Section 410 would set up a mechanism for determining questions of land use arising either in the regional planning process under section 404 or in the review of extra-high-voltage facilities proposals under section 409. Land use questions for these purposes, would include aesthetic considerations. Whenever such a question arises, formally or informally, the Commission would entertain written comments by Federal, interstate, state and local agencies responsible for land use planning in the affected region. The Commission would defer to the views of the responsible agency, if any existed, to resolve local land use questions unless it determined that a particular solution would be inconsistent with the objectives of Part IV. The subsection would also permit the use of joint boards of State and federal officials, as contemplated in section 209 of the Federal Power Act, to resolve land use questions.

COMMENT

Issues of land use and aesthetics are serious and important ones. They arise in connection with new facilities such as highways, railroads, transmission lines, industrial plants, buildings, signs, etc. The electric utility industry recognizes its responsibilities in this regard and, since often it becomes a matter of economics for the industry and its customers, the industry also recognizes that it is appropriate that continuing attention be given to the subject of public regulation of land use. For the reasons set forth in the comment on section 409, the FPC is not the appropriate forum.

The Commission has used joint boards under section 209 only once. In that case, the State Commission members arrived at a decision which differed from that of the Commission by a substantial amount. The utility involved is now required to comply with the different orders of both the State and Federal Commission. See Montana Power Company, 4FPC 275.

SECTION 411

TEXT

"Whenever the Commission, after notice and hearing had, upon its own motion, or upon complaint, finds such action necessary or appropriate to carry out the objectives of this part, it may by order direct any person engaged in the generation or transmission of electric energy (if the Commission finds that no undue burden will be placed upon such person thereby) to establish physical connection of its transmission facilities with the facilities of one or more other persons engaged in the generation, transmission, or sale of electric energy, to sell energy to or exchange energy with such persons. The Commission may prescribe the terms and conditions of the arrangement to be made between the persons affected by any such order."

FEDERAL POWER COMMISSION ANALYSIS

Section 411 would permit the Commission, after notice and opportunity for hearing, to direct any person engaged in generation or transmission of electric energy to establish physical connection of its facilities with those of another person or persons engaged in generation, transmission or sale of electric energy, to sell energy to or exchange energy with such person. The Commission could do so on its own motion or on complaint, but would have to find that no undue burden would be imposed on the respondent by the interconnection order. It would also have to find that this action was necessary or appropriate to carry out the objectives of Part IV. The Commission could prescribe the terms and conditions of the arrangement to be made between the parties affected by the order. This section is largely based upon section 202(b) of the present Federal Power Act.

COMMENT

Section 411 does not contain any standards other than the broad objectives of Part IV as a basis for the Commission's prescription of the "terms and conditions of the arrangements to be made between the persons affected by" its orders. Section 202(b) of the Federal Power Act now provides the Commission with the authority to order interconnections upon motion of a State Commission or any person engaged in the transmission or sale of electric energy with the proviso, however, that the Commission cannot compel enlargement of generating facilities or compel a utility to sell or exchange energy if its own ability to render adequate service would be impaired. Section 411 does not have any of these safeguards, and there appears to be little reason to give the Commission power on its own motion to compel such interconnections. Under section 411, the Commission could compel two parties which do not desire interconnections to interconnect and issue federal orders in situations where there was no indicated local desire.

Part IV is stated to be separate from the other parts of the bill and accordingly as now drafted section 202(b) and section 411 would both be in the bill and would cover about the same ground. Section 411 is thus not needed and if any changes are required, they should be made by amendment to section 202(b).

TEXT

SECTION 412

"No person engaged in the generation or transmission of electric energy shall abandon or curtail any bulk power supply service, or abandon all or any part of its bulk power supply facilities if it would thereby effect the abandonment, curtailment, or impairment of bulk power supply service, without obtaining the advance approval of the Commission after notice and opportunity for hearing, upon a finding by the Commission that such abandonment or curtailment is consistent with the objectives of this part."

FEDERAL POWER COMMISSION ANALYSIS

Section 412 would prohibit the abandonment of any bulk power supply service, or of any part of a person's bulk power supply facilities, if the effect would be abandonment, curtailment, or impairment of bulk power service, without the advance approval of the Commission. Approval could be granted after notice and opportunity for hearing, on a finding that the abandonment or curtailment would be consistent with the objectives of Part IV. This section is based on section 7(b) of the Natural Gas Act, 15 USC 717f(b).

COMMENT

This section can only impede bulk power service and cause uncertainty in planning and maintaining electric utility services. Services are rendered under contract between utility systems. If the termination date in contracts has no meaning, a utility must plan many years in advance to continue a service even though the other party refuses to contract for it or does not believe it needs it.

Many utilities purchase bulk power supply on a short-term basis pending construction of their own generating facilities, or the making of other arrangements for such supply, or during the existence of an emergency. In these cases the arrangements themselves provide for the termination of such supply. Yet under this section such supply could not be terminated without the advance approval of the Commission after notice and opportunity for hearing. This limitation raises many questions. For example:

When would one have to apply to abandon any short-term supply of capacity of one year or less?

When would one apply and receive an order for abandonment of a longer term contract?

Would a purchaser pay for reserve capacity it no longer needs while it is being held available pending Commission findings and order?

Must a utility purchase power if necessary to maintain a service pending Commission findings and order?

Would an application be necessary to retire an uneconomical generating unit in order to avoid possible penalty upon a later finding that such retirement effected a "curtailment or impairment" of such services?

The delays inherent in Commission proceedings will militate against short term sales of excess capacity or special service arrangements.

SECTION 413

TEXT

"In order to avoid excessive burdens upon persons engaged in bulk power supply, upon regional councils and upon the public, the Commission may by rule exempt from any requirement of this part or any rule or regulation prescribed thereunder, any facilities, activities, or persons, whenever it determines after public notice and opportunity for hearing that such exemption is necessary and appropriate to carry out the objectives of this part. The Commission may attach conditions to any exemption and may by order, after public notice and opportunity for hearing, revoke any such exemption."

FEDERAL POWER COMMISSION ANALYSIS

Section 413 would give the Commission power to exempt facilities, persons or activities from any requirement of Part IV or from any rule or regulation thereunder, in order to avoid excessive burdens on persons engaged in bulk power supply, regional councils, and the public. It could issue such exemptions, by rule, after notice and opportunity for hearing and on determining that the exemption was necessary and appropriate to carry out the objectives of Part IV. Conditions could be attached to an exemption, and it could, after notice and opportunity for hearings, be revoked.

This section could be the basis for exemption of classes of facilities falling within the terms of the proposed bill, but not material to its objectives. Many lines, for example, that supply power to a single industrial customer having no generation of its own might fall within the definition of extra-high-voltage facilities; yet it might be appropriate to exempt some or all of them.

COMMENT

While we agree that exemption provisions generally are desirable, this section of the bill, like earlier sections, is extremely broad and does not indicate what the basis will be for the Commission's action in exempting persons, facilities or activities from the operation of the bill. As drawn, the section appears to give the Commission complete discretion to determine what persons, activities or facilities shall be subject to the authority of the Commission.

EAST CENTRAL AREA

RELIABILITY COORDINATION AGREEMENT

APPALACHIAN POWER COMPANY,
THE CINCINNATI GAS & ELECTRIC COMPANY,
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY,
COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY,
THE DAYTON POWER AND LIGHT COMPANY,
DUQUESNE LIGHT COMPANY,
EAST KENTUCKY RURAL ELECTRIC COOPERATIVE
CORPORATION,
INDIANA & MICHIGAN ELECTRIC COMPANY,
INDIANA-KENTUCKY ELECTRIC CORPORATION,
INDIANAPOLIS POWER & LIGHT COMPANY,
KENTUCKY POWER COMPANY,
KENTUCKY UTILITIES COMPANY,
LOUISVILLE GAS AND ELECTRIC COMPANY,
MONONGAHELA POWER COMPANY,
NORTHERN INDIANA PUBLIC SERVICE COMPANY,
OHIO EDISON COMPANY,
OHIO POWER COMPANY,
OHIO VALLEY ELECTRIC CORPORATION,
PENNSYLVANIA POWER COMPANY,
THE POTOMAC EDISON COMPANY,
PUBLIC SERVICE COMPANY OF INDIANA, INC.,
SOUTHERN INDIANA GAS AND ELECTRIC COMPANY,
THE TOLEDO EDISON COMPANY, and
WEST PENN POWER COMPANY

Dated August 1, 1967

Superseding, for the purpose of making East Kentucky Rural Electric Cooperative Corporation a party thereto, the East Central Area Reliability Coordination Agreement dated January 14, 1967, among all of the above except that corporation.

EAST CENTRAL AREA RELIABILITY COORDINATION AGREEMENT, dated August 1, 1967, among APPALACHIAN POWER COMPANY, THE CINCINNATI GAS & ELECTRIC COMPANY, THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY, THE DAYTON POWER AND LIGHT COMPANY, DUQUESNE LIGHT COMPANY, EAST KENTUCKY RURAL ELECTRIC COOPERATIVE CORPORATION, INDIANA & MICHIGAN ELECTRIC COMPANY, INDIANA-KENTUCKY ELECTRIC CORPORATION ("IKEC"), INDIANAPOLIS POWER & LIGHT COMPANY, KENTUCKY POWER COMPANY, KENTUCKY UTILITIES COMPANY, LOUISVILLE GAS AND ELECTRIC COMPANY, MONONGAHELA POWER COMPANY, NORTHERN INDIANA PUBLIC SERVICE COMPANY, OHIO EDISON COMPANY, OHIO POWER COMPANY, OHIO VALLEY ELECTRIC CORPORATION ("OVEC"), PENNSYLVANIA POWER COMPANY, THE POTOMAC EDISON COMPANY, PUBLIC SERVICE COMPANY OF INDIANA, INC., SOUTHERN INDIANA GAS AND ELECTRIC COMPANY, THE TOLEDO EDISON COMPANY, and WEST PENN POWER COMPANY,

WITNESSETH :

0.01 Each of the parties owns an electric utility system engaged in the generation, transmission, and sale of electric power and energy in the East Central Area of the United States. They are hereinafter referred to collectively as the "*ECA Companies*".

0.02 The systems of the ECA Companies are interconnected directly or indirectly and are operated in synchronism pursuant to a number of separate agreements among two or more of such companies.

0.03 The parties recognize that while many of the benefits of interconnected operation have accrued to each of them under existing agreements, the primary objective of bulk power supply reliability can be effectively achieved only among a manageable number of electric systems within a major area of reasonable geographical boundaries, in this instance the systems within the East Central Area, and through the mechanism of a well-defined organization with agreed-upon procedures for implementing this objective.

ARTICLE 1

PURPOSE OF AGREEMENT

1.01 The purpose of this Agreement is further to augment reliability of the parties' bulk power supply through coordination of the parties' planning and operation of their generation and transmission facilities.

ARTICLE 2

EXECUTIVE BOARD

2.01 Each party by written notice to the others shall designate, and may change at any time, a person to act as its member on a group to be known as the Executive Board. OVEC and IKEC shall be represented by the same person. Other affiliated parties comprising single systems likewise shall be represented in each instance by the same person. Each party's member shall have authority to act for it in the administration of all matters pertaining to this Agreement and to perform such other duties as are hereinafter specified. The initial members of the Executive Board shall be appointed within fifteen days after the execution of this Agreement. Each member of the Executive Board may, at any time, designate an alternate to act for him.

2.02 The members of the Executive Board periodically will select one of their number to serve as Chairman, and one as Vice Chairman, each for a term not to exceed three years.

2.03 The members of the Executive Board shall meet quarterly and from time to time as required to carry out their duties. Meetings shall be called by the Chairman on his own initiative or upon request of two or more members of the Board. As far in advance of each meeting as practicable an agenda therefor shall be distributed to each member.

2.04 The Executive Board shall establish, within one year after the execution of this Agreement and thereafter periodically review, principles and procedures with respect to matters affecting the reliability of bulk power supply, including, but not limited to, minimum installed capacity and spinning reserves to be provided by each party by ownership or contract, the distribution of spinning reserves, coordination of generation and transmission maintenance, emergency measures, communications, protection, and the evaluation and simulated testing of systems' performance.

The Executive Board shall from time to time establish and periodically review such other principles and procedures as it may deem necessary for the purpose of this Agreement as set forth in *Article 1*.

2.05 Decisions of the Executive Board in any calendar year shall require the affirmative votes of members, or their alternates, represent-

ing parties to this Agreement whose non-coincident peak loads for the previous calendar year aggregated at least 95% of the total of such loads of all parties to this Agreement.

2.06 The expenses of each member of the Executive Board and his alternate shall be borne by the party or parties he represents. Any other expenses of the Executive Board shall be shared as agreed upon by the Board.

ARTICLE 3

COORDINATION REVIEW COMMITTEE

3.01 Each party by written notice to the Executive Board shall designate, and may change at any time, a person to act as its member on a group to be known as the Coordination Review Committee. OVEC and IKEC shall be represented by the same person. Other affiliated parties comprising single systems likewise shall be represented in each instance by the same person. The initial members of the Coordination Review Committee shall be appointed within thirty days after the execution of this Agreement. Each member of the Coordination Review Committee may, at any time, designate an alternate to act for him.

3.02 The Executive Board periodically will select a member of the Coordination Review Committee to serve as Chairman, and one as Vice Chairman, of such Committee. The term of any Chairman, unless otherwise agreed to by the Executive Board, shall not exceed three years.

3.03 The Coordination Review Committee shall schedule a meeting for each calendar month and its members shall otherwise communicate with one another as required to carry out their duties. Meetings shall be called by the Chairman on his own initiative or upon request of two or more members of the Committee.

3.04 The Coordination Review Committee shall on a continuing basis:

(1) make recommendations to, and otherwise advise, the Executive Board with respect to the principles and procedures to be established by it pursuant to *Section 2.04*;

(2) in conjunction with each party, review and evaluate such party's planning for generation and transmission facilities and other matters relevant to the reliability of the ECA Companies' bulk power supply; and

(3) perform studies and investigations concerning over-all adequacy of transmission facilities, generation reserves, and operating practices and procedures and make recommendations to the Executive Board with respect thereto.

3.05 To enable the Coordination Review Committee to carry out its duties, the parties shall furnish said Committee such studies and data as it shall reasonably request, including but not limited to, technical studies of system performance under normal and abnormal conditions or under contingencies which would endanger service to major portions of the areas served by ECA Companies, and data on current and projected loads, system equipment capabilities, capability margins, spinning reserves, relay settings controlling major facilities, communications facilities, recording facilities and instructions to operating personnel. Except as otherwise authorized by the Executive Board, such studies and data shall be used solely for the purpose of carrying out the terms of this Agreement.

3.06 Committee recommendations pursuant to *Sections 3.04(1)* and (3) shall be adopted, and other Committee action taken, by a two-thirds vote of the members. Dissenters may submit minority reports.

3.07 The expenses of each member of the Coordination Review Committee and his alternate shall be borne by the party or parties he represents. Any other expenses of the Committee shall be shared as agreed upon by the Executive Board.

ARTICLE 4

ADVISORY PANELS

4.01 The Coordination Review Committee shall from time to time appoint Advisory Panels of technical experts to assist the Committee in carrying out its duties. Within forty-five days after the execution of this Agreement the Committee shall appoint a System Reliability Advisory Panel, a Generation Advisory Panel, a Transmission Advisory

Panel, a Protection Advisory Panel, and an Operation Advisory Panel. Appointments to the Advisory Panels shall be subject to the approval of the Executive Board.

4.02 Each Advisory Panel shall consist of not more than seven members. The Coordination Review Committee shall advise the parties in writing of the persons who are to act as members of each Advisory Panel. Each member of an Advisory Panel may, at any time, designate an alternate to act for him in the event of his incapacity.

4.03 The Coordination Review Committee will select a member of each Panel to serve as Chairman of such Panel. The term of any Chairman, unless otherwise agreed to unanimously by the Coordination Review Committee, shall not exceed three years.

4.04 The specific duties of each Panel shall be determined by the Coordination Review Committee, and a written description thereof shall be furnished to each member of such Panel and to the Executive Board.

4.05 The expenses of each member of an Advisory Panel shall be borne by the party by whom he is regularly employed. Any other expenses of a Panel shall be shared as agreed upon by the Executive Board.

ARTICLE 5

EXECUTIVE MANAGER

5.01 The Executive Board shall within forty-five days after the execution of this Agreement appoint an Executive Manager who under the direction of the Chairman of the Coordination Review Committee shall, on a full-time basis:

(1) keep fully informed with respect to matters affecting bulk power reliability in the ECA Companies' area,

(2) assist the ECA Companies in following and carrying out the principles and procedures established by the Executive Board pursuant to *Section 2.04*,

(3) assist the Coordination Review Committee and its Advisory Panels by furnishing data and suggestions based on his observations of system performance and in general assist the Committee in carrying out its duties under *Section 3.04*,

(4) collect, consolidate, analyze, and distribute studies and data pertinent to his responsibilities furnished the Coordination Review Committee pursuant to *Section 3.05*, and

(5) perform such other duties as shall be set forth in a job description approved by the Executive Board.

5.02 Quarters shall be provided for the Executive Manager and his staff at a place within the East Central Area to be selected by the Executive Board.

5.03 The salaries and office expenses of the Executive Manager and his staff shall be shared as agreed upon by the Executive Board.

ARTICLE 6

INTER-AREA COORDINATION

6.01 The parties recognize that attainment of their objectives requires continued cooperation between them and other companies outside the East Central Area and particularly cooperation between the parties hereto and companies outside the Area with whose systems they are directly interconnected. Accordingly, the ECA Companies will endeavor to bring about periodic reviews with coordinated areas contiguous to the East Central Area of generation and transmission expansion programs and systems performance to the end of further augmenting reliability of bulk power supply for all. In this connection the parties will attempt to establish liaison arrangements between the Coordination Review Committee and authorized groups in coordinated areas contiguous with the East Central Area.

ARTICLE 7

TERM

7.01 This Agreement shall continue for five years from its date and thereafter until terminated by unanimous agreement of the parties, but any party to this Agreement may cease to be such by giving the others at least 30 days written notice of its intention. Any such party shall nevertheless continue to be liable for its share of expenses incurred prior to the end of the calendar year in which such notice is given.

ARTICLE 8

GENERAL

8.01 No party shall be liable for the failure of any other party to perform its obligations hereunder.

8.02 Each party shall retain sole control over its own facilities and the use thereof.

8.03 This Agreement supersedes the East Central Area Reliability Coordination Agreement dated January 14, 1967, among all of the parties hereto except East Kentucky Rural Electric Cooperative Corporation.

ARTICLE 9

ASSIGNMENT

9.01 Any party may assign this Agreement to a successor corporation acquiring its property and business substantially as an entirety, provided such successor corporation assumes all obligations of the assignor under this Agreement. Except as aforesaid no party shall assign this Agreement without the prior written consent of the other parties.

ARTICLE 10

ADDITIONAL ARRANGEMENTS

10.01 Each ECA company will study the possibility of additional arrangements between its system and one or more systems of ECA Companies contiguous with its own that will contribute to achieving the objective of the parties to render reliable service and that will also contribute to operating economies to the fullest extent consistent with that objective. Such arrangements pertain, among other things, to such matters as ownership and operation of generation and transmission facilities, mutual assistance, and interchanges of electric capacity and energy for improvement of service and economy.

ARTICLE 11

REGULATION

11.01 This Agreement is subject to the approval of all regulatory authorities having jurisdiction in the premises.



ARTICLE

ORIGINAL

The following is a summary of the results of the study conducted by the author, which was designed to determine the effect of the various factors mentioned in the title upon the rate of absorption of the various drugs mentioned in the title.

The results of the study are as follows: The rate of absorption of the various drugs mentioned in the title was found to be influenced by the various factors mentioned in the title, and the rate of absorption was found to be directly proportional to the concentration of the drug in the solution.

ARTICLE

ORIGINAL

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