

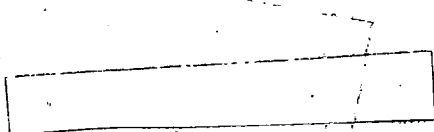
50-249

FEDERAL POWER COMMISSION

WASHINGTON, D.C. 20426

January 14, 1972

IN REPLY REFER TO:



Mr. Roger S. Boyd
Assistant Director for
Boiling Water Reactors
Division of Reactor Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Boyd:

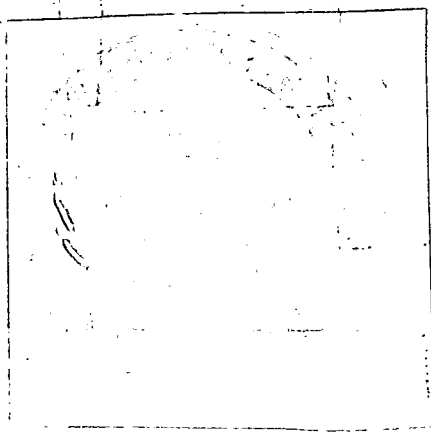
This is in accordance with your letter of November 4, 1971 requesting the comments of the Federal Power Commission on the supplemental statements filed by the Commonwealth Edison Company in connection with suspending or limiting the Dresden Unit No. 3 operating license pending completion of NEPA review.

The enclosed staff report, prepared by the Commission's Bureau of Power, evaluates the present need for power supplied by Dresden Unit No. 3 on the Applicant's system and the Mid-America Interpool Network (MAIN), the questionable availability of replacement power from others, and the estimated costs of such replacement power. The report illustrates the need for the requested continued operation of the 809-megawatt Dresden Unit No. 3 in meeting the expected peak loads during the 1972 summer season.

Very truly yours,

T. A. Phillips
T. A. Phillips
Chief, Bureau of Power

Enclosure
Staff Report on the Dresden
Nuclear Plant Unit No. 3

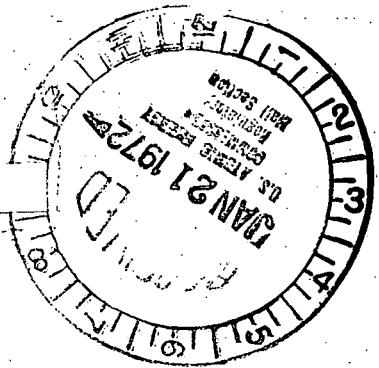


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FEDERAL POWER COMMISSION
BUREAU OF POWER



Report on the Dresden Nuclear Plant Unit No. 3
and Possible Effects of Suspended or
Limited Operation During NEPA Review

Received by Mr. Boyd 1-14-72

On November 4, 1971, Mr. Roger S. Boyd, Assistant Director for Boiling Water Reactors, Division of Reactor Licensing, U. S. Atomic Energy Commission, forwarded to the Federal Power Commission for comment the supplemental statements filed by the Commonwealth Edison Company of Chicago in connection with suspending or limiting the Dresden Unit No. 3 license pending completion of NEPA review.

These comments update those submitted by the Federal Power Commission on September 10, 1970, regarding the Dresden No. 3 unit and extend the period of analysis through the summer of 1972. We understand the environmental aspects of this plant are currently undergoing supplemental analysis in which the AEC wishes to consider such factors as: the effect of suspending or limiting facility operation upon the public interest; particularly "the power needs to be served by the facility; the availability of alternative sources, if any, to meet those needs on a timely basis; and delay costs to the licensee and to consumers". Thus our comments are directed to these points in a review of the need for the facility as concerns the adequacy and reliability of both the Applicant's electric system, and the Mid-America Interpool Network (MAIN) of which the Applicant is a member. This is in accordance with the National Environmental Policy Act of 1969 and the Guidelines of the President's Council on Environmental Quality dated April 23, 1971.

Need for Dresden Unit No. 3

In preparing this report, the Bureau of Power staff has analyzed the supplementary testimony of Mr. Byron Lee Jr., Assistant to the President of the Commonwealth Edison Company, as contained in the Applicant's motion; the Monthly Power Statements submitted to the Commission by the Applicant; and related reports made in response to the Commission's April 1970 Statement of Policy on Adequacy and Reliability of Electric Service (Order No. 383-2).

The following tabulations show the load-supply situation for the Commonwealth Edison Company and the Mid-America Interpool Network (MAIN) for the forecast 1972 summer peak period with and without the Dresden Unit No. 3 capacity of 809 megawatts.

Although this analysis is directed to the 1972 Summer situation, the life of the Dresden No. 3 unit is expected to be some 35 years, and it is

expected to contribute a proportionate part of the Applicant's total generating capacity throughout that period. Therefore, it will be depended upon to supply power to meet future demands over a period of many years beyond the 1972 summer service needs discussed in this report.

The Commonwealth Edison Company, a summer peaking system, has forecast a 1972 summer peak load of 12,520 megawatts, including 330 megawatts of firm sales. With Dresden No. 3 operating at 100 percent capacity (809 MW) at the time of the system peak, reserves would be 2,107 megawatts or 16.8 percent of peak load.

The above data assumes that the Powerton Unit No. 5 (840 MW), a fossil fired unit scheduled for service in May 1972, meets this date and also assumes that all existing generating equipment on the system is operating. However, at the time of its 1971 summer peak, Commonwealth Edison Company's generating capability was 2,239 megawatts less than its nominal gross generating capacity because of unscheduled outages and deratings.

Without Dresden No. 3, the Commonwealth Edison Company would face the summer of 1972 with a reserve margin of 1,298 megawatts or 10.4 percent, about 450 megawatts short of the company's normal criterion for a reserve margin of 14 percent of peak load.

In addition to Dresden No. 3, Commonwealth's 1972 summer capacity depends on the inclusion of two other large nuclear units, Quad Cities No. 1 and 2, and the 840-megawatt fossil-fired Powerton No. 5 scheduled for commercial service in May 1972. With the addition of larger units, the probability of losing large increments of generating capacity by forced outages requires larger reserve margins just to maintain previous system reliability. Recent experiences with large new generating units indicates frequent forced outages of such units during the initial months of their operation. Further, earlier shortages of generating capacity have made it necessary for the company to delay maintenance of existing generating facilities which tends toward reduced reliability and increased forced outages.

The estimated 1972 summer peak reserve margin for the Mid-America Interpool Network (MAIN), of which the Applicant is a member, totals 4,123 megawatts or 14.6 percent of peak load, with Dresden No. 3 in operation, and 3,314 megawatts or 11.8 percent of peak load, if operation of Dresden No. 3 is suspended. Without Dresden No. 3, Quad Cities Units No. 1 and 2 and Powerton Unit No. 5 account for over 50 percent of the estimated Pool's reserve which is already short of the 14 percent reserve objective.

The limited reserves on both the Commonwealth Edison Company's and MAIN's Systems when reviewed from the standpoint of possible forced outages from equipment failures, such as the many major equipment outages from boiler leaks experienced by the pool's members in 1970, amplified

Forecasted 1972 Summer Peak
Load Supply Situation

	<u>Commonwealth Edison Co.</u>	<u>Mid-America Interpool Network (MAIN)</u>
<u>Conditions Without Dresden Unit No. 3</u>		
Net Dependable Capacity - Megawatts ^{1/}	13,818	31,505 ^{3/}
Peak Load - Megawatts ^{2/}	12,520	28,191
Reserve Margin - Megawatts	1,298	3,314
Reserve Margin - Percent	10.4	11.8
Company's Estimate of Needed Reserve Margin - Megawatts (14 percent of peak load)	1,753	3,947
Capacity Deficiency - Megawatts	455	633
<u>Conditions With Dresden Unit No. 3 (809 MW)</u>		
Net Dependable Capacity - Megawatts ^{1/}	14,627	32,314 ^{3/}
Peak Load - Megawatts ^{2/}	12,520	28,191
Reserve Margin - Megawatts	2,107	4,123
Reserve Margin - Percent	16.8	14.6

^{1/} Includes 11,494 MW, net dependable capacity for Commonwealth Edison Company as of 7/31/71, uprating of Dresden No. 2, 202 MW, aggregate capacity of Quad Cities No. 1 and 2, 1,214 MW and less retirements of 132 MW. Zion No. 1 is not included as recent rescheduling makes its availability to meet the summer peak load highly doubtful.

^{2/} Includes 12,190 MW forecasted summer 1972 peak load for Commonwealth Edison Company plus 330 MW firm sales.

^{3/} Includes Point Beach No. 2, 497 MW and Iowa-Illinois Gas & Electric Company's share of aggregate capacity of Quad Cities No. 1 and 2, 404 MW.

by the deferred maintenance, and the inclusion of large new units, indicates the need for maximum system capacity and the serious need for continued operation of Dresden Unit No. 3.

Though it is difficult to statistically compare deferred maintenance with increased forced outage time, there is a positive correlation. With Dresden Unit No. 3 permitted to continue operating, the additional capacity during the off-peak period this winter and spring would help the Company to complete needed maintenance work on other equipment.

Alternates to the Proposed Facilities

Within the time available, there are no known alternate additions of generating capacity which could be substituted for Dresden Unit No. 3.

The Applicant is a member of a Regional Reliability Council (MAIN) which coordinates its bulk power system plans to provide strong transmission connections to accommodate the relatively large power transfers which may be needed within its region and with adjoining regions to maintain bulk power supply reliability. This philosophy generally permits a lower reserve margin than might otherwise be required. However, the widespread nature of the projected low capacity reserves for MAIN and adjoining areas of the Nation during the 1972 summer peak period provides no assurance that any substantial assistance could be available from capacity outside the region. Delays in commercial operation of both fossil and nuclear units are likely in adjoining regions.

Sufficient time for installation of gas turbines is not available, since lead time for this capacity requires from 12 to 18 months. Even if adequate time were available, additional peaking capacity is not considered to be an effective solution to the base load capacity needed in the Applicant's system. Base-load generating capacity is needed to meet load growth and restore some flexibility to the system to permit a comprehensive maintenance schedule.

Conclusions

The Bureau of Power's staff is of the opinion that the continued availability of the 809-megawatt Dresden Unit No. 3 is needed to bolster reserves on the Commonwealth Edison Company and the MAIN systems during the 1972 summer peak. Without Dresden No. 3 both the Applicant and MAIN fall short of their normal reserve criterion of 14 percent of peak load.

The reserve margins are dependent upon several recently installed large generating units, and recent experiences with such units indicate frequent forced outages can be expected during their early operation. Peak loads

for the summer of 1972 are based on average weather conditions, and actual peaks can exceed the estimates during severe heat waves and because of temperature sensitive loads.

The factors examined indicate there is a need for the Dresden No. 3 unit to provide reasonable assurance of an adequate and reliable supply of electric power. The potential consequences of not having sufficient electric power in the system would include load shedding and inability to meet important power needs.

The Applicant reports that the economic costs of delaying operation of the Dresden No. 3 unit is estimated to be 31 million dollars as the incremental cost of replacement power (if available) over the period from January 1, 1972 to December 31, 1972. Sufficient information is not available to make a detailed analysis of the estimated fuel costs however, the relative order of magnitude of estimated replacement energy cost for a plant of this size is reasonable.


I. A. Phillips

January 3, 1972