



CHAIRMAN

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

PDR

June 30, 1981

The Honorable Tom Bevill, Chairman
Subcommittee on Energy and Water
Development
Committee on Appropriations
United States House of Representatives
Washington, D.C. 20515



Dear Mr. Chairman:

This monthly status report is in response to the direction given in House Report 96-1093. Our eighth monthly status report is enclosed and covers the period from May 15, 1981 to June 15, 1981. This eighth report discusses the actions that were taken during the last month on operating reactors and licensing reviews of new facilities.

During the report period, two licenses were issued: a full power license to Salem Unit 2 on May 20, 1981, and a five percent power license to McGuire Unit 1 on June 12, 1981.

Several Commission actions were taken in this period to improve the licensing process. On May 20, 1981, the Commission issued a Policy Statement providing specific guidance on the efficient conduct of licensing proceedings. Effective May 28, 1981, the Commission's Rules of Practice were amended to permit startup about two months sooner for plants with hearings which have received a favorable initial decision by the Atomic Safety and Licensing Board. On May 28, 1981, the Commission approved an amendment to Part 51 of its regulations, effective June 25, 1981, which removes the issue of alternative sites from consideration at the operating license stage of review. Effective June 8, 1981, the Commission's Rules of Practice were further amended to permit more timely completion of hearings. On June 8, 1981, the Commission also issued for public comment a proposed rule regarding several other amendments to facilitate expedited conduct of hearings.

Since this will be the last monthly status report that I will sign as Chairman, I would like to note two additional actions taken in the two weeks since the end of the report period. On June 25th, a five percent power license was issued to Sequoyah Unit 2. In directing this action, the Commission noted its intent to act on the full power license on a

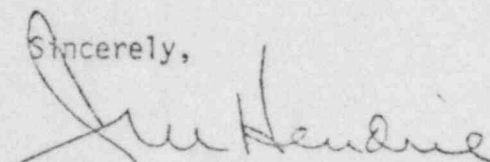
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The Honorable Tom Beville

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schedule commensurate with TVA's need for full power authorization and also its intent to reduce the present two-stage Commission review to a single stage by delegating the fuel loading and five percent operating licensing authority to the Director of Nuclear Reactor Regulation, this step to be taken as experience with the present review shows it to be justified. On June 29th, the Commission authorized a full power operating license for McGuire Unit 1.

Sincerely,



Joseph M. Hendrie

Enclosure:
NRC Monthly Status Report
to Congress

cc: The Honorable John T. Myers

NRC MONTHLY STATUS REPORT TO CONGRESS

This is the eighth monthly status report to Congress in response to the direction given in House Report 96-1093. This report provides a discussion of the major actions that were taken on operating reactors and on licensing reviews of new facilities during the period of time between May 15, 1981 and June 15, 1981.

OPERATING REACTORS

Pipe Breaks in the BWR Scram System

As reported last month, the NRC's Office of Analysis and Evaluation of Operational Data issued a report on April 3, 1981 entitled "Safety Concerns Associated with Pipe Breaks in the BWR Scram System." The report describes a potential sequence of events resulting in a degraded core condition. The sequence is based on a postulated break in the BWR scram discharge piping. A number of recommendations were made in the report to remedy the potential safety concerns.

A letter was sent to all BWR licensees on April 10, 1981 requiring a generic evaluation of the safety concerns within 45 days and a plant specific evaluation within 120 days. In response to the staff's request, the General Electric Company (BWR reactor vendor) provided on April 30, 1981 a generic analysis of the safety concerns associated with pipe breaks in the BWR scram system.

The staff is performing an accelerated review of the generic analysis and staff's safety evaluation report is scheduled to be completed by the end of June 1981.

OPERATING LICENSE APPLICATIONS

Licensing Schedules

During the past month, the emphasis on licensing activities continued to be on OL applications. The present licensing schedules for plants projected by utilities to be completed in 1981 and 1982 are given in Table 1, and the licensing schedules for plants projected to be completed in 1983 are given in Table 2. The potential delays between construction completion and projected issuance of a full-power license are presented based on the applicant's expected construction completion date.

Recently, two applicants reported revisions to their estimated construction dates. The estimated construction completion date for Shoreham Unit 1 has been revised from May 1982 to September 1982, and for Summer Unit 1, the date has been revised from August 1981 to November 1981. Both plants have been projected as being potentially delayed facilities. Because of the applicants' revisions of the construction completion dates, the three-month delay for Shoreham Unit 1 has been eliminated and the delay for Summer Unit 1 has been reduced from five to two months.

Proposed Rule for TMI-Related Requirements

The Commission is considering changes to its regulations that would incorporate TMI-related requirements which must be met by OL applicants. The requirements, which were previously approved by the Commission and referenced in its December 1980 Policy Statement, resulted from intensive reviews of the lessons learned from the TMI-2 accident and are in addition to those safety requirements already incorporated in the regulations. The proposed rule was issued for a 90-day public comment period on May 13, 1981 and is expected to reduce litigation related to these requirements in the licensing process.

Cost Estimates

The NRC is obtaining cost estimates associated with the licensing delays from the Department of Energy on a monthly basis. Their latest estimates, dated June 15, 1981, are set forth in Attachment 1.

Commission Actions to Improve the Licensing Process

During this reporting period, the Commission has taken a number of actions to improve the licensing process. Those actions are discussed below.

The Commission issued in the Federal Register on March 13, 1981, proposed amendments to its Rules of Practice that would aid in more timely completion of hearings. The staff analyzed the numerous comments that were received and prepared a final rule for Commission consideration. The Commission has approved the final rule, which adopts several of the proposed amendments to its Rules of Practice effective June 8, 1981. The adopted amendments (1) authorize the licensing boards to make oral rulings on written motions during the course of a prehearing conference or a hearing; (2) preclude parties from filing responses to objections to a prehearing order unless the licensing board so directs; (3) revise the schedule for filing proposed findings of fact and conclusions of law; and (4) permit summary disposition motions to be filed at any time during the course of the proceeding.

On May 20, 1981, the Commission issued a Statement of Policy on Conduct of Licensing Proceedings to emphasize the Commission's commitment to a hearing process which will produce sound licensing decisions in a fair and timely manner. Specific guidance in the Statement of Policy provides that (1) licensing boards should set and adhere to reasonable schedules for proceedings; (2) intervenors should be consolidated where appropriate, so that a lead intervenor can act for the group for issues that are substantially the same; (3) all parties are encouraged to negotiate various matters prior to and during the hearing; (4) boards should manage and supervise the discovery process; (5) settlement conferences should be used, where appropriate; (6) boards should issue timely rulings on all matters; (7) boards should encourage the parties to invoke the use of the summary disposition procedure, where appropriate; and (8) various devices should be encouraged, such as trial briefs, prefiled testimony outlines, cross-examination plans and combining rebuttal and surrebuttal testimony, to expedite the orderly presentation by each party.

The Commission has amended its Rules of Practice effective May 28, 1981, to permit more immediate operation of a nuclear power plant which has received a favorable Atomic Safety and Licensing Board Initial Decision on fuel loading and low-power testing or full-power operation. The amendment eliminates the review by the Atomic Safety and Licensing Appeal Board, previously directed by Appendix B to Part 2 of the Commission's Rules of Practice, for determining whether the effectiveness of the Licensing Board's Initial Decision should be delayed pending normal agency appellate review.

The Commission intends to decide on whether a favorable Initial Decision should become effective within 10 days for a fuel-loading and low-power testing license and within 30 days for a full-power license. The prior rules provided for such a Commission decision within 80 days since the time allowed for Appeal Board review was 60 days, followed by 20 days for Commission review. On May 28, 1981, the Commission approved an amendment to Part 51 of its regulations, effective June 25, 1981, which removes the issue of alternative sites from consideration at the operating license stage of review since it is no longer likely to be a reasonable alternative at that stage. The Commission also instructed the boards to not admit contentions nor raise the issue of alternative sites sua sponte at OL hearings.

The Commission issued in the Federal Register on June 8, 1981 several proposed amendments to its Rules of Practice for public comment. These proposed amendments would (1) require a person seeking intervention in formal NRC hearings to set forth the facts on which he bases his contentions and the sources and documents he uses to establish those facts; (2) limit the number of interrogatories that a party may file on another party in an NRC proceeding; and (3) permit the board to require oral answers to motions to compel and service of documents by express mail. The public comment period expires on June 29, 1981.

PLANT-BY-PLANT DISCUSSION OF DELAYED PLANTS

The following is a discussion of the status of each of the delayed facilities.

1. San Onofre Unit 2 - The FES was issued on May 6, 1981. The SSER was issued on May 8, 1981. On May 13, 1981, an emergency preparedness drill was performed for the San Onofre facility to evaluate the off-site capabilities of the State and local jurisdictions to respond to a nuclear emergency. On June 3, 1981, the Federal Emergency Management Agency (FEMA) issued an interim finding regarding the conduct of this drill. The FEMA finding states that State and local government radiological emergency response plans are minimally adequate; however, until corrective actions have been taken, the off-site capability for implementation of the plans is not considered adequate. The parties are evaluating the FEMA finding to determine the scope and schedule for the corrective actions to be taken. The results of these evaluations will determine the impact, if any, on the current projected licensing schedule. The hearing is scheduled to start on June 22, 1981. Based on the current schedule, a decision on the full-power license is projected for February 1982, which represents an eight-month projected delay for this facility.

2. Diablo Canyon Units 1 and 2 - An updated SER for low-power operation was issued March 5, 1981. The hearing for low-power operation began on May 19, and was concluded on May 22. The SER for full-power operation was issued April 2, 1981. The full-power hearing is scheduled to begin in September. A decision on a full-power license is projected for January 1982. A twelve-month delay is projected for Unit 1 and a three-month delay is projected for Unit 2.
3. Shoreham Unit 1 - The SER for Shoreham Unit 1 was issued on April 10, 1981 with 61 major open items requiring further information from the applicant. One of these items encompassed information relating to all post-TMI issues. Because of the large number and significance of the open items, the ACRS deferred its review of this case pending a more complete resolution of the open items. By June 1, 1981, the applicant provided its responses to most of the open items identified in the SER, including all of the TMI issues. The staff is presently reviewing the adequacy of these responses and is preparing the first supplement to the SER for the August ACRS meeting. A decision regarding a full-power license is projected for August 1982. Because of the applicant's revision of the estimated construction completion date from May 1982 to September 1982, the three-month delay which had been projected for this facility has been eliminated.
4. Summer Unit 1 - The SSER was issued on April 28, 1981. The FES was issued on May 21, 1981. The hearing is scheduled to start on June 22, 1981. A decision on a full-power license is projected for January 1982. Because of the applicant's revision of the estimated construction completion date from August 1981 to November 1981, the delay projected for this facility has been reduced from five to two months.

5. Susquehanna Unit 1 - The SER for Susquehanna Unit 1 was issued on April 10, 1981 with 103 open items. Because of the large number and significance of the open items, the ACRS deferred its review of this case pending a more complete resolution of the open items. The applicant has now provided the required information to resolve most of the items. The estimated construction completion date is April 1982. A decision on the full-power license is projected for June 1982. A two-month delay is projected for this facility.
6. Zimmer Unit 1 - SSER 1 was issued on June 4, 1981. The schedule for SSER 2 will be established following discussions with the applicant concerning its ability to submit additional information to close out the open issues. The hearing is scheduled to recommence in October 1981. A decision on the full-power license is projected for May 1982. A six-month delay is projected for this facility.
7. Waterford Unit 3 - The DES was issued on May 1, 1981. In March 1981, the schedule for SER issuance for Waterford Unit 3 was accelerated to May 30, 1981 to minimize the impact of the projected delay in issuance of an operating license. Due to the large number of open issues (over 50) still remaining, SER issuance for Waterford Unit 3 has been rescheduled from May 30, 1981 to July 6, 1981. This date was established by mutual agreement with the applicant and is based on a commitment by the applicant to provide adequate information by June 19 to close out most of the open issues. The estimated construction completion date is October 1982. A decision regarding a full-power license is projected for November 1982. A delay of one month is projected for this facility.

8. Comanche Peak Unit 1 - The DES was issued on May 15, 1981. Due to the large number of open issues (over 90) still remaining, SER issuance for Comanche Peak Unit 1 has been rescheduled from June 11, 1981 to July 8, 1981. The revised date, which has been established by mutual agreement of the applicant, is based on receiving adequate information from the applicant by June 19 to close out most of the open issues. The estimated construction completion date is December 1981. A decision regarding the full-power license is projected for October 1982. A ten-month delay is projected for this facility.

9. McGuire Unit 1 - The hearing for a full-power license was completed on March 19, 1981, and the ASLB issued a favorable initial decision on May 28, 1981. A five percent power license was authorized by the Commission on June 9, 1981 and was issued on June 12, 1981.

The Commission notes that the inability of the applicant to use the authority to load fuel and conduct zero power physics testing, which was granted by the Commission in January 1981, suggests that McGuire should not have been included as a delayed plant in this series of reports. Thus, each of our previous reports should be adjusted to show zero delay months for this unit attributable to the regulatory process.

FULL POWER LICENSES

Salem Unit 2

The Commission authorized the issuance of a full-power license to Salem Unit 2 on May 19, 1981. The license was issued on May 20, 1981.

Sequoyah Unit 2

The SSER for a full-power license for Sequoyah Unit 2 was issued on June 5, 1981. The applicant projects that Unit 2 will be ready for fuel loading in late June 1981. A five percent power license for Sequoyah Unit 2 was issued on June 25, 1981. A Commission decision on the issuance of a full-power license is projected for late June 1981.

CONSTRUCTION PERMIT APPLICATIONS

The Commission is completing its efforts to develop a new rule concerning the manner and extent to which new requirements resulting from the TMI-2 accident (TMI Action Plan) should be applied to pending CP and ML applications. The Commission published a proposed rule on TMI-related construction permit requirements in the Federal Register for public comment on March 23, 1981. The public comment period for the proposed rule expired April 13, 1981. The staff has reviewed the public comments that were received and has prepared a final rule for Commission consideration. Following a Commission decision on this rule, detailed schedules will be provided for the pending CP applications.

Tables:

1. Licensing Schedules CY 1981 - 1982 Plants
2. Licensing Schedules CY 1933 Plants

Attachment:

DOE Estimates of Costs Due to Licensing Delays

CY 1981 - 1982 PLANTS

Division of Licensing 6/16/81

TABLE 1

Plant	Estimated Delay (Months)	Issue DES	SER		ACRS Mtg	Issue FES	SSER		Start of Hearing	ASLB Initial Decision	Commission Decision Date	Applicant Construction Completion
			Staff Technical Input to DL	Issue SER			Staff Technical Input to DL	Issue SSER				
LaSalle 1	0	C	C	C	C	C	C	6/22/81	None	None	08/81	09/81
LaSalle 2	0	C	C	C	C	C	4/01/82	5/01/82	None	None	06/82	06/82
San Onofre 2	8	C	C	C	C	C	C	C	07/81	01/82	02/82	06/81
San Onofre 3	0	C	C	C	C	C	6/01/82	7/01/82	07/81	01/82	08/82	08/82
Diablo Canyon 1	12	C	C	C	C	C	C	C	09/81	12/81	01/82	01/81
Diablo Canyon 2	3	C	C	C	C	C	C	C	09/81	12/81	01/82	10/81
McGuire 1	0	C	C	C	C	C	C	C	C	C	06/82	06/82
McGuire 2	0	C	C	C	C	C	4/01/82	5/01/82	C	C	06/82	06/82
Shoreham 1	0	C	C	C 1/	8/06/81	C	8/20/81	8/28/81	01/82	07/82	08/82	09/82
Summer 1	2	C	C	C	C	C	C	C	06/81	12/81	01/82	11/81
Susquehanna 1	2	C	C	C 1/	8/06/81	6/15/81	8/20/81	8/28/81	10/81	05/82	06/82	04/82
Sequoyah 2	0	C	C	C	C	C	C	C	None	None	06/81 3/	06/81
Zimmer 1	6	C	C	C	C	C	C	C 2/	10/81	04/82	05/82	11/81
Waterford 3	1	C	6/19/81	7/06/81	8/06/81	8/08/81	8/19/81	9/18/81	03/82	10/82	11/82	10/82
Comanche Peak 1	10	C	6/19/81	7/08/81	8/06/81	8/12/81	8/19/81	9/18/81	01/82	09/82	10/82	12/81
Fermi 2	0	C	6/10/81	6/30/81	9/10/81	8/31/81	9/14/81	9/25/81	02/82	08/82	09/82	11/82
Grand Gulf 1	0	C	8/14/81	9/07/81	10/13/81	9/15/81	10/25/81	11/15/81	None	None	12/81	12/81
Callaway 1	0	9/25/81	9/11/81	10/09/81	11/12/81	1/15/82	11/20/81	11/27/81	04/82	09/82	10/82	10/82
St. Lucie 2	0	9/25/81	9/11/81	10/09/81	11/12/81	1/15/82	11/20/81	11/27/81	04/82	09/82	10/82	10/82
Watts Bar 1	0	C	9/11/81	10/09/81	11/12/81	C	11/26/81	12/11/81	None	None	01/82	06/82
Palo Verde 1	0	10/23/81	10/09/81	11/06/81	12/10/81	2/12/82	12/18/82	1/31/81	05/82	10/82	11/82	11/82
WNP-2	0	7/31/81	2/12/82	3/12/82	4/09/82	12/31/81	4/30/82	5/28/82	None	None	07/82	12/82

1/ SER has been issued; Pre-ACRS SSER is scheduled to be issued June 26, 1981

2/ SSER 1 was issued on June 4, 1981

3/ Low power license was issued on June 25, 1981

TABLE 2

CY 1983 PLANTS

DIVISION OF LICENSING - 6/15/81

Plant	Estimated Delay (Months)	Issue DES	Issue SER	ACRS MTG	ISSUE FES	Issue SSR	Start of Hearing	ASIB Initial Decision	NIC Decision Date	Applicant Construction Completion
Seabrook 1/2	0	11/81	01/82	02/82	03/82	02/82	01/82	12/82	01/83	11/83
Clinton 1	0	11/81	01/82	02/82	03/82	02/82	07/82	12/82	01/83	01/83
Wolf Creek 1	0	01/82	04/82	05/82	06/82	05/82	10/82	03/83	04/83	04/83
Byron 1/2	0	01/82	05/82	05/82	06/82	05/82	10/82	03/83	04/83	04/83
Perry 1/2	0	02/82	05/82	06/82	07/82	06/82	11/82	04/83	05/83	05/83
Midland 1/2	0	04/82	07/82	08/82	09/82	08/82	01/83	06/83	07/83	07/83
Catawba 1/2	0	05/82	08/82	09/82	10/82	09/82	02/83	07/83	08/83	08/83
So. Texas 1/2	0	06/82	09/82	10/82	11/82	10/82	03/83	08/83	09/83	09/83
River Bend 1/2	0	07/82	10/82	11/82	12/82	11/82	04/83	09/83	10/83	10/83

ATTACHMENT 1

ESTIMATES OF THE COSTS OF DELAYING
OPERATING LICENSES FOR NUCLEAR PLANTS

Prepared by
Division of Power Supply and Reliability
U.S. Department of Energy
June 15, 1981

This report is the third in a monthly series of estimates of the costs of delay in the issuance of operating licenses of the Nuclear Regulatory Commission (NRC). This month's report takes account of changes in the estimated length of delays and continues to provide Department of Energy (DOE) estimates of the costs of delay, in addition to revised estimates supplied by utilities.

Like the May report, this month's report does not include estimates of capital carrying costs that are incurred during the delay. These costs are not considered direct losses incurred during the delay.

Summary of Results

The most recently projected dates of issuance of operating licenses for new units would result in a loss of 41 months of reactor operation based on the utilities' projected dates of completion for 9 units. (This does not include the five additional months of loss of operation projected for the undamaged TMI 1 unit.) Last month's estimate was 52 months for these units.

The estimated cost of these delays, excluding TMI 1, is \$934 million, based on data obtained from the utilities in June, or \$812 million, based on independent DOE estimates. A direct comparison with last month's report can be made by adding the costs of TMI 1, and by applying the DOE cost estimates to last month's estimates of the length of delay, as follows:

	June 1981 Estimate (Excluding TMI-1)	June 1981 Estimate (Including TMI-1)	May 1981 Estimate (Including TMI-1)	Change
Units Delayed	9	10	12	-2
Months of Operation Lost	41	46	57	-11
Total Cost of Delays (\$MM) Based on				
-- Utility Data	934	1,019	1,301	-282
-- DOE Analyses	812	882	1,039	-157

The decrease is due to (1) Salem 2 receiving its operating license, (2) an initial earlier decision on the McGuire 1 unit having been made by the Atomic Safety and Licensing Board (ASLB), and (3) omission of costs incurred in May 1981 (since past costs are not included).

Length of Delay

The length of the delay--the number of lost months of reactor operation--is estimated in Table 1. For units still under construction, the delay is the interval between the utilities' projected date of completion (column 4) and the NRC's projected date of issuance of operating license (column 3). For units already completed, the delay is based on the period from and including June 1981 through the projected month of issuance of an operating license.

Last month's estimate of the licensing dates are shown in column 2. A net change of 10 months (excluding TMI 1) has occurred in the estimated total length of delay (column 5). The change is due to:

- Omission of past delays for the two units that are already complete (-2 months).
- The delay in construction of Shoreham 1, resulting in the unit no longer being impacted (-3 months).
- The granting of an operating license to Salem 2 (-1 month).
- The initial decision earlier than expected on McGuire 1 by the ASLB, with a final decision now expected in June (-1 month).
- The delay in construction of Summer 1 (-3 months).

Direct Costs of the Delay

The cost of a delay in issuing an operating license after a plant is physically complete is equal to:

- o The total costs the entire utility system (or systems, if the unit is jointly owned) would incur to satisfy its customers' energy requirement, based on the delayed licensing schedule, minus
- o The total costs of satisfying the same energy requirement if the license had been issued when the plant was complete

This cost differential is affected only by cost elements that change as a result of the delay--for example, fuel, purchased power, maintenance, and other special expenses. It is not affected by anticipated monthly capital carrying charges or by any other costs that would be incurred with or without the delay.

The estimated direct costs of delay are summarized in Table 2, based on two independent sources:

- o One set of estimates (columns 1 through 4) was based on revised data obtained from the owners of the units; and
- o A second set of estimates (columns 5 through 8) was developed independently by DOE staff based on available data on generating resources, pooling arrangements, load projections, capacity factors, and fuel prices. The analysis method was summarized in the May report. The key numerical assumptions (Table 3) are essentially unchanged.

Both sets of estimates used the same length-of-delay information (from Table 1, column 5).

Capacity charges were not taken into consideration in the DOE analyses. Most of the utilities indicated that the replacement power for the delayed nuclear units would be generated within their own systems. It is possible that, in some cases, there would be a capacity charge for purchased power, but DOE has no current basis for estimating its cost.

DOE's assumptions generally resulted in lower estimates for the monthly cost of replacement power (Table 2, column 5) than those provided by the utilities (column 1). In addition, a few utilities claimed special additional costs associated with the delay (footnoted in column 1). DOE did not attempt to estimate such costs.

Table 1

DATA ON NUCLEAR UNITS WITH OPERATING LICENSE DELAYS ^{1/}

Unit	Capacity (MW) (1)	Projected Date of Issuance of Operating License April 1981 (2)	Projected Date of Issuance of Operating License June 1981 (3)	Construction Com- pletion Dates Pro- jected by Company June 1981 (4)	Months of Delay (3) - (4) (5)	Replacement Power	
						Fuel (6)	Source (7)
Comanche Peak 1	1,150	2/83	10/82	12/81	10	Gas	Self-generated
Diablo Canyon 1	1,084	2/82 ^{2/}	1/82 ^{2/}	1/81	8 ^{5/}	Oil-Gas	Self-generated
Diablo Canyon 2	1,106	3/82 ^{2/}	1/82 ^{2/}	10/81	3	Oil-Gas	Self-generated
McGuire 1	1,180	12/81	6/81	1/81	15 ^{5/}	Coal	Self-generated
San Onofre 2	1,100	4/82	2/82	6/81	8	Oil	Self-generated
Summer 1	900	6/82	1/82	11/81	2	Coal-Oil	Self-generated
Susquehanna 1	1,050	11/82	6/82	4/82	2	Oil-Coal ^{4/}	Self-generated
Waterford 3	1,165	1/83	11/82	10/82	1	Oil	Purchased/Self-generated
Zimmer 1	810	7/82	5/82	11/81	6	Coal-oil	Self-generated
Total (new units)					41		
TMI 1	776	10/81 ^{3/}	10/81 ^{3/}		5 ^{5/}	Oil-Coal	Purchased

Sources: Utility Companies
 Nuclear Regulatory Commission

1/ Covers all units for which construction is expected to be completed at least one month before operating license is issued.
 2/ According to company sources, the NRC-projected dates do not reflect expediting procedures available to the Commission.
 3/ TMI 1 has received an operating license and has been in operation. However, the unit was taken out of service for a routine refueling during February 1979, and was not allowed to return to service following the TMI 2 accident. The company anticipates being finished with TMI 1 modifications by the end of 10/81. NRC projects it will make a decision on the unit in 10/81.
 4/ Delay would reduce utility's coal-fired exports which would replace power in the PJM pool derived from oil and less

Table 2

Division of Power Supply and Reliability
U. S. Department of Energy
June 15, 1981

ESTIMATED COSTS OF OPERATING LICENSE DELAYS FOR NUCLEAR UNITS

Unit	Estimated Direct Costs Based on Company Data				Estimated Direct Costs Based on Independent DOE Analysis			
	Replacement ^{1/} Power Costs	Capacity Factor	Replacement ^{2/} Power Costs	Total ^{3/} Cost	Replacement ^{8/} Power Costs	Capacity Factor	Replacement Power Costs	Total ^{10/} Cost
	-\$MM/Month- (1)	-Percent- (2)	--c/kWh-- (3)	-\$MM- (4)	-\$MM Month- (5)	-Percent- (6)	--c/kWh-- (7)	-\$MM- (8)
Comanche Peak 1	10.5	70	3.2	185	14.5 ^{9/}	60	2.9	145
Diablo Canyon 1	26.8 ^{4/}	65	5.3	214	30.1	60	6.4	241
Diablo Canyon 2	28.7 ^{4/}	65	5.5	86	30.7	60	6.4	92
McGuire 1	6.9 ^{6/}	60	1.4	7	5.5	60	1.1	6
San Onofre 2	36.0 ^{7/}	65	7.0	288	29.6	60	6.1	237
Summer 1	12.7	65	3.0	25	8.5	60	2.2	17
Susquehanna 1	25.0 ^{5/}	70	4.7	50	13.5	60	3.5	27
Waterford 3	27.4	75	4.4	27	19.3 ^{9/}	60	3.8	19
Zimmer 1	8.6	52 ^{11/}	2.8	52	4.6 ^{9/}	60	1.3	28
Total (new units)				934				812
TMI 1	17.0	70	4.3	85	14.0	70	3.5	70
Total (including TMI 1)				1019				882

- 1/ Cost of replacement power minus fuel and operating costs of nuclear units.
2/ Replacement power costs divided by kilowatt-hours replaced. (Column 1 ÷ Column 2 ÷ Unit capacity ÷ 720 hours/month).
3/ Derived by multiplying monthly replacement power costs (column 1) by the total months of delay (Table 1, column 5).
4/ Cost of fuel for 1981 estimated by utility.
5/ Includes fuel-carrying charges.
6/ Does not include other abnormal costs of \$2.5 million.
7/ Does not include other abnormal costs of \$2.7 million.
8/ Cost of replacement power minus nuclear fuel costs of 6 mills/kWh. Estimates do not include capacity charges which may be incurred if power is purchased from other systems.
9/ Most of delay occurs in 1982; therefore, fuel costs are based on 1982 estimates.
10/ Most of delay occurs in 1982; therefore, replacement power costs (column 5) by total months of delay (Table 1, column 5).

Table 3

Division of Power Supply and Reliability
 Department of Energy
 June 15, 1981

KEY ASSUMPTIONS IN DOE ESTIMATES OF COST OF NUCLEAR PLANT DELAYS

<u>Unit</u>	<u>Replacement Fuel Mix</u>	<u>Replacement Fuel Price</u> ^{1/} -\$/MMBTUs-	<u>Heat Rate of</u> ^{1/} <u>Replacement Fuel</u> -BTU/kWh-
Comanche Peak 1	Gas (100%)	Gas 3.19 ^{2/}	10,911
Diablo Canyon 1	Oil (100%)	Oil 6.50	10,678
Diablo Canyon 2	Oil (100%)	Oil 6.50	10,678
McGuire 1	Coal (89.5%) Nuclear (10.5%)	Coal 1.89	Coal 9,488
San Onofre 2	Oil (100%)	Oil 6.71	10,035
Sumner 1	Coal (81%) Oil (19%)	Coal 1.71 Oil 7.26	Coal 10,001 Oil 9,944
Susquehanna 1	Coal (50%) Oil (50%)	Coal 1.67 Oil 5.84	Coal 10,083 Oil 11,240
Waterford J	Oil (100%)	Oil 3.91 ^{2/}	11,223
Zimmer 1	Coal (100%)	Coal 1.79 ^{2/}	10,567
TMI 1	Coal (50%) Oil (50%)	Coal 1.67 Oil 5.84	Coal 10,083 Oil 11,240

^{1/} Source: U.S. Department of Energy, Energy Information Administration, FPC Form 423.
^{2/} Prices are 1982 projections; all other prices are on a 1981 basis.