ELCON

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PROFILES IN ELECTRICITY ISSUES:

Cost Allocation of Cancelled Electric Power Plants

A cancelled generating plant will never produce electricity and, therefore, is not "used and useful." However, disallowing pass-through of any cancellation costs may result in higher utility financing costs. In such circumstances, commissions must balance the rate impact on consumers with the financial impact on the utility.

In determining the appropriateness of allowing pass-through of some cancellation costs, commissions should adhere to certain principles:

- Decisions must be made on a case-by-case basis.
- Only prudently incurred costs should be recovered from ratepayers. Ratemaking decisions that absolve utility management and investors of their responsibilities are inappropriate.
- The amortization period should be as long as possible consistent with maintaining the utility's financial viability
- Utilities should not be allowed to earn a return on the unamortized balance.

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Background

Between 1972 and 1982 the nation's electric utilities cancelled 100 nuclear generating units totaling over 109 gigawatts (one gigawatt [GW] equals 1,000 megawatts) of capacity.[1] During this same period, the U.S. Department of Energy (DOE) reports that 39 fossil fueled generating units, totaling more than 23 GW of capacity, were also cancelled. The total investment by utilities in these plants is over $10 billion. At least 42 of the facilities involved abandonment costs in excess of $50 million each.

During 1983 and 1984 plant cancellations, primarily nuclear facilities, have continued. The severity of this problem has increased due to the large capital investment in many recently cancelled plants. This requires a closer look at the issue on behalf of utilities, state public utility commissions (PUCs) and consumers.

Disposition of the investment in cancelled plants is determined by regulatory commissions, primarily by PUCs. Commissions are facing increasingly complex and costly cancellation cases as more recent abandonments have involved plants further along in construction.

The ability of ratepayers to absorb the cost of a facility which will never produce electricity is limited. In addition, a particular utility's financial viability may be severely affected by the regulatory treatment of plant abandonment costs.

Determination of Abandonment Costs

Regulatory commissions must determine who should bear the costs associated with an abandoned facility on a case-by-case basis. This determination involves several steps.

The commission must first determine the amount of the utility's abandonment costs. These are the total costs that would have been avoided had the project never been undertaken. They include:

- o Cash Expenditures -- Payment for labor and materials used in construction.
- o Allowance for Funds Used During Construction (AFUDC) -- The financing costs associated with the plant.
- o Contract Cancellation Penalties -- Any penalties charged the utility by manufacturers or vendors as a result of contract cancellations.

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[1] Nuclear Plant Cancellations: Causes, Costs and Consequences, United States Department of Energy, Energy Information Administration, DOE/EIA-0392, Washington, D.C., April 1983.

- o Site Shutdown Costs -- Costs incurred in restoring the construction site to a useful condition.
- o Salvage Value -- A credit against other costs. It consists of the funds received from the sale of equipment and material associated with plant construction.

Once the total of abandonment costs is determined, the PUC must make a determination regarding "prudency." The determination of prudency involves a number of issues and considerable judgment. First, the PUC must determine if the original decision to construct the facility was prudent. This involves a review of the utility's load forecasting studies, system expansion plans and plant siting studies that were used as a basis for constructing the facility. Next, the commission must determine if the decision to cancel the plant was also prudent when made. The issue to be resolved here is usually: When was sufficient information available to the utility to support the decision to cancel? This involves an examination of load forecasting studies, generating availability, economic and other studies that were used to determine that the facility is no longer necessary.

The PUC must determine what portion of abandonment costs were prudently incurred. This involves analyzing initial and subsequent cost estimates for the facility, cost overruns (if any) and other relevant information to determine if any costs incurred were due to management error or neglect. Any such costs would be subtracted from total abandonment costs to arrive at prudently incurred costs.[2]

Finally, the PUC must decide which, if any, of these costs should be recovered from ratepayers. This determination involves a number of regulatory concepts such as "used and useful" and risk sharing.

Utilities generally should not recover from ratepayers costs of plants that are not "used and useful" in providing service. However, electric utilities are regulated monopolies. As such, they are required to provide adequate service to all customers within their service territory. A part of this "obligation to serve" involves planning and constructing adequate capacity to meet expected future load growth.

Based on current knowledge and forecasts, a utility may decide to construct a plant. Major generating facilities, however, can take 14 years or

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[2]For discussion of these issues and a summary of PUC decisions on plant cancellations, see: "Special Report: Regulatory Treatment of Cancelled Plants," The Edison Electric Institute, December 10, 1981.

more to construct. During this period, circumstances beyond the control of the utility may change such that it becomes prudent to cancel the facility. The question of who pays now becomes an issue.

Utility regulation is often viewed as a substitute for market competition. In a competitive market, a company's investment in an abandoned facility could not be recovered from its customers. The company and its shareholders would bear the risk and the cost associated with an investment. On this basis, a utility's investors should bear the costs associated with a cancelled plant.

On the other hand, competitive companies are not obliged to provide service to their customers. Therefore, on a case-by-case basis, it may be appropriate for ratepayers to share with investors the responsibility for some portion of prudently incurred costs, particularly if the utility's financial viability is at risk. However, a utility should not be permitted to earn a return on its investment in a cancelled plant. Therefore, the unamortized balance should be excluded from rate base without capitalization of carrying costs.

Plant abandonments also affect a utility's income tax liability. Investment costs incurred by the utility but not recoverable from ratepayers may be deducted from the utility's taxable income, thereby lowering its income tax obligation. Regulatory commissions must evaluate this income tax effect when dealing with plant cancellations. Prudently incurred investment recovered from ratepayers should be net of income taxes. This, in effect, flows through to ratepayers the income tax reduction associated with a cancelled plant, and reduces the rate impact on consumers.

Recovery of Abandonment Costs

When a utility cancels construction of a generating facility and files for recoupment of its costs with a utility commission, it must show cause why the facility was constructed and then abandoned. Several organizations, including the DOE, United States General Accounting Office (GAO) and the Edison Electric Institute (EEI) have examined recent plant cancellations. Each found that the major factor leading to a plant cancellation is a reduction in the utility's forecasted peak load growth. This factor alone accounted for more than half the plant cancellations analyzed by the DOE.[3] It was also reported by the GAO to be the primary factor leading to plant cancellations and delays.[4]

Other factors reported in these studies as major contributors to plant cancellations include:

- o Financial constraints - The utility could not adequately finance construction;
- o Regulatory changes and uncertainty - Changing regulations that require backfitting of completed construction;
- o Construction problems - Problems encountered in supervising and completing construction;
- o Reversal of economic advantage - Due to changed circumstances, the plant is no longer the least cost alternative; and
- o Problems surrounding the acceptability and future of nuclear power - Uncertain public acceptance and continually changing government regulations.

No study cited a reduction in energy consumption as the reason for cancelling a plant. Thus the costs associated with building these generating units, even if ultimately cancelled, are related to the utility's peak demand. Construction costs associated with a cancelled plant, then, cannot logically be considered energy related. Any portion of those costs deemed appropriate to be recovered from ratepayers by a regulatory commission should be allocated to and collected from customers based on their contribution to the utility's peak demand(s), and recovered in the demand portion of the tariff.

Amortization Period

The amortization period selected for the recovery of prudently incurred costs must balance a number of factors. The utility is better off financially if it can amortize its investment over a short time period. However, the rate impact on consumers may be severe. A long amortization period will reduce the impact on consumers but may imperil the financial condition of the utility.

In order to reduce the impact of a plant cancellation on consumers, the utility should make every effort to reduce costs and improve cash flow. Factors to be considered include:

- o The utility's dividend policy - Dividends should be reduced to a minimum level.
- o Future construction requirements - The construction program should be reviewed and kept to a minimum, consistent with reliable service.
- o Cost reduction program - Operating costs should be reviewed and kept to a minimum.

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[3] Nuclear Plant Cancellations: Causes, Costs and Consequences, op. cit.

[4] Electric Power Plant Cancellations and Delays, United States General Accounting Office, EMD-81-25, Washington, D.C., December 8, 1980.

o Load management - Efforts to reduce load growth through interruptible rates and other, cost-based methods should be implemented.

An analysis of the impact of a major plant cancellation on a utility and its ratepayers, using data for a hypothetical utility, was conducted for ELCON.[5] This study considered the recovery from ratepayers of a prudently incurred investment in a cancelled plant. Income tax effects, including the investment tax credit, tax loss carry-over provisions and the corporate tax rate, were included in the analysis. A discounted cash flow methodology using a discount rate of 6 percent as the expected rate of inflation was used.

The analysis assumed the utility is permitted to recover its prudently incurred investment in a cancelled plant, including accumulated AFUDC. However, the utility is not permitted to earn a return on this investment since it was never "used and useful." In addition, tax reductions resulting from the cancellation are flowed-through to ratepayers.

The analysis determined the net present value of the cash flow to the utility from amortization of abandonment costs over periods of 5, 10 and 15 years. Three case studies were analyzed. One where the utility was permitted no construction work in progress (CWIP) in rate base; one where 50 percent of CWIP was permitted in rate base (with no offsetting AFUDC), and one where 100 percent of CWIP was included in rate base prior to cancellation. The table below summarizes the results of this analysis.

PERCENT OF NET PRESENT VALUE OF CASH FLOW RECOVERED BY UTILITY UNDER ALTERNATIVE SCENARIOS

Scenario	Amortization Period		
	5 years	10 years	15 years
1. No CWIP	72.1%	62.5%	54.5%
2. 50% CWIP*	76.6	66.4	57.9
3. 100% CWIP*	79.2	68.6	59.8

*With no offsetting AFUDC

PUC Accountability

Some state PUCs approve construction of a generating facility when it is proposed and again when it is completed. Others address the facility only upon completion when rate base treatment is requested. However, PUCs

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[5]This analysis was performed by Alvin Kaufman, an economic consultant. Using a computer model, the likely impact of various regulatory treatments of abandonment costs on utility ratepayers and shareholders was estimated. The results of this analysis are available from ELCON.

rarely review utility construction programs to determine if circumstances have changed to such an extent that the facility is no longer needed. Problems associated with plant cancellations increase substantially when utilities fail to cancel at an appropriate time. It has been proposed that state PUCs review utility construction programs periodically to ensure that completion of the facility is necessary and that construction is being performed efficiently. Such proposals may or may not be beneficial, however, they deserve further study to see if implementation would produce beneficial results.

Recommendations

(1) Decisions to have ratepayers assume a portion of plant abandonment costs should be weighed carefully on an individual utility-by-utility basis. Ratemaking decisions that absolve utility management and investors from their responsibilities and risks are inappropriate.

(2) If a regulatory commission decides pass-through of a portion of the abandonment costs to ratepayers is warranted, it must address the issue of "prudency." Only those costs prudently incurred should be eligible for recovery from ratepayers. Special consideration should be given to such factors as cost overruns and construction delays.

(3) Prudently incurred costs represent a fixed investment by the utility incurred to meet anticipated growth in system peak demand. Recovery of these costs from ratepayers, if appropriate, should be accomplished on the basis of each customer class's contribution to system peak demand(s).

(4) Once a commission determines that some cost recovery from ratepayers is appropriate, the utility should amortize that investment cost over a number of years. The length of the amortization period should be determined by considering the size of the investment to be recovered, the utility's financial condition, the rate impact on consumers, the remaining construction program and cost cutting measures employed by the utility. The amortization period should be as long as possible, while maintaining the financial viability of the utility.

(5) Utilities should not be permitted to earn a return on investment in a cancelled facility. That is, the unamortized balance should be excluded from rate base without capitalization of carrying costs. This appropriately requires the utility and its shareholders to bear a portion of the risk and cost associated with a cancelled facility.

(6) For municipal and cooperative systems, the customers are placed in the role of investors as well as ratepayers. They receive a return on their investment in the form of lower rates. Therefore, these ratepayers assume some of the risk of plant cancellation and should repay the prudently incurred cost over an appropriate amortization period.

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