

"IMPLICATIONS OF RECENT FEDERAL POWER COMMISSION
REGULATIONS CONCERNING CONSTRUCTION WORK IN PRO-
GRESS AND THE ALLOWANCE FOR FUNDS USED DURING
CONSTRUCTION FOR ELECTRIC UTILITIES."

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Following extensive hearings, the Federal Power Commission recently issued two regulations, Order Number 555 and Order Number 561, concerning the treatment accorded to construction work in progress and the calculation of specific rates for the allowance for funds used during construction. These regulations may reflect a trend in dealing with the complicated problem. They recognize that (1) justification does exist for rate base treatment for certain items of CWIP and that certain conditions make this treatment the most viable alternative, and (2) the percentage of CWIP capitalized as an allowance for funds used during construction should consider all sources of capital in a uniform formulary method. The November, 1976 Order Number 555 adopted specific principles in regard to rate base treatment of CWIP. Prior to this order the Commission had not permitted electric utilities to earn a return on plants in the process of construction by inclusion in the rate base for purposes of current revenue requirements. However, due to the changing environment in which utilities operate today, an environment characterized by long construction periods, high construction costs and cash

flow problems, the Commission has concluded that it will not adhere to an absolute rule that a plant must be "used and useful" in the traditional sense before it is included in the rate base. The other regulation, Order Number 561, issued in February 1977 establishes a uniform formulary method for determining the maximum rates to be used in computing the Allowance for Funds Used During Construction (AFUDC) and amends the Uniform System of Accounts for public utilities to provide accounting requirements for AFUDC which reflect the elements entering into the determination of AFUDC rates. The objective of this rule is to establish a method which will give recognition to the inter-relationship between capital utilized for rate case purposes and the AFUDC capital components, and to do so in a manner that will permit utilities to earn a return on total operations, including CWIP, at approximately the rate which would be allowed in a rate case.

Order Number 555

Rationale for the Inclusion of CWIP in Rate Base

The inclusion of CWIP in the rate base for purposes of ratemaking has been the subject of much conflict. (See Mattutat, Public Utilities Fortnightly, March 3, 1977) The traditional view of utility regulation is that assets included in the rate base should be "used and useful," which excluded CWIP. However, regulation also recognized that the financial expenses of construction were legitimate expenses which must ultimately be borne by the ratepayer. The AFUDC method was developed to

accommodate this problem. This method resulted in capitalizing the cost of funds employed during construction and recognizing and AFUDC income for a like amount. Since this income was a non-cash income, its "quality" has been seriously questioned. Its ultimate conversion to cash income occurred when the asset went "on line" and depreciation expense and rate base increment were recovered in the revenue requirements. However, lack of timely rate relief and lack of demand could change the realized rate. It is not unreasonable to expect that beyond a certain point the investor will discount the value of the AFUDC earnings. Empirically, it has been difficult to ascertain the exact effect. (Regression analysis was used by Arkansas Power and Light (10/76) to substantiate this.)

In addition to the quality of earnings, the AFUDC method has resulted in cash flow problems. Cash dividends are paid on the AFUDC earnings. In many cases, earnings from the sale of utility services are not adequate to meet the current common stock cash dividends. This failure to cover current cash dividends from profits of current utility operations seriously affected the firms' cash flows, especially when considered concomitantly with the large construction expenditures.

The National Power Survey Technical Advisory Committee on Finance in 1975 indicated that the electrical utility industry will need to raise \$175 billion to \$335 billion in the next 10 years, of which \$115 billion to \$220 billion is projected to come from the capital markets. It is questionable whether the AFUDC

method employed in the past will enable utilities to attract investors. Not only must the firms be in the capital markets more frequently than if their earnings were all cash, but they must pay a premium on borrowed funds since a varying amount of the AFUDC funds is subtracted for interest coverage ratios by bond rating agencies. In 1974 there were instances in which utilities were unable to finance with common or preferred stock due to the bond indenture clauses requiring coverage which excluded these AFUDC earnings.

The benefits to the consumer of the CWIP inclusion in the rate base are two-fold, regardless of the fact that the rate base is larger. (1) The cost of debt and equity will be lower thereby partly offsetting the rate base effect. Since the quality of earnings will be improved, the frequency of financing will be lowered and coverage ratios raised. It is not unreasonable to expect the cost of capital to the utilities to be lowered. (2) Rates in the future will be lower due to the lower depreciation charges and a lower rate base which has not been inflated by AFUDC. As Muttutat correctly points out, the time value of money is also an important consideration for the ratepayer. If his time value of money, considering his tax bracket is less than the utilities, it would be to his advantage to have CWIP in the rate base.

The Public Utilities Research Center at the University of Florida has developed a computer simulation of the alternative accounting methods for CWIP. The simulation showed that over

the lifetime of the asset the present value of the revenue requirements for the rate base treatment and the capitalization treatment were identical if the consumer's time value of money were the same as the utilities. However, if the consumer's discount rate is less than that of the utility he would prefer the rate base treatment. Conversely, if his discount rate is higher he would prefer capitalization.

Identity of Ratepayers

The traditional argument against CWIP in the rate base is that present customers would be burdened with cost incurred for the benefit of future customers. The lack of identity could be due to (1) geographic mobility, (2) extensions of service to the new areas, (3) intergenerational growth, and (4) population growth. However, the New York Public Service Commission in discussing the identity of the ratepayers noted that a substantial portion of construction requirements resulted from increasing demands made by present customers rather than growth in number of customers. (Long Island Lighting Company, 99 PUR 3d 460 (1973).) If the plant were not under construction, the consumer might well face a certain danger of future power insufficiency.

The above considerations led the Commission to a new interpretation of "used and useful" assets as opposed to the traditional meaning. However, the interpretation involves judgements which are company specific. At the present time there is only one area where the FPC has agreed for all companies that the

rate base treatment would be equitable, and this is in the area of pollution abatement and conversion facilities.

In the area of facilities which are required because of the current generation's commitment to the control of pollution, or its conservation of existing stocks of natural resources, the Commission will allow the inclusion of CWIP in the rate base. If the facility is to be used for pollution control, or for the conversion of plants to the burning of other fossil fuels which now burn oil or gas, it is viewed as the commitment of the present generation.

Current national policy supports the policy that plants previously burning gas convert to the use of other fuels and that many oil burning plants convert to fuels other than gas. The reasons for such conversion include curtailment of the gas supply and related policies of the FPC under the Natural Gas Act and the Federal Power Act.

Definition of Pollution Control Facilities: The definition of facilities to be treated as pollution control facilities includes identifiable structures or portions of structures which are designed to reduce the amount of pollution produced by the underlying power facility. A facility which lessens pollution by substituting a different non-polluting method of generation shall not be included within the definition. Neither does the definition include facilities for generation of additional power necessitated by the operation of pollution control

facilities. In determining which facilities qualify as pollution control facilities, the Commission will consider whether the facilities (1) conform with IRS language, (2) are certified by a local, state, or federal agency as being in conformity with a pollution control program, and (3) if they meet the definitions of environmental protection facilities of FPC Form 1, Sections 4A-D.

Definition of Fuel Conversion Facilities

The definition of facilities to be treated as fuel conversion facilities are those which enable (1) a plant which previously burned natural gas to convert to the use of other fuels, and (2) oil-burning plants to convert to fuels other than natural gas. Such facilities would include those which alter internal plant workings, such as oil or coal burners, soot blowers, bottom ash removal systems and concomitant air pollution control facilities needed for receiving and storing the alternate fuel, which would not be necessary if the plant continued as originally designed.

Effect of These Changes on FPC Jurisdictional Wholesale Rates

The inclusion in the rate base of these facilities would involve an initial rate increase estimated to be from 1-2 percent. This will be offset by lower rates when the equipment goes in service. In 1975, if the pollution equipment CWIP reported on FPC Form 1 had been allowed in the rate base, wholesale rates would have been adjusted by less than one percent. During the next five years the CWIP for pollution control and con-

FIGURE 1

Simplified Balance Sheet and Relationships of Allowed Rate of Return to the Total Cost of Capital.

<u>Assets</u>			<u>Capital Structure</u>	
$a_1 A_1$	CWIP	—————	[sS	Short-term debt
			[dD	Long-term debt
$a_2 A_2$	RATEBASE	-----	[pP	Preferred Stock
			[cC	Common Equity
	TOTAL ASSETS	=		TOTAL CAPITAL

Allowed Rate of Return = Cost of Capital

$$a_1 A_1 + a_2 A_2 = sS + dD + pP + cC$$

- a_1 = AFUDC rate
- A_1 = CWIP as % total assets
- a_2 = Allowed rate of return on rate base
- A_2 = Rate base as % total assets
- s = short-term debt rate
- S = short-term debt as % total capital
- d = long-term debt rate (embedded)
- D = long-term debt as % total capital
- p = preferred rate (embedded)
- P = preferred stock as % total capital
- c = cost of common equity
- C = common equity as % total capital

version is expected to rise as a percentage of total CWIP and 1-2 percent is the present estimate of the effect.

Severe Financial Stress

In individual proceedings, the Commission will permit inclusion of CWIP in the rate base where the utility is in severe financial stress. If circumstances arise whereby the construction program has resulted in an inability to raise additional capital at reasonable rates or increased the required rate of return on equity substantially in excess of the cost of equity capital to otherwise similar electric utilities, consideration will be given to inclusion of CWIP in the rate base.

Order Number 561

Interrelationship Between Capital Costs for Rate Purposes and AFDC

The purpose of this order is to establish a method for determining a rate for AFDC that will permit utilities to achieve a rate of return on total operations which will not omit important categories of capital cost or result in double counting of the same capital cost. Employing the procedure used in rate cases, a method for determining AFUDC was devised which essentially looks at the total capital structure of the utility. Figure 1 shows the basic assumption used to analyze the problems involved. It is assumed that the utility's permanent capital structure plus short-term borrowing is equal to the sum of its rate base plus CWIP. In rate proceedings,

FIGURE 2

Formula for Calculation of Component Rates of Allowance for Funds Used During Construction

I. Gross allowance for borrowed funds used during construction:

$$A_i = s \left(\frac{S}{W} \right) + d \left(\frac{D}{D+P+C} \right) \left(1 - \frac{S}{W} \right)$$

$$A_i = \left(\begin{array}{l} \text{Short-} \\ \text{term} \\ \text{debt} \\ \text{cost} \end{array} \right) \left(\begin{array}{l} \% \text{ CWIP that}^* \\ \text{is short-} \\ \text{term debt} \end{array} \right) + \left(\begin{array}{l} \text{Long-term} \\ \text{debt cost} \end{array} \right) \left(\begin{array}{l} \% \text{ Capital Structure} \\ \text{that is long-term} \\ \text{debt} \end{array} \right) \left(\begin{array}{l} \% \text{ CWIP that} \\ \text{is not short-} \\ \text{term debt.} \end{array} \right)$$

*All short-term debt is assumed to apply to CWIP.

A_i = Gross allowance for borrowed funds used during construction

S = Average short-term debt

s = Short-term debt interest rate

D = Long-term debt

d = Long-term debt rate

P = Preferred stock

p = Preferred stock cost rate

C = Common equity

c = Common equity cost rate

W = Average balance CWIP plus nuclear fuel in process of refinement, conversion, enrichment and fabrication.

II. Allowance for other funds used during construction:

$$A_c = \left(1 - \frac{S}{W} \right) \left[p \left(\frac{P}{D+P+C} \right) + c \left(\frac{C}{D+P+C} \right) \right]$$

$$A_c = \left(\begin{array}{l} \% \text{ CWIP} \\ \text{that is} \\ \text{not short-} \\ \text{term debt} \end{array} \right) \left[\left(\begin{array}{l} \text{Cost of} \\ \text{preferred} \\ \text{stock} \end{array} \right) \left(\begin{array}{l} \% \text{ Capital} \\ \text{structure} \\ \text{that is} \\ \text{preferred} \\ \text{stock} \end{array} \right) + \left(\begin{array}{l} \text{Cost of} \\ \text{common} \\ \text{equity} \end{array} \right) \left(\begin{array}{l} \% \text{ capital} \\ \text{structure} \\ \text{that is} \\ \text{common} \\ \text{equity} \end{array} \right) \right]$$

A_c = Allowance for other funds used during construction

short-term debt typically has not been included in rate of return computations for cost of service purposes on the grounds that such debt is temporary and is used essentially for construction. Order Number 561 adopts the approach that short-term debt cost should be capitalized through AFUDC. Many respondents objected to the weight given short-term debt in the rule and argued that short-term debt is not necessarily the first source of construction funds as indicated by the formula in Figure 2. Even though it is acknowledged that it is impossible to trace the source of funds used for various corporate purposes, it was necessary to handle short-term debt in this manner due to the procedure for handling the permanent capital structure in rate proceedings. This method will not result in double counting of the same capital cost or omit categories.

Incremental versus Embedded Cost

The issue of double counting, involving marginal and embedded cost of debt, is frequently raised where AFUDC rate calculations are concerned. Regulatory commissions use a weighted average for their calculations of cost of capital, based on book value and embedded cost which includes the cost of new as well as old issues. This rate is applied to the rate base, as well as the CWIP. The only way that incremental cost can be employed for AFUDC

and not double counted is to subtract the proportional fraction of the incremental costing debt out of the embedded cost of debt and preferred used for the rate base application. Referring to Figure 1, it can be seen that the cost used for debt on the left-hand side of the equation must be the same as the cost on the right-hand side, otherwise, the desired relationships do not hold. To use the incremental cost as the valid long-term debt rate for AFUDC would require its deduction from the embedded cost of debt used for rate base assets.

Segregation of AFUDC into Two Components

In order to better inform the reader of the financial statements as to the nature and level of the capitalized allowance, AFUDC is segregated into two components, Allowance for Borrowed Funds Used During Construction and Allowance for Other Funds Used During Construction. Since there is little conceptual difference between capitalizing the cost of borrowed funds and other cost of construction such as labor and materials, the interest cost is allocated by a reduction in the Interest Charged Section of the income statement rather than being recognized as an income item as it formerly was. To the extent that AFUDC income has been used for interest coverage, this may lower interest coverage since "Other Income" will be reduced upon application of this regulation. The result of the new regulation is that CWIP will be increased for the sum of the two AFUDC components, not to exceed the amounts computed in accordance with the formulas prescribed (Figure 2). Other Income will be credited for the "Allowance for Other Funds Used During Construction" and Interest Charges will be reduced by

the amount of the "Allowance for Borrowed Funds Used During Construction." The effect on the financial statement can be seen in Figure 3, Net Income for the period will be increased by the sum of the two components

Tax Treatment

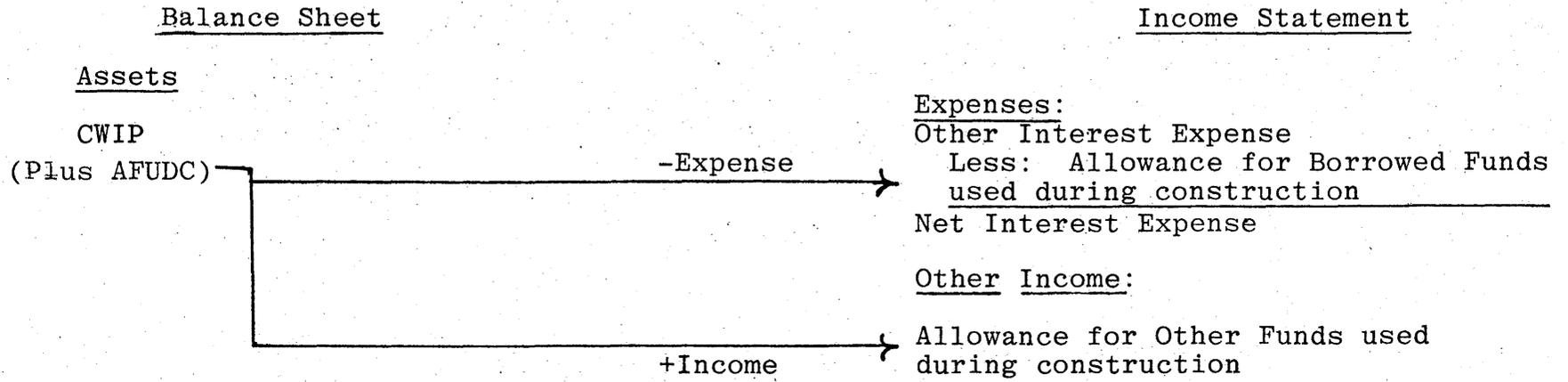
Order Number 530 was structured to accommodate utilities under the rate jurisdiction of various state regulatory bodies that may or may not authorize deferred tax accounting for rate purposes. If a net of tax allowance for funds rates is prescribed by the regulatory body, then it is not necessary to defer income taxes related to the interest component of AFUDC.

Calculation of Components of Construction Cost

The formulas for the maximum gross allowance for borrowed funds used during construction rate and the maximum allowance for other funds used during construction rate can be seen in Figure 2. The rates shall be determined annually. The balances for long-term debt, preferred stock and common equity shall be the actual book balances as of the end of the prior year. The cost rates for long-term debt and preferred stock shall be the weighted average cost determined in the manner required by the FPC. The cost rate for common equity will be the rate granted in the last rate proceedings before the ratemaking body having primary jurisdiction. The short-term debt balances and the average balance for CWIP plus nuclear fuel in process of refinement, conversion, enrichment and

FIGURE 3

Effect of AFDC on Financial Statements



fabrication will be estimated for current year with appropriate adjustment as actual data becomes available.

Further Implications

Order No. 555

The recognition that (1) "used and useful" assets are not only plants in use, and (2) the construction programs of public utilities can create severe financial stress which may require regulatory relief, has implications for future construction programs. It may encourage the installation of pollution controls on present facilities instead of building new facilities which use different non-polluting methods of generation. This may not be the most optimal long-run, economic decision, especially in cases where the energy requirements for the abatement equipment are materially larger. It will offer a possible measure of relief for companies which are heavily committed to nuclear construction and under financial stress.

Order No. 561

The formula used for calculation of the AFUDC rate will probably result in a different rate than formerly employed. The method for recognizing AFUDC is therefore important. If the straight capitalization method is used, current revenue requirements may not be affected. However, if a hybrid method is used whereby CWIP is included in the rate base and AFUDC is

subtracted from current revenue requirements, then current cash flows will be affected. This will change the form in which income is realized. If the AFUDC rate is higher, less current cash operating income will be realized and more deferred AFUDC income will be capitalized. Conversely, if the AFUDC rate is lower, more current operating income will be realized, and less AFUDC income. This regulation could result in companies which employ this hybrid method having a transition period during which their cash flows are materially affected.