ELCON

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PROFILES IN ELECTRICITY ISSUES:

Should CWIP be included in an electric utility's rate base?

Electric utilities are finding it increasingly difficult to finance very large construction programs. Inflation is a major factor. Loan money is more and more expensive. Projects take longer to get through approval and construction stages, driving up costs. For some utilities, their financial condition will not support undertaking of needed construction projects.

As a result, utilities are turning to regulatory commissions for another source of cash. Inclusion of "Construction Work In Progress" (CWIP) in Rate Base. Traditionally, utilities have been permitted by regulatory commissions to collect revenues only for projects which had been constructed and were providing service to the utility's customers. In a significant departure from this concept, inclusion of CWIP in rate base would permit the utility to charge its customers for the financing cost of projects under construction.

In this Profile, ELCON examines the appropriate treatment of CWIP and discusses the conditions under which this financing mechanism should be used. ELCON concludes that wherever their financial position permits, utilities should be required to finance construction programs in the conventional manner -- that is, without including CWIP in rate base.

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Should CWIP Be Included In An Electric Utility's Rate Base?

Summary and Recommendations

In recent years, many electric utilities have found it exceedingly difficult to rely on traditional methods to finance very large construction programs without compromising their financial ratings and thus increasing their overall borrowing costs. When a utility experiences such problems, state regulatory authorities are often asked to reestablish the utility's financial stability either by allowing a portion of "construction work in progress" (CWIP) costs in the rate base without balancing offsets or by allowing an inordinately high rate of return.

By including CWIP costs in an electric utility's rate base, the utility is able to collect revenues from ratepayers to pay financing costs of assets currently under construction. This differs from the traditional method of placing assets in a utility's rate base only after they have been completed and are in operation. Including CWIP in the rate base thus violates the traditional "used and useful" regulatory principle.

Whenever traditional financing methods are possible, state regulatory authorities should require utilities to finance construction programs in the conventional manner, without including CWIP in rate base.

It is important to recognize that denial of a level of income adequate to maintain the utility's financial rating can result in higher costs to current ratepayers. In fact, these costs might be higher than would be the case if a limited amount of CWIP were included in the rate base. This paper describes actions which can (and should) be taken by regulatory authorities to maintain a utility's financial position as the costs of financing construction dramatically increase.

As a first step, commissions should reevaluate utilities' rates of return (both authorized and actual) to be sure they are reasonable. If, even with a reasonable rate of return, a utility cannot earn cash returns to allow continued financing of necessary construction, commissions should include CWIP in rate base only to the extent that certain financial tests must be met and the utility's financial position reestablished.

Inclusion of even a partial amount of CWIP in the rate base for financial stability reasons should be weighed very carefully on an individual utility-by-utility basis. Ratemaking decisions that tend to absolve utility management from responsibility to ensure efficient, effective project management are inappropriate. Adoption of ratemaking practices that yield a utility a satisfactory return regardless of the utility's management performance cannot be supported. As a general policy, a utility should be allowed to charge rates such that if it performs its management function effectively, it can maintain its earnings, coverage, and a respectable bond rating.

For the reasons stated in this paper, ELCON recommends:

1. Whenever their financial position permits, state regulatory authorities should require utilities to finance construction programs without the inclusion of CWIP in rate base.

2. However, when the use of these traditional financing methods creates severe financial problems for a utility, proposals to include some CWIP in the rate base -- without corresponding offsets called allowance for funds used during construction (AFUDC) -- should not be rejected out of hand.

3. In instances where a utility cannot meet financial tests without including a portion of CWIP or being allowed an inordinately high rate of return, it is preferable to include some CWIP in the rate base without offsets.

4. CWIP should not be used as a technique to cure all utility ills, but rather should be applied judiciously in concert with a determination of a realistic rate of return on equity. Rates should be designed and perform so that a utility can maintain its bond rating and be able to sell common stock without dilution.

5. Utility ratemaking practices should not be adopted that would tend to absolve utility management from pursuing improvements in performance. It is the responsibility of utility management to pursue construction project completion and general operations in an effective, efficient manner.

6. Statutes should not be enacted that prescribe the ratemaking treatment of CWIP for utilities. CWIP treatment should remain a matter of regulatory discretion, which should not be foreclosed by legislation, either state or federal.

Background

Regulation of electric utilities is based on several clearly established principles. Among them are these:

- Customers should be charged rates equal to the costs of the facilities used to provide the service, including a fair return on invested capital. Customers should not pay for assets that are not used or useful in providing service.

- Service should be provided in an efficient and reliable manner to all customers. Costs of a system adequate to meet the needs of all customers should be minimized.

Historically, electric utilities were able to pay for construction programs (such items as concrete, steel, labor, and debt service -- i.e., CWIP) with borrowed funds, the sale of new stock, and from funds internally generated as a result of earning a fair and reasonable rate of return on plant in service (excluding CWIP). When construction was completed, the asset was added to the utility's rate base at a value equaling the total cost of the project, including financing costs. For years this traditional method of financing construction provided funds in adequate quantities and at reasonable rates. The method was attractive because it was proper accounting, it worked, and it was consistent with the "used and useful" principle.

However, certain factors combined to make continued reliance on this traditional financing method impossible for many utilities:

- Inflation has increased the cost of additional capacity dramatically over the past two decades -- from less than $200/KW to more than $1,000/KW.
- The cost of borrowed funds has risen precipitously.
- Construction projects now take significantly longer to complete.
- The financial position of electric utilities generally has fallen to a level that makes continued financing of large construction projects either impossible or inordinately expensive.

The impact of these factors on utilities has been profound. The costs to service construction debt amounted to less than five percent of the net income of investor-owned electric utilities in 1965, but have grown to about half today. As utilities find it more difficult and costly to raise external funds, they increasingly request regulatory commissions to include CWIP in the rate base. Such inclusion provides additional revenue and enhances the utilities' financial position.

Some who oppose the inclusion of CWIP in the rate base argue that ratepayers should not pay higher rates today for facilities that will not be used and useful for many years. These advocates often ignore the fact that the exclusion of CWIP from the rate base may not eliminate increases in today's rates since coverage requirements may dictate a certain required level of earnings.

Regulatory authorities thus face a dilemma. They must choose between:

1. excluding CWIP from the rate base while keeping the utility financially viable through alternatives means, or
2. including CWIP (or some portion of the CWIP) in the rate base, thus requiring customers to pay for the financing costs of assets that are not yet used and useful.

Accounting Principles and CWIP

Accounting procedures used when including CWIP in the rate base are described in the appendix. Among other things, this appendix shows that current rates are unaffected by the inclusion of CWIP in the rate base as long as an equal and offsetting adjustment called "allowance for funds used during construction" (AFUDC) is utilized.

Thus, the issue is not whether CWIP should or should not be included in the rate base. Instead, the question is whether today's ratepayers should be asked to pay financing costs of assets that are not yet in service; or, specifically, whether CWIP (or some portion of CWIP) should be included in the rate base without an offsetting AFUDC treatment.

AFUDC and a Utility's Financial Rating

The appendix material illustrates that the use of CWIP with corresponding AFUDC offsets does not directly affect current rates. However, it also points out that as AFUDC as a proportion of current operating income grows, the financial rating of the utility usually falls and the financing costs of the utility increases. Today's ratepayers may therefore find today's rates increased to pay higher finance costs caused by increased CWIP-related borrowing. Although in theory the inclusion of CWIP in the rate base with corresponding AFUDC offsets does not affect today's rates, a large amount of AFUDC tends to reduce the financial stability of a utility relative to a situation in which CWIP is a small portion of total investment. This makes it more difficult and expensive for the utility to borrow funds, and as a practical matter may exert upward pressure on rates to current ratepayers.

How Utilities Cover Debt

Many utilities faced with large construction programs find themselves with "coverage" problems. There are several coverage ratios. One of the more common relates a utility's before-tax income to the annual interest charges the utility must pay on its debt. A coverage ratio of 1.0 means that before-tax income exactly equals interest expense; a coverage of 3.0 ratio means that before-tax income is three times current interest expense.

Utilities often have legal agreements, called bond indentures, which require a certain coverage level if a utility is to sell new bonds. The minimum coverage level in such indentures is usually 2.0. If a utility's coverage ratio is reduced to less than that specified by the bond indenture after proposed bonds are issued, the utility cannot sell those proposed bonds.

Since additional debt cannot be issued if coverage falls below the level specified by the bond indentures, a utility's construction program is limited by the coverage ratios. Coverage problems arise as a utility's construction program grows relative to its income. Income is based on plant in service.

Interest charges are based on total debt, including debt incurred to finance CWIP. In some indentures, only part of the AFUDC can be counted as income, on the theory that AFUDC does not contribute today to a utility's ability to pay its current interest expenses. As CWIP grows, interest costs increase because debt increases. With income constant, the coverage ratio falls. As long as a utility's coverage ratio is adequate, the utility can issue bonds and thus finance its CWIP.

Coverage also affects a utility's bond rating. Reduced coverage may result in the downgrading of a utility's bonds. As bond ratings drop, current ratepayers may experience increased rates since overall average financing costs will rise.

Increases in financing costs occur in several ways. Lower ratings of securities means that new issues will carry higher coupon interest. For example, analysts have estimated that a one-half grade improvement in bond ratings can save approximately one-half of one percent during normal times and one percent during periods of tight money. Additionally, as AFUDC grows and coverage falls, equity investors require higher rates of return to induce them to invest.

Why Including CWIP in the Rate Base is the Preferred Method

An electric utility should finance its construction program without charging current customers for the financing of CWIP as long as such financing is cost effective. However, in recent years, the costs of construction programs have increased to the point that continued reliance only on internally generated funds (without CWIP and with a reasonable return on equity), borrowed funds and stock sales, is often unsatisfactory. When this occurs, necessary construction projects are either postponed or the utility's security rating falls, driving borrowing costs up.

When utilities face coverage problems, regulatory authorities are often forced to choose between increasing the utility's allowed rate of return to an unrealistically high level or including CWIP (or some portion of CWIP) in the rate base without corresponding AFUDC. Either action increases the operating income of the utility. Thus, either action raises the utility's coverage ratio and improves its overall financial standing. But while either method allows the utility to proceed with its construction program, including all or in most cases some portions of CWIP in the rate base without offsetting AFUDC is clearly the preferable method.

How Customers Benefit

Given a need to improve cash flow or coverage, including CWIP in the rate base without AFUDC benefits consumers in two ways, relative to arbitrarily increasing the allowed return on common equity. First, upon completion of the

asset, it will be put in the rate base at a lower amount than if AFUDC had been accrued. This should lead to lower future rates. Second, there is an income tax advantage associated with interest payments. Since current ratepayers are providing a return on the CWIP, they should also benefit from any available tax deductions for interest expense. (See Schedules 14-16 at pages 15-17 in the attached appendix for a fuller discussion of this point.)

Alternatively, regulatory authorities could improve an electric utility's financial rating by increasing the overall rate of return. Since the coupon rate on both bonds and preferred stock is fixed, increases in the overall rate of return can only be accomplished by allowing substantial increases in the return on common equity. Allowing unreasonably high returns on common equity violates the regulatory principle that calls for only reasonable returns on invested capital. Increasing the rate of return does not provide the advantages associated with including CWIP in the rate base without AFUDC.

To the extent that ratepayers pay financing costs on uncompleted projects, they are paying for assets that are not at that moment used and useful. However, as noted previously, inclusion of CWIP in the rate base may be the best remedy for a cash flow or coverage problem.

The regulatory process works best when all considerations to an issue are weighed. State or federal legislators should not restrict regulatory authorities with mandated requirements. Regulatory bodies should have flexibility to rule as circumstances and the record before them dictate, with intervenor access to the regulatory record preserved.

For further discussion and review of the subject, see the attached appendix.

APPENDIX

CWIP and AFUDC

as they relate to

Regulatory Accounting Principles and the Financial Stability of Electric Utilities

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Introduction and Executive Summary

Construction work in progress (CWIP) is the least understood, yet most significant accounting issue in rate cases. Although the basic issue is simple, it is often obscured by complex accounting procedures and by emotional factors.

Traditionally, utility rate increases were calculated based on the need to provide an adequate return on the investment in utility plant. If, for example, the Commission determined that the utility should earn a 10% return on investment and if the amount of plant in service ("used and useful" in regulatory parlance) was $100 million, rates would be set to provide an after-tax return of $10 million. However, in addition to its plant in service (that is, actually in operation), utilities usually have significant investments in facilities still under construction (i.e., construction work in progress). Since CWIP projects are uncompleted they are, by definition, not yet "used and useful." Therefore, utility rates have not traditionally provided a return on this CWIP investment. Since the utilities' investors obviously require a current return on their investment (in the form of stocks and bonds), the accounting mechanism known as "allowance for funds used during construction" (AFUDC) was devised. With AFUDC, the cost of financing a new facility is capitalized and added to the construction cost. The plant is then placed in service at a total cost equal to construction cost plus capitalized financing cost. By this method, the utility can show an adequate return on its total investment (plant in service and CWIP) while not burdening its current ratepayers with the cost of financing construction.

The issue now before regulators is whether part or all of the cost of financing CWIP should be borne by current ratepayers. That is, should rates provide a return not only on the investment in plant in service, but also on part of the investment in CWIP?

In principle, the answer has always been an easy "no." Since CWIP was not used and useful, it was argued, it was improper--if not illegal--to include its costs in setting rates. When construction programs were relatively small, there were no problems with this approach. But a combination of increasing capital costs, high interest rates and lengthy construction periods have put severe financial strains on many utilities. Whereas AFUDC was once a negligible portion of total earnings, in recent years it has exceeded 50% of total reported earnings of some utilities. This puts the utility in a financial bind.

"Earnings might look good," the utilities would argue, "but a lot of that income isn't cash, it's AFUDC 'funny money'. What we really need to finance a construction program is cash earnings." The problem of inadequate cash earnings really lies in the utilities' ability to borrow money. Virtually no electric utility is able to finance plant expansion solely by retained earnings. Approximately 50% of total capital must be raised by selling bonds. The ability to sell bonds, and the interest rate they carry, is affected by bond quality ratings (AAA, AA, etc.). Bond ratings, in turn, are largely determined by coverage, which is defined as the ratio of total earnings to interest expense. The higher the coverage, the greater "cushion" a bondholder has against default. If a utility's coverage ratio falls below a certain level, it may face legal restrictions on the amount of bonds that can be sold. In some cases, utility coverage has fallen so low that a utility was prohibited from selling any new bonds, and therefore could not continue its construction program.

The basic problem is that a large investment in CWIP reduces coverage. In extreme cases, utilities have been unable to finance their construction. In cases where bond coverage has been a problem, and the utility therefore requires additional cash income, regulators are faced with a choice between (1) increasing the allowed return on plant in service, or (2) allowing a return on part of CWIP. The first approach upholds the "used and useful" principle. But the second approach is usually less expensive for ratepayers. In both cases, the ratepayers will have to pay higher rates, but the second method--allowing a return on CWIP--reduces the amount of capitalized carrying charge which will be added to the construction cost of the plant. As a result, the higher rates paid currently are offset by a corresponding reduction in costs over the life of the plant. Therefore, in these situations it is actually cheaper for customers to "pay now, fly later."

Overview

The remainder of this paper is divided into five sections. Section A, Regulatory Accounting, explains the basic concepts used in a rate case--rate base, rate of return, and operating income. Section B, AFUDC and CWIP, explains the accounting treatment of construction work in progress and AFUDC. Although the usual statement of the problem is whether CWIP should be included in the rate

base, this section demonstrates that the real issue is whether there is consistent treatment of AFUDC and CWIP. CWIP may be included in the rate base without any effect on rates, if a corresponding amount of AFUDC is included in operating income. Excluding both CWIP and AFUDC is equivalent to including both.

Section C discusses the question Is AFUDC Funny Money?. Section D discusses the Treatment of CWIP-Related Interest. Since a portion of CWIP is financed by borrowing, the related interest creates an income tax deduction. Should current ratepayers benefit from this income tax deduction?

Section E discusses Coverage. As mentioned above, large construction programs have adversely affected utility bond coverage and therefore the ability to build new plant. This section defines coverage, shows how coverage problems can be created by a large construction program and demonstrates why inadequate coverage is better remedied by providing a cash return on CWIP than by increasing rates of return.

Regulatory Accounting

There are three basic factors which determine a utility's revenue requirement: rate base, rate of return and operating income. Total revenues should be sufficient to cover all expenses (operation and maintenance, depreciation and taxes) and provide an adequate return on investment. Thus, in a rate case, the utility will present exhibits showing: (1) rate base--the investment in plant, plus the necessary amounts for working capital and inventories, (2) operating income--defined as revenue minus expenses of operation and maintenance (e.g., fuel and labor), depreciation and taxes, and (3) rate of return--the percent return on total investment necessary to pay bond interest, preferred stock dividends and provide equity income.

Schedule 1 shows the rate base for a hypothetical utility. Total investment in plant in service (generating plants, transmission lines, distribution lines, meters, etc.) is $1.1 billion. Of this amount, $350 million has already been written off through depreciation charges, giving a net plant investment of $750 million. The investment in materials and supplies, fuel inventory and working capital amount to $50 million, giving a total rate base of $800 million.

Schedule 1

RATE BASE

PLANT IN SERVICE	$1,100,000,000
DEPRECIATION RESERVE	(350,000,000)
NET PLANT	$ 750,000,000
WORKING CAPITAL)	
MATERIALS & SUPPLIES)	50,000,000
FUEL INVENTORY)	
RATE BASE (PLANT IN SERVICE)	$ 800,000,000

Schedule 2 shows the capital structure for this utility. The percentage of total capital provided by debt, preferred stock and common stock is fairly representative. Schedule 2 also shows how the rate of return is determined. All debt (bond issues and bank loans) carry a specified interest rate. Accordingly, one can take the total annual interest cost divided by the total amount of indebtedness to arrive at an average cost of debt--in this case, 7.8%. Obviously, if the utility has to sell new debt at interest rates of 10% or higher, this average cost will increase, which is part of the need for rate increases. As with debt, preferred stock issues carry stated dividend rates, so one can determine the average preferred stock costs--8.0% in this case.

The final element, the rate of return on common equity, must be argued in virtually every rate case. Since there is no simple method of determining the level of earnings that investors require, many methods have been developed to estimate it. For our purposes, however, it is simply sufficient to assume that the Commission has determined the appropriate rate for this utility to be 14.0%.

Multiplying the average cost of each type of capital by its proportion to total capital gives the weighted cost of capital. For our hypothetical utility, this is 10.0%.

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Schedule 2

CAPITAL STRUCTURE

TYPE	AMOUNT	% OF TOTAL
DEBT	$ 400,000,000	50%
PREFERRED	120,000,000	15
COMMON	280,000,000	35
TOTAL	$ 800,000,000	100%

COST OF CAPITAL

TYPE	%	RATE	WEIGHTED COST
DEBT	50	7.8%	3.9%
PREFERRED	15	8.0%	1.2
COMMON	35	14.0%	4.9
TOTAL	100		10.0%

Schedule 3 shows the computation of operating income (also called "return"). Revenues are $450 million. Expenses include operation and maintenance ($340 million), depreciation ($24 million), taxes other than income taxes ($15 million) and income taxes ($18 million). This leaves net operating income of $53 million. In utility accounting, operating income is before interest payments. It therefore includes the amount available to pay interest and preferred dividends (in contrast to the usual concept of income as the amount available to equity holders after payment of fixed obligations).

Schedule 3

OPERATING INCOME & RATE OF RETURN

REVENUES	$450,000,000
OPERATION & MAINTENANCE	
FUEL)	
LABOR)	340,000,000
MATERIALS)	
DEPRECIATION	24,000,000
OTHER TAXES	15,000,000
INCOME TAXES	18,000,000
OPERATING INCOME	53,000,000
RATE BASE	$800,000,000
RATE OF RETURN	6.6%

Schedule 4 shows how a rate increase is computed. The rate base (investment) is $800 million (from Schedule 1). The appropriate rate of return, as shown on Schedule 2, has been determined to be 10%. This means that the utility requires an operating income after taxes of $80 million. The present operating income, as shown on Schedule 3, is $53 million. This leaves an income deficiency of $27 million, which translates into a revenue deficiency of $50 million. (Out of every $1 of additional before-tax income, the federal government takes 46%, leaving after-tax income of $.54. This ratio of before-tax to after-tax income is 1.8519, which is referred to as the "tax factor.")

Schedule 4

RATE INCREASE COMPUTATION

RATE BASE	$800,000,000
RATE OF RETURN	10%
REQUIRED OPERATING INCOME	$ 80,000,000
OPERATING INCOME AT PRESENT RATES	53,000,000
INCOME DEFICIENCY	$ 27,000,000
INCOME TAX FACTOR	1.8519
REVENUE DEFICIENCY	$ 50,000,000

Schedule 5 is a recap of the utility's operating income and rate of return after the increase. Revenues have been increased by $50 million. Income taxes have increased by $23 million (46% of the $50 million revenue increase). Net operating income is now $80 million, which provides a 10% rate of return on the rate base of $800 million.

Schedule 5

REVENUES	$500,000,000
OPERATING AND MAINTENANCE	340,000,000
DEPRECIATION	24,000,000
TAXES OTHER THAN INCOME TAXES	15,000,000
INCOME TAXES	41,000,000
NET OPERATING INCOME	$ 80,000,000
RATE BASE	$800,000,000
RATE OF RETURN	10%

CWIP and AFUDC

Schedule 6 shows the situation where our hypothetical utility has a CWIP investment of $200 million in addition to its rate base of $800 million. Total rate base including CWIP is $1 billion.

Schedule 6

RATE BASE

PLANT IN SERVICE	$1,100,000,000
DEPRECIATION RESERVE	(350,000,000)
NET PLANT	$ 750,000,000
WORKING CAPITAL) MATERIAL & SUPPLIES) FUEL INVENTORY)	50,000,000
RATE BASE (PLANT IN SERVICE)	$ 800,000,000
CONSTRUCTION WORK IN PROGRESS	200,000,000
TOTAL INVESTMENT (RATE BASE & CWIP)	$1,000,000,000

Schedule 7, which corresponds to Schedule 2, shows a corresponding capitalization of $1 billion, assuming the same capital structure as on Schedule 2. For our purposes, we will also assume that the cost of each type of capital remains the same, so that the total rate of return is still 10%.

Schedule 7

CAPITAL STRUCTURE WITH CWIP

TYPE	AMOUNT	% OF TOTAL
DEBT	$ 500,000,000	50%
PREFERRED	150,000,000	15
COMMON	350,000,000	35
TOTAL	$1,000,000,000	100%

Schedule 8 shows the reason for AFUDC. Our utility has total capital of $1 billion, and an overall cost of capital of 10%, so it needs total income of $100 million a year. Obviously, investors will not supply additional capital if it will not produce income. However, the after-tax operating income available to pay investors is only $80 million.

Schedule 8

AFUDC

TOTAL CAPITAL	$1,000,000,000
COST OF CAPITAL	10%
NEEDED TOTAL INCOME =	100,000,000
OPERATING INCOME	$ 80,000,000

AFUDC IS IMPUTED RETURN ON CWIP

CWIP	$ 200,000,000
AFUDC RATE	10%
AFUDC	$ 20,000,000

If total income requirements are $100 million, but operating income provides only $80 million, where does the rest come from? The answer is that the utility is allowed to impute $20 million of income to the $200 million investment in CWIP. To do this the utility multiplies the investment in CWIP by an "AFUDC rate" (which is generally equal to the overall rate of return) and adds that amount to its income. (The exact mechanics of this will be discussed below.) As shown on Schedule 9, this gives the utility total income of $100 million, to produce an overall rate of return of 10%.

Schedule 9

EFFECT ON INCOME

OPERATING INCOME	$ 80,000,000
AFUDC	20,000,000
TOTAL UTILITY INCOME	100,000,000
TOTAL CAPITAL	$1,000,000,000
RATE OF RETURN	10%

EFFECT ON RATE BASE

AFUDC ADDED TO CWIP	
CWIP	$ 200,000,000
AFUDC	20,000,000
PLANT PUT ON BOOKS FOR	$ 220,000,000

But where does this money come from? It looks as though the utility is simply manufacturing $20 million of earnings. Actually, the $20 million addition to earnings is capitalized, creating an asset, and added to the construction costs of the CWIP project. In other words, the cost of borrowing money to finance the plant is added to the cost of labor and materials to get the total project cost. Thus, if the actual construction cost for land, labor, steel and concrete is $200 million, and the imputed return on that amount (the financing cost) is $20 million, the plant is put on the books for $220 million. But when does the utility actually receive this $20 million in cash? The $20 million of AFUDC is translated into cash earnings as the plant is depreciated. In short, the utility records $20 million of income on its books in the current year, but actually receives that amount in future years. (In effect, the utility borrows $200 million to construct the plant and borrows an additional $20 million to pay the interest and dividends on the $200 million. As the plant is depreciated, the utility recovers the entire $220 million which was borrowed.)

Thus, although AFUDC does not represent actual cash income in the current year, it does reflect a claim for future income, a claim which is regarded by investors as valid because the regulatory agency will allow the utility to recover its entire investment.

Schedule 10 shows a rate increase computation where both CWIP and AFUDC are included. (Compare with Schedule 4.) Since the total rate base is $1 billion (instead of $800 million), the required income is $100 million (instead of $80 million). Operating income is $53 million--the same as on Schedule 4. But to this we must add the $20 million of AFUDC, giving a total income of $73 million. As on Schedule 4, the income deficiency is $27 million, which translates into a revenue deficiency of $50 million. This shows that including CWIP in the rate base has no impact on rates <u>if</u> the AFUDC is correspondingly included in income.

Schedule 10

RATE INCREASE COMPUTATION INCLUDING AFUDC

RATE BASE INCLUDING CWIP	$1,000,000,000
RATE OF RETURN	10%
REQUIRED INCOME	$ 100,000,000
INCOME AT PRESENT:	
OPERATING INCOME	$ 53,000,000
AFUDC	20,000,000
TOTAL INCOME	$ 73,000,000
INCOME DEFICIENCY	27,000,000
INCOME TAX FACTOR	1.8519
REVENUE DEFICIENCY	$ 50,000,000

The real issue, therefore, is not whether CWIP is included in rate base, but whether the amount of CWIP added to rate base is commensurate with the amount of AFUDC added to income. As shown on Schedule 11, if one looks at operations only (left column), operating income of $80 million produces a 10% rate of return on the rate base excluding CWIP. The right column shows that with $80 million of operating income and $20 million of AFUDC, the utility receives a rate of return of 10% on its rate base including CWIP. As long as there is parallel treatment, the inclusion of CWIP is immaterial. Some states compute rate increases on an "operation only" basis (e.g., Missouri and Oregon) while other states use a "total company" basis (e.g., Georgia and Minnesota). In the first case, the issue in a rate case is whether to include any CWIP in the rate base. In the second case, the issue is whether to add all of the AFUDC to operating income. Schedule 12 shows the mechanics of the Company's request to earn a current return on CWIP. Say that the utility requests that it earn a current return on 25% of its construction work in progress. In the "operations only" case, the total rate base is $850 million. At a 10% rate of return, this gives an operating income requirement of $85 million, translating into a rate increase of $59.3 million. In the "total company" case, the utility would request reducing the AFUDC by 25%, from $20 million to $15 million. This, in turn, decreases total income by $5 million, increasing the income deficiency by the same amount.

Thus, the effect of excluding 25% of the AFUDC in the second case is identical to the effect of including 25% of CWIP in the rate base in the first case. In both cases, the utility is including 1/4 of CWIP without the corresponding amount of AFUDC. (Please note that some complexity in the income tax calculation has been omitted for ease of understanding, but this does not change the equivalency of the results.)

Schedule 11

PARALLEL TREATMENT OF AFUDC & CWIP

OPERATIONS ONLY		TOTAL COMPANY	
OPERATING INCOME	$80,000,000	OPERATING INCOME	$ 80,000,000
		AFUDC	20,000,000
		TOTAL INCOME	$100,000,000
RATE BASE	$800,000,000	RATE BASE	800,000,000
		CWIP	200,000,000
		TOTAL INCOME	$1,000,000,000
RATE RETURN	10%	RATE OF RETURN	10%

EXCLUDING		INCLUDING
BOTH	-	BOTH
CWIP, AFUDC	-	CWIP, AFUDC

RATE CASE ISSUE

Do we include CWIP in rate base?	Do we add AFUDC to operating income?

Schedule 12

RATE INCREASE INCLUDING CURRENT RETURN ON CWIP

OPERATIONS ONLY (millions)	
Rate Base	$800
Add 1/4 of CWIP	50
Total	850
Rate of return	10%
Required Income	$ 85
Income at Present Rates	53
Income Deficiency	$ 32
Tax Factor	1.8519
Revenue Deficiency	$59.3

TOTAL COMPANY (millions)	
Rate Base	$1,000
Rate of Return	10%
Required Income	$ 100
Income Incl. AFUDC	73
Eliminate 1/4 of AFUDC	-5
Income	68
Income Deficiency	$ 32
Tax Factor	1.8519
Revenue Deficiency	$ 59.3

Is AFUDC "Funny Money?"

Utilities raise two objections to AFUDC accounting. First, they observe that AFUDC is shown as income on the books, but is not cash income. Therefore, it cannot be used to pay investors. The second objection is that it is not "real" income since it is apparently conjured up out of nothing. They argue that investors regard AFUDC as "lower quality" earnings, and therefore downgrade a company for a high proportion of AFUDC in the total income statement.

The answer to the first objection is simple. Obviously, investors must be paid currently. But capitalizing the financing cost of a new plant is no different than capitalizing the labor cost. Construction workers must also be paid currently, but the company does not record that labor cost as an operating expense to be recovered through current rates. Rather, it is capitalized and recovered over the life of the plant through depreciation charges. The same is true of materials--suppliers must be paid as they deliver the materials, but the utility will not recover those payments until the plant actually goes in service and rates are increased to cover the depreciation charges of that plant. In other words, capitalizing financing costs is no different than capitalizing the

other costs of building a plant. Just as the utility must borrow money to pay its construction laborers and suppliers, it must also borrow money to pay its investors.

The second objection--that AFUDC is "created" earnings--is true, but misleading. The amount of additional income "created" in the current year through AFUDC will be realized in actual cash in the future. The difference, therefore, between AFUDC and operating income is simply a matter of timing. Operating income provides current cash earnings. AFUDC creates a future stream of earnings. If the company were arbitrarily to increase AFUDC from $20 million to $22 million, that would appear as an additional $2 million of income in the current year. But it would also produce an additional $2 million (plus carrying cost) over the life of the plant.

Prior to 1977, there was little uniformity among utilities in the treatment of AFUDC. Many utilities picked a figure for the AFUDC rate which was not tied to any overall rate of return. FPC Order 561 standardized the procedures, stating that the AFUDC rate should be essentially the same as the rate of return. In the same Order, the accounting mechanism for AFUDC was changed slightly in form (but not in substance). Henceforth, AFUDC was divided into two components: (1) the allowance for <u>borrowed</u> funds used during construction, and (2) the allowance for <u>other</u> funds used during construction. The allowance for borrowed funds represents a capitalization of the interest charges related to CWIP. If CWIP represents 20% of total plant investment, then 20% of the annual interest expense is capitalized. This capitalized amount is taken as a credit against interest expense for the year. The remainder of the amount, the allowance for other funds, is treated as an addition to income. Schedule 13 shows the treatment of these two components, as reported in a large power company's 1978 Form 1 Report. The allowance for borrowed funds is shown on Line 56 as a credit (negative expense). The allowance for other funds is shown on Line 28. Taken together, these two amounts represent the total AFUDC for the year.

Schedule 13

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STATEMENT OF INCOME FOR THE YEAR (Continued) — STATEMENT C

Line No.	Account (a)	Sch. page No. (b)	TOTAL Current year (c)	TOTAL Increase or (decrease) from preceding year (d)
22	Net Utility Operating Income (Forwarded from Page 114)	—	$ 242 925 497	$ 43 292 176
23	OTHER INCOME AND DEDUCTIONS			
24	Other Income:			
25	Nonutility Operating Income (415-418)	303	(62 557)	175 076
26	Equity in Earnings of Subsidiary Companies (418.1)	—	2 511 426	2 511 426
27	Interest and Dividend Income (419)	303	18 336 213	(1 058 825)
28	Allowance for Other Funds Used During Construction (419.1)	—	36 773 942	6 982 024
29	Miscellaneous Nonoperating Income (421)	303	129 392	(39 335)
30	Gain on Disposition of Property (421.1)	300	4 764 860	(48 695 858)
31	Total Other Income	—	$ 62 453 276	$ (40 125 492)
32	Other Income Deductions:			
33	Loss on Disposition of Property (421.2)	300	15 219	(12 737)
34	Miscellaneous Amortization (425)	304	-	-
35	Miscellaneous Income Deductions (426.1 - 426.5)	304	(97 311)	(970 381)
36	Total Other Income Deductions	—	$ (82 092)	$ (983 118)
37	Taxes Applic. to Other Income and Deductions:			
38	Taxes Other Than Income Taxes (408.2)	222	320 782	(1 044)
39	Income Taxes - Federal (409.2)	222	6 969 127	(15 282 660)
40	- Other (409.2)	222	1 080 948	(2 853 280)
41	Provision for Deferred Inc. Taxes (410.2)	214C-227	2 804 736	(4 832 257)
42	Provision for Deferred Income Taxes-Cr. (411.2)	214C-227	(1 258 858)	(1 172 160)
43	Investment Tax Credit Adj. - Net (411.5)	228-9	-	-
44	Investment Tax Credits (420)	228-9	-	-
45	Total Taxes on Other Income and Deductions	—	$ 9 916 735	$ (24 141 401)
46	Net Other Income and Deductions	—	$ 52 618 633	$ (15 000 973)
47	INTEREST CHARGES			
48	Interest on Long-Term Debt (427)	—	158 459 834	11 826 644
49	Amort. of Debt Disc. and Expense (428)	211	1 062 635	81 781
50	Amortization of Loss on Reacquired Debt (428.1)	214B	-	-
51	Amort. of Premium on Debt - Credit (429)	211	(65 699)	410
52	Amortization of Gain on Reacquired Debt - Credit (429.1)	214B	-	-
53	Interest on Debt to Assoc. Companies (430)	304	-	-
54	Other Interest Expense (431)	304	1 660 337	(1 174 512)
55	Allowance for Borrowed Funds Used During Construction - Credit (432)	—	(32 067 074)	(6 771 520)
56	Net Interest Charges	—	$ 129 050 033	$ 3 962 803
57	Income Before Extraordinary Items	—	$ 166 494 097	$ 24 328 400
58	EXTRAORDINARY ITEMS			
59	Extraordinary Income (434)	306	-	-
60	Extraordinary Deductions (435)	306	-	-
61	Net Extraordinary Items	—	$ -	$ -
62	Income Taxes - Federal and Other (409.3)	222	$ -	$ -
63	Extraordinary Items After Taxes	—	$ -	$ -
64	NET INCOME	—	$ 166 494 097	$ 24 328 400
65				

CWIP-Related Interest

The capitalization of interest related to CWIP raises another question. This interest can be taken as a deduction for income tax purposes. As shown in the example on Schedule 14, we have assumed that $100 million of debt is used to finance CWIP. At an average interest rate of 7.8%, this gives an interest deduction of $7.8 million, which reduces income taxes by $3.6 million.

There are three possible treatments of CWIP-related interest, two of which are mathematically equivalent. As shown on Schedule 15, the first method is to capitalize the tax reduction. That is, for rate-making purposes, income taxes are computed as if the CWIP-related interest were not present. Income taxes shown for rate-making purposes are $3.6 million higher than the actual amount paid to the IRS. The $3.6 million dollar savings related to interest on CWIP is deducted from the total cost of building the plant. In effect, this gives the utility $3.6 million with which to pay the cost of building and financing CWIP. Thus, the total cost of the plant is $200 million of construction cost plus $20 million of AFUDC less $3.6 million of income tax savings. The total net cost of the plant--the value put on the books--is $216.4 million.

Schedule 14

CWIP-RELATED INTEREST

DEBT USED TO FUND CWIP CREATES AN INTEREST DEDUCTION FOR INCOME TAXES. WHAT HAPPENS TO IT?

	OPERATIONS (PLANT IN SERVICE)	CWIP
DEBT	$400,000,000	$100,000,000
PREFERRED	120,000,000	30,000,000
COMMON	280,000,000	70,000,000
TOTAL	$800,000,000	$200,000,000
DEBT RELATED TO CWIP		$100,000,000
INTEREST RATE		7.8%
CWIP-RELATED INTEREST		$ 7,800,000
FEDERAL INTEREST RATE		X 46%
INCOME TAX SAVINGS		$ 3,600,000

The second method is to compute an after-tax AFUDC rate. Recognizing that each $1 of interest cost actually costs the Company only $.54 after taxes, we can compute the cost of money net of income tax savings. As shown on the lower half of Schedule 15, this gives a net after tax cost of debt of 2.1%. Since preferred dividends and common stock dividends do not create any income tax savings, their after-tax cost rates are the same as their before-tax rates. This gives a net of tax AFUDC rate of 8.2% (instead of a gross rate of 10.0%). Computing AFUDC at an 8.2% rate gives a total AFUDC amount of $16.4 million, resulting in the same total cost of plant and financing of $216.4 million as in the first case. Therefore, the overall impact is the same if the utility (1) uses a gross AFUDC rate and capitalizes tax savings, or (2) uses a net of tax AFUDC rate. The FPC decision gives utilities the choice of either one. Schedules 15 and 16 show calculations for both approaches.

Schedule 15

TREATMENT OF CWIP-RELATED INTEREST

(1) CAPITALIZE TAX REDUCTION

CWIP	$200,000,000
AFUDC @ 10%	20,000,000
DEFERRED TAX SAVING	(3,600,000)
	$216,400,000

(2) FACTOR INCOME TAX EFFECT INTO AFUDC RATE

	% OF CAPITAL	COST RATE	COST		TAX EFFECT		AFTER TAX RATE
DEBT	50	7.8	3.9	X	.54	=	2.1
PREFERRED	15	8.0	1.2		-		1.2
COMMON	35	14.0	4.9		-		4.9
	100						8.2%

CWIP	$200,000,000
AFUDC @ 8.2%	16,400,000
	$216,400,000

Schedule 16

TREATMENT OF CWIP-RELATED INTEREST

(3) FLOW-THROUGH. TAKE ALL TAX DEDUCTIONS CURRENTLY

CWIP	$200,000,000
AFUDC @ 10%	20,000,000
	$220,000,000

CURRENT RATES ARE REDUCED BY $7,800,000

The other possible treatment is to flow-through the income tax savings to current ratepayers. In other words, any tax savings on CWIP-related interest result in lower rates for current ratepayers. As compared with methods 1 and 2, under method 3 current rates are lower but future rates are higher. The paradox of this approach is that the larger a utility's construction program, the lower its current rates are. Thus, current income is cut at precisely the time when the utility needs cash most to finance its construction program. Moreover, since current ratepayers are not providing any of the cost of construction, it follows that they do not deserve the resulting tax benefits.

Coverage

Coverage is defined as the ratio of income to interest expense. A coverage ratio of 1.0 means that income exactly equals interest expense. Income can be defined in several ways. One measure of income is after-tax operating income (our usual definition). Another measure is before-tax operating income. Before-tax income is usually used to determine bond coverage because interest payments are deductible for income tax purposes. In other words, a company does not pay income taxes until after it has paid its interest obligation. A third measure is before-tax operating income plus AFUDC. (In some cases, only a portion of AFUDC is included.) Schedule 17 shows these coverage ratios. Operating income, as shown on Schedule 5, is $80 million. Total interest expense is $39 million ($500 million of debt at an average cost of 7.8%). Therefore, the after-tax coverage ratio is $80 million divided by $39 million, or 2.1 times.

Based on an $80 million after-tax income, income taxes are $41 million. Adding these two and dividing by interest cost of $39 million, gives a before-tax coverage ratio of 3.1 times. Finally, if the AFUDC of $20 million is added to before-tax income, the coverage ratio is 3.6 times.

Most utilities have legal agreements, called bond indentures, which require a certain coverage level if the utility is to sell new bonds. The minimum coverage level in such indentures is usually 2.0 times. This requires that the utility's actual before-tax income for the last 12 months be at least 2 times the total interest cost including the interest cost on the new issue. For example, if the latest year's before-tax income is $120 million, the utility is allowed to issue bonds up to the point where its total annual prospective interest cost would be $60 million. If its existing indebtedness is $500 million at an average 7.8% interest cost, current interest charges are $39 million. If the interest costs on a new bond issue would be 12%, the utility could issue no more than $175 million of additional bonds. The interest cost on this new issue would be $21 million, which added to the $39 million of existing interest cost would reach the limit of $60 million.

Schedule 17

COVERAGE

INCOME BEFORE INTEREST

INTEREST

AFTER TAX (EXCL. AFUDC)	$\frac{\$80}{\$39}$	= 2.1x
BEFORE TAX (EXCL. AFUDC)	$\frac{\$80 + 41}{\$39}$	= 3.1x
BEFORE TAX (INCL. AFUDC)	$\frac{\$80 + 41 + 20}{\$39}$	= 3.6x

Coverage problems arise when a utility's construction program represents a large portion of its total investment. Schedule 17 showed the coverage ratios for a utility with $1 billion of total capital investment, of which 80%, or $800 million, of that is for plant in service and 20% for CWIP. We call this an 80/20 ratio. Schedule 18 shows the corresponding ratios for a utility with the same $1 billion total capitalization, but a 60/40 ratio of plant in service to CWIP. At a 10% rate of return, after tax operating income is $60 million ($600 million times 10%). Income taxes are $31 million. Thus, operating income before taxes is only $91 million, as compared with $121 million in the 80/20 case. Total annual interest expense is the same as before, $39 million. The coverage ratio excluding AFUDC is 2.3 times--as compared with 3.1 times in the 80/20 case. AFUDC is $40 million ($400 million CWIP at a 10% AFUDC rate). The coverage ratio including AFUDC is 3.4 times, as compared with 3.6 times in the 80/20 case.

It is obvious why coverage excluding AFUDC is lower in the 60/40 case. Since operating income is based on plant in service, but interest charges are based on total debt, operating income will be smaller as the ratio of plant in service becomes smaller. The coverage ratio based on income including AFUDC is also lower, but for a more subtle reason. For each dollar of operating income, the company has approximately $1½ of before-tax income. (The exact ratio depends on the relative costs of debt, preferred and common.) On the other hand, since AFUDC is not considered taxable income by the IRS, there is no income tax expense associated with it. In the 80/20 case, we have a total of $100 million after-tax income--$80 million operating income and $20 million AFUDC. In the 60/40 case, we also have $100 million total income--$60 million of operating income plus $40 million of AFUDC. But in the 80/20 case, the rates also include $41 million of income tax expense (related to the $80 million of operating income), while in the 60/40 case the income tax is only $31 million. Therefore, a higher percentage of operating income in the total income also means a greater provision for income tax expense in the revenues. Thus, the total before-tax income is greater, and coverage is higher.

Schedule 18

COVERAGE PROBLEMS

ASSUME:	RATE BASE	$ 600,000,000
	CWIP	400,000,000
"60/40"	TOTAL	$1,000,000,000
OPERATING INCOME	$600,000,000	$ 60,000,000
INCOME TAXES		31,000,000
INCOME BEFORE TAXES		$ 91,000,000
AFUDC	$400,000,000 x 10%	$ 40,000,000

	"60/40"	"80/20"
COVERAGE EXCLUDING AFUDC:	$\frac{60 + 31}{39} = 2.3x$	3.1x
COVERAGE INCLUDING AFUDC:	$\frac{60 + 31 + 40}{39} = 3.4$	3.6x

Schedule 19 summarizes the coverage ratios in our two examples--the 80/20 case (where plant in service represents 80% of total assets) and the 60/40 case. Note that in all cases, the denominator is the same, representing $39 million of interest expense. In other words, the coverage ratio changes because the numerator changes. In order to increase coverage, therefore, we must increase one or more of the items in the numerator. Increasing the amount of AFUDC will help one coverage ratio, but not the other. In any event, since the AFUDC rate is linked to the rate of return, it cannot be arbitrarily increased. It is possible, of course, to increase the amount of income taxes by reducing the deductions taken. But there is no point in doing so, because the utility simply takes additional dollars from its customers and hands them over to the government.

Realistically, the only way to increase coverage is by increasing the operating income. This can be done two ways:

(1) Increasing the rate of return

(2) Earning a current return on a portion of CWIP.

In the first case, the regulatory commission allows the utility a higher rate of return in order to produce the appropriate coverage ratio. Since interest and preferred dividend requirements are fixed, the higher rate of return accrues to the benefit of the common equity stockholders. AFUDC is not changed and the utility is not allowed to earn a return on any portion of its construction work in progress. In the second case, the regulatory commission allows the utility to include a portion of CWIP in the rate base without the corresponding AFUDC addition to income. The overall rate of return stays the same, but the earnings base increases, giving a higher dollar amount of operating income.

Of these two choices, the second is clearly preferable. It violates the "used and useful" principle, but it is the least expensive choice for the ratepayers.

Schedule 19

EFFECT OF CWIP RATIO ON COVERAGE

(1) $\frac{\text{OPERATING INCOME + TAXES}}{\text{INTEREST}}$

"80/20"	"60/40"
$\frac{80 + 41}{39} = 3.1x$	$\frac{60 + 31}{39} = 2.3x$

(2) $\frac{\text{OPERATING INCOME + TAXES + AFUDC}}{\text{INTEREST}}$

"80/20"	"60/40"
$\frac{80 + 41 + 20}{39} = 3.6x$	$\frac{60 + 31 + 40}{39} = 3.4x$

\$1 OF AFUDC ⟶ \$1 OF OPERATING INCOME

\$1/2 OF INCOME TAXES (APPROX.)

Assume that the Commission has determined the optimal coverage ratio to be 3.0 times, based on before-tax income excluding AFUDC. As shown on Schedule 19, in the 60/40 case the utility has coverage of only 2.3 times. Schedule 20 shows the increase necessary to meet the desired coverage. Based on annual interest expense of $39 million, a 3.0 times coverage ratio requires before-tax income of $117 million. Income taxes on this amount are $43 million (remember that the interest deduction related to operations is based on 60% of total interest cost). This leaves operating income of $74 million, which produces a return of 12.33% on the $600 million rate base. A 12.33% overall rate of return equates to a return on equity of 17.8%--in contrast to the 14% cost of equity previously determined. Thus, because of coverage problems, the utility requires a return on equity higher than the actual cost of equity.

With a rate base of $600 million, the necessary operating income at 10% rate of return would normally be $60 million. To produce an operating income of $74 million requires a rate increase of $26 million. In other words, in order to provide a 3.0 times coverage, the ratepayers must bear an additional $26 million rate increase over and above the rates the utility would otherwise charge.

With $74 million of operating income and $40 million of AFUDC income, the utility's total income is $114 million. Thus, the ratepayers pay an additional $26 million and the utility realizes extra income of $14 million.

Schedule 20

EXAMPLE OF COVERAGE REQUIREMENT

"60/40"	
ANNUAL INTEREST	$ 39,000,000
DESIRED COVERAGE (EXCLUDING AFUDC)	3.0x
REQUIRED BEFORE TAX INCOME	117,000,000
INCOME TAXES	43,000,000
OPERATING INCOME	$ 74,000,000
RATE BASE	$600,000,000
RATE OF RETURN	12.33%
RETURN ON EQUITY	17.80%
OPERATING INCOME	$ 74,000,000
AFUDC	$ 40,000,000
TOTAL INCOME	$114,000,000

RATE INCREASE

($74,000,000 - $60,000,000) ÷ .54 = $26,000,000

Schedule 21 shows how coverage can be raised by converting AFUDC to operating income (equivalent to including part of CWIP in rate base). Once again, starting with the annual interest cost of $39 million and the coverage ratio of 3.0 times, the required income before taxes is $117 million. At a 10% rate of return, the before-tax income is $91 million (from Schedule 18). Therefore, the utility needs an additional before-tax income of $26 million. Since $1 of after-tax operating income is equivalent to about $1½ of before-tax operating income, the utility can realize an additional $26 million of before-tax income by converting about $17.3 million of AFUDC into operating income. This is equivalent to earning a current return of 10% on $173 million of CWIP.

Schedule 21

RAISING COVERAGE BY CONVERTING AFUDC

ANNUAL INTEREST	$ 39,000,000	
DESIRED COVERAGE	3.0x	
REQUIRED INCOME BEFORE TAXES	117,000,000	
INCOME BEFORE TAX W/FULL AFUDC	91,000,000	
NEED ADDITIONAL	$ 26,000,000	
RATIO OF BEFORE TAX INCOME TO AFUDC	1.5	(APPROX.)
AFUDC CONVERSION	$ 17,300,000	
OPERATING INCOME	$ 77.300,000	
AFUDC	22,700,000	
TOTAL INCOME	$100,000,000	
RATE INCREASE	$ 26,000,000	

Schedule 22 shows the arithmetic of the rate increase computation. Starting with its $600 million rate base of plant in-service, the utility adds $173 million of CWIP. Since current ratepayers are being asked to provide a return on this CWIP, they are also entitled to the extra income tax deduction for the interest expense. Since half of CWIP is financed by debt, the interest expense is $6.7 million ($173 million x 50% x 7.8%). The additional interest deduction reduces income taxes--and therefore increases operating income--by $3 million. The net effect is a rate increase of $26 million. As in the first case, the ratepayers must bear a $26 million increase over and above what they would normally pay. However, in this case, that additional money is used to reduce the

cost of construction work in progress. Since the ratepayers are paying the financing cost for $173 million of CWIP, that financing cost is not added to the construction cost. Thus, when the plant goes into service, it will be put on the books for a smaller amount than if full AFUDC had been accrued. (Schedule 23).

Schedule 22

RATE BASE	AMOUNT (MILLIONS)
Plant in service	$600
CWIP	173
Total	773
Return at 10%	77
Return at Present Rates	
Current rates	60
Lower income taxes - CWIP interest	3
Adjusted return	63
Income deficiency (77.3 - 63.1)	14
Tax factor	1.8519
Revenue deficiency	$26

Schedule 23

COMPARISON OF EFFECT

METHOD 1 - RAISE RATE OF RETURN

RATE INCREASE	=	$ 26,000,000
CWIP + AFUDC	=	$240,000,000

METHOD 2 - CONVERT AFUDC TO OPERATING INCOME

RATE INCREASE	=	$26,000,000
CWIP + AFUDC	=	$222,700,000

In the first case, where coverage was increased by raising the rate of return, ratepayers receive no offsetting benefit in the future to compensate them for the additional $26 million increase in the present. In the second case, they do receive an offsetting benefit, because the plant investment is lower. (The apparent mismatch between the $26 million increase in rates and the $17.3 million decrease in plant cost is due to the effect of income taxes.)

In both cases, ratepayers have to pay a $26 million increase to provide adequate coverage. But only in the second case do they receive a compensating reduction in future rates. Therefore, while the second approach apparently violates the "used and useful" principle, it is less costly for the ratepayers. As long as ratepayers have to pay the larger increase, they are obviously better off with the smaller rate base in the future which results from the second method. (There is an obvious parallel with depreciation rates. A company can increase its cash flow by increasing rate of return or by increasing depreciation rates. Both methods will require a rate increase, but higher depreciation rates imply low net plant balances in the future. The ratepayer is obviously better off with the second approach.)

Summary

Until recently, coverage has not been a problem. But as interest rates increase and the proportion of assets tied up in construction increase, many utilities are edging toward coverage problems. However, proposals to solve this by including CWIP in the rate base have rarely addressed this problem directly. Instead, the utilities have made very general arguments about the "quality of earnings" and the need for cash. Including CWIP in the rate base is not a good idea in principle. But it can be a useful financial tool for those utilities that need it. This requires regulators and utilities to focus on the question of what level of coverage is desirable. In emergency situations, where the utility has fallen below its legal indenture coverage, this approach at least provides a floor for determining the amount of CWIP necessary in the rate base. But in most cases it is a difficult problem--as much or more so than determining return on equity. However, even an imprecise approach is preferable to the traditional "all or nothing" approach or the choice of an arbitrary amount of CWIP.