

CWIP: ~~shifting the investment risk~~ shifting the investment risk to utilities' consumers

by John L. Neufeld

One of the last acts of the state legislature two years ago was the passage of Senate Bill 276, the Utilities Commission Reform Bill. One of the changes mandated by that bill will allow utilities to include the costs of "Construction Work in Progress" (CWIP) in their rate bases. Thus, ratepayers will be paying for a portion of the costs of utility plants while they are being built and before they receive a product from the plants. Whether they like it or not, the ratepayers will become investors in the utility companies. Prior to passage, there was relatively little discussion among legislators or among the general public about the impact which CWIP will have on the state's utilities and ratepayers. By delaying the effective date of the new law until July of this year, the legislature gave itself the chance to review and modify the decision made two years ago. The discussion which was absent two years ago ought to take place now.

Although there was little discussion at the time, the change to CWIP is a move favored by the state's utilities and by Hugh Wells, the director of the Public Staff of the Utilities Commission. Despite this appearance of broad support, CWIP is a proposal which deserves controversy. CWIP might be useful in instances where public utilities face major financing crises as a result, in part, of inept management and incompetent regulation. This situation does not exist now in North Carolina and there is no evidence that a financing crisis lies in the foreseeable future. At present, the adoption of CWIP would allow utilities to collect money from ratepayers which would not be used to offset current costs of providing service. It relieves stock and bondholders of part of the risk they face by shifting that risk to the customers of the utility. In addition, CWIP distorts the incentives faced by private utilities and might lend to wasteful over-construction. A more active Utilities Commission will be necessary to counteract these influences.

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Unfortunately, as is the case in many utilities matters, it is very unlikely that more than a handful of North Carolinians will have a reasonably complete understanding of the issues involved. This is a pity because the decision which is ultimately made will have an impact on virtually all North Carolinians.

Construction Costs and Interest

The basic change CWIP makes in the way utilities* operate is that it changes the timing by which a major portion of the cost of building new power plants is reflected in utility rates. The present system is designed to prevent the construction of new power plants from having any impact on rates until the power plants are completed and put into service. Under CWIP, a major portion of the cost of constructing new power plants can be recovered immediately without waiting for the plants to be completed and put into service.

In order to understand how CWIP works, it is necessary to have a rudimentary understanding of utility cost accounting. A utility is entitled to receive from its customers an allowable gross revenue which consists of the *cost of service* plus a *fair return* on its *rate base*. The rate base is equal to the value of all of the utility's invested capital (power plants, office buildings, power lines, etc.) Before an item can be added to the rate base, its inclusion must be permitted by the Utilities Commission. The *fair return* is then equal to the value of the rate base multiplied by a *fair rate of return* which is determined by the Commission. In a sense, these terms are misleading. The fair return which a utility receives in its operating income is conceptually as much a part of the cost of doing business as is the cost of service component of operating income. The primary distinction is that the component of the utility's cost which is offset by the fair return is much more difficult to value objectively than is the component represented by the cost of service.

The electric power industry is very capital intensive; a large proportion of a power company's

*Although CWIP would apply to all regulated utilities, this discussion will focus on the electric power industry.

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costs consists of generating plants, transformers, distribution networks, etc. In order for a utility to construct these facilities, it must raise sufficient money to pay for their construction. If it raises the money by issuing bonds, it will have to pay interest on the bonds. If it raises the money by issuing stock, then it must make an implied promise to pay those stockholders dividends. In the absence of interest and dividend payments, a utility would be unable to raise the money it needs to construct essential capital equipment. Since the interest and dividends are required for the utility to function, they should properly be regarded as a cost of doing business. The chief problem in objectively valuing this cost is that it is hard to determine exactly what rate of dividends the utility must pay its stockholders. Nevertheless, this is part of what the Utilities Commission must do in its hearing process. The fair rate of return is set by the Commission to best approximate the overall return the company must pay its stock and bondholders. Since the stock and bondholders provided the funds for these items which are included in the rate base, the fair return should allow the utility to compensate them for just that provision of funds.

The cost of constructing a new power plant will affect utility rates in two ways. When the power plant is added to the rate base, the power company's fair return will increase, thus increasing its allowable operating income. Once the power plant is brought into service, the company can depreciate it over a certain time period. Each year the depreciation has the effect of reducing the plant's value in the rate base, but the amount of the depreciation taken each year is included in the cost of service and therefore increases the company's allowable gross revenue.

The time period required to construct a power plant is quite long, particularly if the power plant is designed to produce electricity from nuclear energy. Such a plant may require as much as 10 to 12 years for construction. During the entire construction period, the utility will have to continually raise capital in order to pay for the ongoing construction. The obligation to provide a return to the suppliers of the funds exists during the period of construction as much as it does once the plant is in service. If the funds have been raised through the sale of bonds, the utility will have a legal obligation to pay the bondholders interest during the period of construction. Although stockholders need not be paid during the time period of construc-

tion, a return for the use of funds during construction will eventually have to be made to them. As was discussed above, an interest-like return on the value of a utility's capital should be viewed as a normal cost of doing business. In the same way, the interest cost for funds used to finance the construction of a power plant, incurred before the plant is completed, should be viewed as a normal part of the cost of constructing a power plant. This cost must be recovered by the utility. CWIP permits the utility to recover income to offset this cost as it is being incurred. In the absence of CWIP, the income to offset this cost is not received by the utility until after the plant comes into service. This delay is achieved through an accounting device known as Allowance for Funds Used During Construction (AFUDC).

AFUDC

Under a system employing AFUDC, the Utilities Commission determines a rate of interest designed to reflect the cost to the utility of borrowing money to finance a construction project. This rate is conceptually similar to the rate of return the utility is allowed to receive on its rate base, although the two rates are determined separately. The AFUDC rate is usually slightly lower than the allowable rate of return.

Once a utility spends money for construction, it will begin incurring an interest cost for this money. Under the accounting procedures used by regulated utilities, the utility calculates an Allowance for Funds Used During Construction by adding all of the costs incurred by the project and multiplying this by the AFUDC rate. If the Commission has set the correct AFUDC rate, the Allowance should exactly equal the utility's cost of retaining funds for the construction project for an additional year. The utility is then permitted to add this Allowance to the costs incurred in constructing the plant. Thus, when the plant is brought into service, its contribution to the rate base will include an Allowance for each year in which the plant was under construction as well as the direct amount spent on construction. As the plant is depreciated, both construction costs and AFUDC will be recovered from the utility's customers.

Because of the accounting practices employed in regulated utilities, AFUDC appears in the utility's income statement as income for the year in which it is claimed. This practice has been criticized by

Governor Among Opponents of CWIP

The Construction Work in Progress (CWIP) provision was not part of the utilities reform legislation Governor Hunt supported during the 1977 session of the General Assembly. In response to a query from the Center, the governor said through Press Secretary Gary Pearce that he opposed CWIP then and opposes it now and that he would support legislation to repeal the provision.

Hunt said he was responsible, through Hugh Wells, then counsel to the State Senate's Utilities Committee, for having the implementation date of CWIP delayed until July 1, 1979. Although the governor acknowledged that good arguments can be made on both sides of the issue, he said he saw no need for the change to the CWIP method of financing utility construction.

Wells, now director of the public staff of the Utilities Commission, favors CWIP. In an interview, Wells emphasized the fact that the Utilities Commission has the statutory authority to decide what construction expenditures the utilities may include in their rate bases. He expressed confidence that the commission can decide whether the utilities are building the right facilities and adhering to the proper timing in their construction programs. He said the public staff will look carefully at the utilities' construction budgets.

Wells describes CWIP as a compromise solution to a public policy problem---the utilities' difficulty with financing. "It's mathematics certain and sure," he said, "that consumers will pay less in the long run under CWIP." As for the argument that some of today's consumers will pay for power they never use, Wells said, "There's no logical response. It's a matter of fitting the remedy to the disease."

State Sen. I. Beverly Lake Jr., who opposed including the CWIP provision, said, as this publication was being prepared in April, that he did not know whether he would introduce legislation to repeal CWIP. Lake, who takes the position that today's ratepayers shouldn't be forced to pay for future ratepayers' electricity, describes CWIP as a "time bomb that is going to go off to the extreme detriment of the ratepayers."

Although Lake opposes heavy reliance on nuclear power plants because of what he views as their high costs and inefficiency, he does not base his position on CWIP on his opposition to nuclear power. But others do. Anti-nuclear groups in North Carolina and in many other states have mounted campaigns against CWIP because they believe that method of financing encourages power companies to build nuclear-powered plants, which are costly and take many years to build.

Opposition to CWIP, which was a highly publicized issue in last fall's gubernatorial election campaign in New Hampshire, was partially responsible for the recent decision by the Public Service Co. of New Hampshire to sell 60 percent of its interest in the Seabrook nuclear power plant. The newly elected governor of New Hampshire, Hugh Gallen, has pledged to seek legislation repealing the CWIP provision in that state.

—Henry Wefing

some, since AFUDC does not provide cash to the utility when it is claimed. It will, in fact, not provide cash until the plant is brought into service. The AFUDC does represent an increase in the value of an asset owned by the utility, the plant under construction. Consequently, it does represent income in the strict economic sense. It is as if the utility received the income in cash and immediately invested that income in the plant under construction.

Securities analysts who judge the attractiveness of a utility as a potential investment are liable to look very carefully at a company which has a substantial portion of its income in the form of AFUDC rather than cash receipts. Such a company may have to pay a higher rate to attract additional

investment funds than would an otherwise identical utility which has only a small portion of its income in the form of AFUDC. From the standpoint of potential investors, this higher rate is appropriate. AFUDC represents income which *may* be realized in the future if the plant is indeed brought into service and if the utilities commission permits a rate increase at that time. If investors or securities analysts believe that the utility is overconstructing, they may question whether the plant will ever be brought into service, or at least whether its completion may be delayed. Such a possibility is particularly troublesome these days, when the rate of growth in demand for electricity has declined sharply from that of previous decades. Projections made today on what the demand for electricity

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In any event, the risk to investors which is represented by AFUDC is eliminated under CWIP.

CWIP

If a utility is allowed to use CWIP (Construction Work in Progress), it can add the costs incurred in constructing a power plant to its rate base before the plant is completed and in service. Once the construction costs are in the rate base, they permit an increase in the firm's allowable return. In essence, CWIP permits the utility to enjoy an immediate return on its invested capital. This return can be used by the utility to pay those investors who provided funds for the construction project. To investors, providing funds to a firm which uses CWIP is less risky than providing funds to an otherwise identical firm which does not use CWIP. This lessened risk is owing to the fact that under CWIP the utility receives an immediate return on its construction investment. No longer must the firm incur the risks of waiting until its plant is in service before receiving a return. Essentially, those risks are transferred to the utility's customers, who must pay a return to those funds even if they prove useless—that is, even if the plant they finance turns out to be unneeded.

will be in 20 years are far more likely to be in error than were similar projections made 20 years ago. Potential investors will require a higher return in compensation for this increased risk. It should be noted that this problem is particularly likely to be experienced by utilities whose plans call for the construction of nuclear-powered generating plants rather than fossil fuel-powered plants. Nuclear plants tend to be more expensive and tend to take much longer to complete. Consequently, they generate more AFUDC than similar sized fossil fuel plants. Utilities constructing nuclear plants thus pose a greater risk to investors than do otherwise identical utilities constructing fossil fuel plants.

The possibility that a plant's completion may be delayed or cancelled is not the only risk faced by potential investors. There is also the risk that utility rates may not rise fast enough to adequately recover the funds invested in the new plant. This possibility is particularly likely in periods of rapid inflation. The regulatory procedures used by North Carolina and other states are more likely to provide a company with insufficient revenues during periods of high inflation than during periods of low inflation. There are several reasons for this discrepancy. Periods of high inflation are often characterized by rising interest rates. A utilities commission which uses historical data to determine the utility's cost of funds may set a rate of return too low to meet the company's future needs. Rate cases in North Carolina are based on past test years. Essentially, the Commission grants rates which would have produced sufficient revenue had they been in effect during the test year. Even if the rates would have been sufficient for the test year, inflation may make them insufficient to meet a utility's needs in the future. This possibility also increases the risk faced by potential investors and may increase the return the utility must pay many investors in order to attract additional funds.

In extreme circumstances, the risk potential investors see in a utility whose income is largely AFUDC may make them reluctant to purchase the stocks or bonds of the utility, regardless of the return. Such a situation might result in a financial crisis for the utility and could result in construction delays. Although AFUDC could be a contributing factor in such a financial crisis, it is very unlikely that extreme mismanagement and unreasonable regulatory behavior would not also be present.

CWIP has some advantages for ratepayers. If the utility adds its construction costs to its rate base under CWIP, there would usually be no AFUDC. Consequently, when the plant comes into service, its value in the rate base will consist only of construction costs without AFUDC. The elimination of the AFUDC component of construction costs will significantly reduce the total rate base value of the plant. This means that once the plant is in service, its impact on rates will be less if the utility used CWIP than if it used AFUDC. Before the plant is in service, however, there will be no impact on rates if AFUDC is used, while there will be an impact on rates if CWIP is used. Compared to AFUDC, CWIP causes ratepayers to pay more while plants are under construction but less after the plants are in service. A reasonable question to ask at this point is under which system, AFUDC or CWIP, is the total cost to ratepayers less? Unfortunately, several issues complicate a complete answer to this question.

CWIP vs. AFUDC

If one simply tallies the amount paid by ratepayers for a single project under CWIP and for the identical project under AFUDC, the total spent over the period of the plant's construction and over its useful life will be less under CWIP than under AFUDC. This difference results from the "compounding" of AFUDC, which is calculated on the basis of construction costs plus AFUDC already

Construction Costs Under CWIP and AFUDC

CWIP

Year	Construction Costs	Contribution to rate base value	Contribution to fair return	Depreciation	Recovered from ratepayers
1	\$1,000,000	—	—	—	—
2	1,000,000	\$1,000,000	\$100,000	—	\$100,000
3	1,000,000	2,000,000	200,000	—	200,000
4	1,000,000	3,000,000	300,000	—	300,000
5	1,000,000	4,000,000	400,000	—	400,000
6	in service	5,000,000	500,000	\$500,000	1,000,000
7	in service	4,500,000	450,000	500,000	950,000
8	in service	4,000,000	400,000	500,000	900,000
9	in service	3,500,000	350,000	500,000	850,000
10	in service	3,000,000	300,000	500,000	800,000
11	in service	2,500,000	250,000	500,000	750,000
12	in service	2,000,000	200,000	500,000	700,000
13	in service	1,500,000	150,000	500,000	650,000
14	in service	1,000,000	100,000	500,000	600,000
15	in service	900,000	50,000	500,000	550,000

AFUDC

Year	Construction Costs	AFUDC	Total Costs	Contribution to rate base value	Contribution to fair return	Depreciation	Recovered from ratepayers
1	\$1,000,000	—	\$1,000,000	—	—	—	—
2	1,000,000	\$100,000	2,100,000	—	—	—	—
3	1,000,000	210,000	3,310,000	—	—	—	—
4	1,000,000	331,000	4,641,000	—	—	—	—
5	1,000,000	464,100	6,105,100	—	—	—	—
6	in service	—	—	\$6,105,100	\$610,510	\$610,510	\$1,221,020
7	in service	—	—	5,494,590	549,459	610,510	1,159,969
8	in service	—	—	4,884,080	488,408	610,510	1,098,918
9	in service	—	—	4,273,570	427,357	610,510	1,037,867
10	in service	—	—	3,663,060	366,306	610,510	976,816
11	in service	—	—	3,052,550	305,255	610,510	915,765
12	in service	—	—	2,442,040	244,204	610,510	854,714
13	in service	—	—	1,831,530	183,153	610,510	793,663
14	in service	—	—	1,221,020	122,102	610,510	732,612
15	in service	—	—	610,510	61,051	610,510	671,561

* This hypothetical comparison is based on the following assumptions: that the plant takes five years to construct and that direct construction costs are \$1 million each year; that the AFUDC rate is 10%; that the fair rate of return is 10%; that the plant has a useful life of 10 years, and that straight-line depreciation is used. The tables are not meant to reflect the actual accounting practices of utilities. It takes longer than five years, for example, to construct most power plants, and different amounts are spent on construction during each year of the building project.

credited the project. Under AFUDC, customers essentially pay "interest on interest" and it is this which is the primary source of the difference between the total paid under CWIP and under AFUDC. Such a comparison of CWIP and AFUDC would be misleading, however. Under CWIP, customers must begin paying for new plants sooner than they would under AFUDC. In the absence of CWIP, one could imagine customers taking the money they would have paid under CWIP and investing it in some interest-bearing asset (such as a savings account) until construction on the plant was complete. Once the plant is complete, the money in the savings account could be used to pay electric bills. Because of the interest received by the savings account, the money available to pay for electric bills would be greater than the sum of

all of the deposits made into the account. The point is that money paid earlier, as under CWIP, is more valuable than money paid later, as under AFUDC, because one can always receive interest on money on which payment can be deferred.

In order to determine whether ratepayers pay more in total under CWIP than under AFUDC, one must know what interest rate ratepayers face and how it compares to the rate the power company faces. If the AFUDC rate and the utility's allowable rate of return-rate and the interest rate on ratepayers' investments are all equal, then the costs under CWIP and AFUDC are identical. If ratepayers receive a lower rate, the costs are lower under CWIP; conversely, if they receive a higher rate, the costs are lower under AFUDC. Unfortunately, it is not easy to determine the rate which ratepayers

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face, since each individual may face different rates. If an individual is a net saver, and if his highest return comes from a passbook savings account, the rate he faces is liable to be low. On the other hand, some of a utility's customers may be debtors. For them, the relevant interest rate is the rate which they must pay. Conceptually, we can imagine such customers increasing their borrowings to finance higher utility bills under CWIP. If they must pay 30% interest on their loans, they may not be impressed by the fact that they save the 9% extra they would have had to pay under AFUDC. Comparison of the costs paid under CWIP and AFUDC are meaningless unless an interest adjustment is made to compensate for the different time periods in which each system requires payment to be made. Ignoring this point is equivalent to assuming ratepayers face a 0% interest rate, an absurd position.

Another complicating factor in the comparison of CWIP and AFUDC arises from the risk which is an integral aspect of utility plant construction. Any project which incurs costs now to provide benefits in the future faces some risk that those future benefits will not materialize. No accounting rule is going to change this basic economic fact. Generally the assumption of risk is a function undertaken by investors in a free market economy. CWIP insulates investors from part of that risk by forcing ratepayers to provide a return to those investors regardless of whether or not the plant's future benefits ever materialize. Under AFUDC, this risk is assumed by those investors who, through their actions, have shown themselves to be most willing to assume the risk. Under CWIP the risks are forced upon ratepayers who might not have been willing to accept them voluntarily. Thus, even if ratepayers face an interest rate identical to that faced by the power company, they are better off if their electric bills are figured with AFUDC rather than CWIP. The Utilities Commission has the responsibility to minimize the risk investors face by insuring that rates do not fall too low to provide a utility with sufficient revenue, regardless of whether or not CWIP is used.

The third factor complicating a comparison of the costs borne by ratepayers under CWIP and AFUDC arises from the fact that ratepayers represent a heterogeneous mobile group. Under CWIP many ratepayers will be paying for a power plant whose benefits they would not enjoy even if the plant were to be finished on time. Older ratepayers may not survive the construction period, and younger ones may move out of the utility's

service area. In essence, the risk to a ratepayer who, under CWIP, must pay for benefits in the future, is greater than the same risk would be to an investor under AFUDC. Although CWIP causes ratepayers to assume some of the costs otherwise assumed by investors, it may distribute those benefits to others who have not paid the full cost of the service they enjoy because they moved into a utility's service area only after plant construction was complete. For this reason, if it were possible to allow each ratepayer to choose whether his rates alone would be calculated under CWIP or AFUDC, it seems highly unlikely that a ratepayer with a good understanding of the issues involved would ever choose CWIP. The risk that any individual ratepayer might not derive full benefit from his payments under CWIP would be too great. One might argue that CWIP should be regarded as a redistribution scheme in which those who have lived in an area for a long time subsidize newcomers and the young. It is hard to imagine a social goal which would be furthered by such redistribution.

CWIP and the Regulatory Process

CWIP will increase the burden borne by the Utilities Commission of ensuring an economical electric power system. It is conceivable that an unusually good Commission might, in some ways, turn CWIP to the advantage of ratepayers. This will require that the Commission become much more involved in the type of details concerning plant design and construction which have generally been the concern of utility management.

Under AFUDC, utilities face a powerful incentive to avoid construction of a plant which might not be needed. Once a plant is under construction, there is also an incentive to complete construction as rapidly as possible so that the company can begin earning a return on its investment. Although CWIP would not eliminate the risk to a utility of overconstruction, it would reduce this risk. It virtually eliminates the present incentive a utility faces to construct plants as rapidly as possible, and therefore to not begin construction prematurely. These are potentially important factors and have impact on virtually all activities associated with long-run utility planning, including load forecasts, choice of fuel for future plants, and all construction timing decisions. A vigilant Commission will be essential to ensure that long-range planning made by the state's utilities does not expose ratepayers to unnecessary risk. Traditionally, the Utilities Commission has been reluctant to overrule utility management in these types of decisions unless there has been overwhelming evidence against the utility. With CWIP, commissions are going to have to become involved with long-range forecasting, risk evaluation, the overseeing of construction plans, and the evaluation

of construction schedules.

It is not inconceivable that an unusually adept Commission might be better at long-range planning than the private utilities it regulates. CWIP is not a prerequisite, however, to commissions taking a more active stance, although it increases the necessity of such a posture. An argument could be advanced that a competent utility management, combined with a capable commission, could reduce the risk associated with long-range planning below that which has been evaluated by potential investors. Such a line of argument would maintain that investors, in such a situation, would receive a higher return than was really necessary for the risk they were assuming. By shifting this risk to ratepayers, the argument would continue, the savings

to the ratepayers exceeds the cost of any potential risk.

It is my personal view that it is impossible to eliminate the risk associated with a decision which depends on a prediction of future human behavior. Power plant construction timing involves just such decisions, because it depends on forecasts of future demands for electricity. The time period of a power plant's construction exceeds the term of most utility commissioners, and the quality of commissions is subject to wide fluctuation. For these reasons the accountability associated with long-run decisions would best remain primarily with utility companies which, as much as possible, will have to bear the full consequences of their decisions.□

A Blow to Public Access

The U.S. Supreme Court ruled in April that the Federal Communications Commission (FCC) had no statutory authority for requiring a cable television system with 3,500 or more subscribers to provide access channels and production equipment for use by the public.

The ruling means that the 20 or so cable television systems in North Carolina that serve 3,500 or more subscribers will no longer have to maintain access channels and production equipment and make the channels and equipment available to the public.

The main impetus for public involvement in cable television production will now have to come from North Carolina's local governments, which grant franchises to cable television systems. There is nothing to prevent the municipalities and counties from writing access provisions into their franchise agreements.

The Center's report, *Cable Television in North Carolina*, pointed out that despite the FCC regulations that the Supreme Court struck down last month, there has been little public use of cable television in North Carolina. Cable television in this state, as in most other states, has been mainly a vehicle for improving television reception and providing viewers with a broader choice of entertainment programs. Pay cable packages of movies, sports and other entertainment and the programming of distant "super stations" like WTCG in Atlanta have been the major selling points for cable in this state. The use of cable television as a medium for community expression and the delivery of community services has been largely unexplored.

In light of the Supreme Court decision, there is more need than ever for a state commission to inform and stimulate the deliberations of North Carolina's local governments. For the future of public involvement in cable television now lies in the hands of the local governments.

If a state commission were established, there is far greater likelihood that the issues of public access to and community uses of cable television would be considered before municipalities and counties granted franchises.

A state commission would alert local governments to the ways cable television is used in other municipalities in North Carolina and in other states. It would provide examples of comprehensive franchise agreements from which local governments could extract elements suitable to their communities. It would provide information on such subjects as the production of local programs, the formation of non-profit corporations to stimulate local programming, and municipal ownership of cable systems.

In some communities, interested citizens, agencies, and groups might respond to such information with enthusiastic interest in exploring cable television as a medium for community expression and services. In other communities, local governments might find that their citizens are not interested in public access to cable television and that there is no demand for the services that cable television can deliver.

Regardless of the result, the public would be well served because the decisions made by North Carolina's local governments would be based on well-informed exploration of the issues involved in cable television.

- Henry Wefing