

# KOMANOFF ENERGY ASSOCIATES

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February 26, 1982

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U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Clinch River Breeder Reactor Plant  
(Docket No. 50-537)



Gentlemen:

This is to respond to the February 23 letter by Jerry E. Walker of Arthur Andersen & Co., concerning the effect of a one-year delay on interest and other costs of the Clinch River Breeder Reactor Project. 1/

The purpose of Mr. Walker's letter is to advance Applicants' notion that a delay in future construction of Clinch River will increase interest charges on funds already spent. I will demonstrate below that Mr. Walker's argument is fallacious and that future delays will have no effect whatsoever on interest or other costs associated with project expenditures to date.

First, I will briefly review the three other areas in which costs might be incurred (or savings might accrue) from a one-year project delay. The purpose of this review is to

1/ The Department of Energy's letter of February 25 adds nothing to its prior presentations. The argument that delay costs should be measured from a so-called "appropriations perspective" has no place at all in a discussion of real economic costs. Similarly, the attempted fabrication of a distinction between an "economic or resource perspective", on one hand, and a "financial perspective", on the other hand, is completely artificial. Once again what matters are real economic costs; and, whether measured from the standpoint of an individual entity (the Treasury) or society as a whole, in this case, to the extent they exist at all, such costs are relatively small.

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demonstrate that the net costs (or savings) from non-interest impacts of delay are relatively small and, therefore, to focus the Commission's attention on the interest question.

## 1. Personnel Retention

At the February 16, 1982 Commission meeting, Applicants estimated that the present-worth cost (1982 dollars) of personnel retention during a one-year delay would be \$31 million. Mr. Walker states in his letter that Applicants have re-calculated this figure to be \$38 million. For reasons I explained in my Supplemental Statement of January 28, 1982 -- essentially, Applicants' failure to weigh the benefits of design improvements initiated during delay, their use of excessive charging rates, and their insufficient consideration of personnel re-assignments -- either figure is likely to overstate the true net cost of personnel retention.

## 2. Deferral of Revenue

Mr. Walker has adopted my \$20 million estimate for the present-worth cost of a year's deferral of power generation by Clinch River. That figure, however, must be considered conservative (likely to err on the high side), not only because it is triple Applicants' estimate but also because of its generous assumptions concerning Clinch River operations: 60% capacity factor, zero nuclear fuel cost, and O&M costs no greater than the LWR average. 2/

## 3. Deferral of Future Expenditures

Both Applicants and I independently calculated a net \$30 million savings from deferring future project expenditures

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2/ Mr. Walker's reference to higher foregone costs assuming petroleum generation is gratuitous. Less than one-half of one percent of TVA's generation is provided by oil, and that is used in start-up of coal plants rather than as a boiler fuel. Nor is there any prospect that off-system sales from Clinch River would displace oil; a mere 3 percent of 1980 electric generation was derived from oil in the East South Central region (Alabama, Kentucky, Mississippi, Tennessee), and this meager fraction is dwindling fast as utilities respond to the 1979-80 increase in oil prices.

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for one year, provided that project costs inflate at 8 percent per year and interest rates on U.S. Treasury borrowing average 11 percent. Savings rather than costs accrue from delay because, in the event of a year's delay, Applicants could, in effect, invest the funds earmarked for that year's construction in 1-year Treasury bills which, at the end of the year's delay, would more than make up (through 11% interest) the 8% inflation in project costs. Although in actuality Applicants would not be provided with funds for such investment in the event of a delay, the Federal Treasury as a whole would behave in precisely the fashion described -- the Treasury would reduce its 11% borrowing by exactly the amount of deferred Clinch River expenditures (a result equivalent to the Treasury's purchasing its own securities).

Depending, then, on whether the Commission accepts Applicants' estimate that the net cost of personnel retention is \$38 million per year or our assertion that the net cost is less and perhaps even zero, the total effect of Categories 1 through 3 ranges from a net cost of \$28 million to a net savings of \$10 million. The cost is lower still (or the savings greater) to the extent that interest rates remain more than 3 percentage points above the inflation rate. <sup>3/</sup>

#### 4. Interest on Expended Capital

With this range of a year's delay's impact in mind -- from a \$10 million savings to a \$28 million cost -- I will now try to dispel the notion advanced by Mr. Walker that any future delay in project completion will add to costs associated with past expenditures.

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<sup>3/</sup> In his letter, Mr. Walker expresses the cost (or savings) of deferring future expenditures (my Category 3) as "a 'saving' of \$30 million on a present-worth basis and a cost of over \$136 million with inflation of 8% per year" -- juxtaposing the two outcomes (a \$30 million savings and a \$136 million cost) as if they were equivalent. They are not. The \$30 million saving is the net effect of two simultaneously occurring factors: a \$136 million added cost due to 8% inflation, and a \$166 million savings from deferring the 11% borrowing required to support each year's expenditures. To present one factor alone, without its companion, is patently false.

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To begin, if delay does entail such a cost, one should like to know precisely how it will be incurred. Mr. Walker, not surprisingly, wholly fails to identify any mechanism through which alleged added interest costs are to be incurred. In fact, he cannot. The Treasury's obligation to pay interest on past expenditures, established by notes with fixed yields and fixed terms, is invariant. If Clinch River were to be finished tomorrow, or if it were to be abandoned tomorrow, there would be no increase or decrease in the Treasury's interest obligations on funds already expended on Clinch River.

Mr. Walker is equally vague in his example of the effect of a delay in progress of a home under construction. In fact, pursuit of his example helps prove my point.

Let us assume that Mr. Walker's builder estimated a four-year construction period, with expenditures of \$18,000 in the first year, \$19,000 in the second, \$20,000 in the third, \$21,000 in the fourth. To finance construction, he borrowed \$18,000 from the bank just prior to year 1, \$19,000 just prior to year 2, and \$20,000 just prior to year 3, with each loan carrying an interest rate of 10% and a term of 30 years. Thus, at the end of year 3, he has already paid two years of interest on the first loan and one year on the second; he is now facing an interest payment of \$5,700 (10% of \$18,000 + \$19,000 + \$20,000) and he is poised to borrow \$21,000 more to finance the fourth and final year's expenditures.

Just then, at the 75% completion mark, the builder learns that he must wait 6 months to do the final year's work. Mr. Walker argues that this delay must affect his interest costs for past expenditures. In fact, it doesn't. The builder must continue paying annual interest of \$5,700 on his prior loans. Indeed, he must pay \$5,700 each year until the terms of the loans expire, regardless of whether he abandons the house or if he completes it after 18 months. Mr. Walker's vague attempt to fabricate a cost increase -- "He had to carry the accumulated cost on the 75% completed home . . . and had to pay interest for the six-month delay period" -- cannot withstand the fact that the builder would have had to pay the same \$5,700 interest on past expenditures during those six months of delay regardless of whether the

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house-building was in progress or not. 4/ Again, future actions have no bearing on past interest obligations. 5/

This is not to say that the delay would not affect the builder's ability to pay off the interest on his past loans. It certainly would, assuming that he was counting on the revenue from the sale of the house to cover his interest costs. But this factor, deferred revenues, has already been counted here by both Applicants and myself -- it is my Category 2. 6/

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4/ The result is the same if the builder negotiates the last loan, for \$21,000, and then encounters the six-month delay. He could either use the cash to redeem the loan or lend it to another builder at the same interest rate -- effectively canceling the loan in either case.

5/ I note here, as I did in my Supplemental Statement of January 28 (at 7n), that delays in completion of capital projects by investor-owned utilities do, in fact, add to interest on past expenditures through the mechanism of Allowance for Funds Used During Construction (AFUDC). However, as also noted therein, such added costs are exactly offset by the extension of time in which the ratepayers are permitted to avoid responsibility for paying for past costs. From a net societal standpoint, it does not matter whether the utility or the ratepayers carry these costs. In fact, in cases where 100 percent Construction Work In Progress is allowed, ratepayers rather than utilities capitalize the project and there is no AFUDC. If we substitute taxpayers for ratepayers, this description applies to Clinch River.

6/ If the deferred revenue here seems small, at \$20 million per year, relative to Project cost, recall that Clinch River will cost 5 to 10 times ~~now~~, per-kilowatt, than conventional reactors, and that its ~~revenues~~ measured in terms of displaced coal generation, ~~will~~ be several times less than the revenues associated with reactors displacing oil or gas. (The assumption that reactors under construction will displace oil or gas is often made in calculations of delay costs presented to the Commission.) Thus, the deferred revenue that looms as such a large delay cost to our house-builder, and also in the case of many conventional reactors, is a small factor in the present instance.

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In short, when we flesh out Mr. Walker's home-builder example, we find that it contradicts rather than confirms his assertion that delay increases interest costs on past expenditures.

Mr. Walker's final attempt to make his point is his citation of Accounting Standard No. 34 of the Financial Accounting Standards Board. But a careful reading of Standard No. 34 indicates that it specifies merely that any interest costs incurred in capital projects are to be included in the calculated cost. It does not say that where interest costs have not been incurred, they must be computed anyway and added to the cost. Yet that is precisely what Mr. Walker has argued in his letter. 7/

Very truly yours,

*Charles Komanoff (G.E.W.)*

Charles Komanoff

cc: Service List

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7/ And in his Exhibit II. That Exhibit is a laborious calculation of hypothetical delay-inflicted interest costs on past expenditures on Clinch River, but it too lacks a demonstration that such costs would accrue in the real world.

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