UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

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RESOURCES, COMMUNITY,
AND ECONOMIC DEVELOPMENT
DIVISION

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The Honorable John D. Dingell
Chairman, Subcommittee on Oversight
and Investigations
Committee on Energy and Commerce
House of Representatives

The Honorable Richard L. Ottinger
Chairman, Subcommittee on Energy
Conservation and Power
Committee on Energy and Commerce
House of Representatives

The Honorable Howard H. Baker, Jr.
United States Senate

The Honorable Gordon J. Humphrey
United States Senate

The Honorable James A. McClure
United States Senate

The Honorable Marilyn Lloyd
House of Representatives

Subject: Analysis of Studies on Alternative Financing for the Clinch River Breeder Reactor (GAO/RCED-83-151)

The Conference Committee Report for the Further Continuing Appropriations Act for Fiscal Year 1983 (Public Law 97-377, Dec. 20, 1982) directed the Department of Energy (DOE) to report to the Congress by March 15, 1983, on options for securing additional private sector financing for the Clinch River Breeder Reactor (CRBR) project. When CRBR was first authorized in 1970 it was estimated to cost $700 million with private sponsors and the Government assuming nearly equal shares of the project's cost. However, the private contribution was fixed while the Government was responsible for cost increases. In the intervening years project costs have increased to an estimated $4 billion[1] of which the Government's share is about $3.7 billion. Against this backdrop, the Conference Committee requested DOE to report on additional private financing.

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[1]In 1982 DOE estimated that CRBR would cost $3.6 billion. This figure is obtained by subtracting net revenue during the project's first 5 years of operation from construction cost. The $4 billion figure represents construction cost without subtracting net revenue.

Between February 16 and March 2, 1983, six Members of Congress asked us to review the anticipated DOE report and provide our assessment on the alternatives presented by DOE for securing additional private financing.

DOE issued its "Report to the Congress on Alternative Financing of the Clinch River Breeder Reactor Plant Project" on March 15, 1983. In the report DOE said that its approach was to develop Government technical input which a utility task force, organized by the Breeder Reactor Corporation[2] in January 1983, could use to develop private financing. Reflecting this approach, the DOE report presented

--a history of the CRBR;

--information on project costs, reliability, and projected revenue; and

--a synopsis of a possible private financing alternative developed for DOE by the corporation task force.

The DOE report presented the corporation's alternative, but DOE's report did not present any other alternatives.

The corporation's alternative is only a preliminary one. The Chairman of the Breeder Reactor Corporation presented the task force's alternative in a March 12, 1983, report to the Secretary of Energy. This report also described in general terms other funding alternatives for CRBR from the private sector perspective. In transmitting the report to DOE, the corporation chairman cautioned that the report was preliminary, had not been reviewed by the corporation's board of directors and the task force was continuing its work developing more specifics on its alternative.

The task force concluded that CRBR should be able to attract a larger amount of private funding--up to an additional $800 million--because it, would (1) generate revenue from electricity sales and (2) provide additional income from Federal tax incentives which private investors should find attractive. However, the corporation report points out that the viability of private sector investment will be contingent on enactment of a number of Government assurances and guarantees related to funding, completing, licensing, and operating the CRBR plant. The report points out that these assurances and guarantees are required because CRBR presents unique risks to private investors.

Thus, DOE's and the corporation's reports represent only the beginning of a process that will require much more work before a detailed private financing proposal is developed. DOE's report

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[2]The Breeder Reactor Corporation is a company formed to obtain the financial and other participation of the 753 utilities contributing funds to the project.

recognizes that developing the specific structure and arrangecussions with potential customers of CRBR-generated power and negotiations with potential investors. DOE stated that such discussions and negotiations were not possible in the time available to prepare its and the corporation's reports. Without such discussions, DOE said that it could not predict the potential interest of possible investors in the project. DOE recognized that decisions by potential investors depend on developing a more specific proposal and on the final form of legislative authority that DOE seeks to enable it to provide the desired assurances and guarantees. DOE is relying on the corporation to pursue discussions with potential investors aimed at developing specific investment and marketing strategies. A date for completing a private investment proposal has not been established. However, DOE officials said that they hoped a specific proposal can be developed in time to provide private funding in early 1984.

Because DOE and the corporation have not yet developed and presented specific information, a detailed analysis or conclusion regarding the feasibility and/or merits of increased private sector investment in the CRBR project is not possible. However, certain of the underlying concepts contained in the framework for securing alternative financing have been sufficiently described for us to offer the general comments and observations contained in this report. It should be noted that other variations of private CRBR financing--both within and outside the framework presented--are possible, and could affect our comments and observations.

Before presenting our comments and observations on the financing proposals, one basic point must be made. Over the last several years, we have consistently pointed out in reports and testimony to the Congress that CRBR is a research and development project on the road to demonstrating the potential for applying breeder technology in the United States. Therefore, we continue to believe that the main element in considering funding decisions must be the project's research and development importance.

With this overall point in mind, we have two specific observations on the private financing proposal presented in the corporation task force report. First, while the proposal will probably change many of the existing project arrangements, the Federal Government still appears to retain most risks if the project fails or if cost overruns occur. Second, while the additional private sector financing discussed in DOE's and the corporation's reports would produce budgetary savings during the CRBR's construction, such savings would be a trade-off against either future reductions in Federal revenues or additional budget outlays. Specifically, the revenues expected to be produced from the sale of CRBR-generated electricity will be used to pay back

private investors. If, however, the revenue is inadequate, private investors would have to be repaid from DOE appropriations.

The remainder of this report discusses (1) our objectives, scope, and methodology, (2) why private sector financing is being sought for CRBR, and (3) certain issues raised by changing the existing CRBR arrangements and their impact on the Federal Government.

OBJECTIVES, SCOPE, AND METHODOLOGY

At the request of the Chairmen, Subcommittee on Energy Conservation and Power, and Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce; Senators Howard H. Baker, Jr., Gordon J. Humphrey, and James A. McClure; and Representative Marilyn Lloyd, this report discusses Federal impacts of the private funding proposal presented in DOE's and the Breeder Reactor Corporation's reports. While some of the requestors asked for reports on other areas, these areas will be covered in subsequent reports.

Neither DOE's nor the Breeder Reactor Corporation's report proposed a specific method for obtaining private sector investment. We did, however, review the financial mechanisms and the assumptions, guarantees, and assurances which are discussed in the respective reports. Our review was conducted from the perspective of how private sector funding and the associated tax benefits would affect the net Federal cost of the CRBR and how the reports' assumptions, guarantees, and assurances would affect the risk and responsibilities assumed by the Federal Government. Our review was also conducted under the assumption that CRBR would be built.

We discussed the contents of the reports with DOE and Breeder Reactor Corporation task force officials who were responsible for major report segments. When appropriate, we discussed the reports and documents with those officials who prepared information used in the reports and with utilities which may be asked to purchase CRBR-generated electricity or invest in the CRBR project.

We also reviewed a March 18, 1983, internal DOE study which detailed a possible financing arrangement. This study was not intended to be a part of DOE's report to the Congress nor was it intended to be an actual draft proposal. However, because the assumptions and financing configuration were within the parameters of DOE's and the corporation's reports, the study was a useful example of a possible proposal. We discussed this study with the DOE officials who prepared it and with the officials who prepared DOE's report to the Congress.

The review was performed in accordance with generally accepted government auditing standards.

PRIVATE SECTOR FINANCING FOR CRBR SOUGHT BECAUSE OF INCREASED FEDERAL COSTS

When the CRBR--designed to be the Nation's first liquid metal fast breeder reactor[3] demonstration plant--was initially authorized by the Congress in 1970, it was estimated to cost around $700 million. In 1974, after completion of detailed design work, Government and industry participants estimated that the CRBR would cost $1.7 billion to construct.[4] A number of utility companies had pledged $256 million to the Breeder Reactor Corporation to be used to construct the CRBR (that sum, plus interest, is currently estimated to total about $352 million). The remainder was to be funded by the Federal Government.

DOE currently estimates CRBR will cost $4 billion. Much of the cost increase can be attributed to project delays and changes in program emphasis. We have issued reports on the program's direction[5] and its current cost estimate.[6] In those reports we commented that the Congress has several basic options available for deciding the future of breeder reactors in the United States and on the uncertainty of CRBR cost estimates.

Although CRBR's estimated construction cost has increased substantially, the utilities' contribution has remained relatively constant (increasing only due to interest earned on contributions). The resulting increase in the Federal Government's share has been the subject of congressional concern during its recent debates over continued funding for CRBR. Accordingly, the Congress directed DOE to study alternative methods to finance the remaining $2.3 billion required to complete the CRBR (about $1.7 billion of the total $4 billion has already been funded). Reflecting the intensity of the congressional concern is the Secretary of Energy's statement in early 1983 that unless private sector funding was secured, he doubted that the Congress would continue to fund CRBR.

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[3]A breeder reactor is a nuclear reactor that creates more fuel than it consumes. The term "liquid metal" refers to the liquid sodium which serves as the reactor coolant.

[4]All CRBR costs are shown in current dollars.

[5]"The Liquid Metal Fast Breeder Reactor--Options for Deciding Future Pace and Direction" (GAO/EMD-83-79, July 12, 1982).

[6]"Interim Report on GAO's Review of the Total Cost Estimate for the Clinch River Breeder Reactor Project" (GAO/EMD-82-131, Sept. 23, 1982) and "Analysis of the Department of Energy's Clinch River Breeder Reactor Cost Estimate" (GAO/RCED-83-74, Dec. 10, 1982).

DOE's March 15, 1983, report provided a framework for developing financing alternatives but did not contain a specific, detailed proposal for obtaining private funding. Instead, DOE indicated that the report was to provide technical input "concurrent with and for use in the development of financial alternatives by the private sector Utility Task Force organized under the auspices of the Breeder Reactor Corporation." As a result, DOE's report contains background information on CRBR and present projections for CRBR's operating costs, electricity production, and the anticipated revenues. DOE's report also synopsizes the private financing alternative presented in the corporation's report.

The Breeder Reactor Corporation report was prepared to provide information on alternative financing possibilities for CRBR. Its report estimated that up to an additional $800 million in private investment could be provided to construct CRBR. It also states that based on estimated CRBR revenues and tax benefits to the investors, significant private sector investment should be available if the Federal Government guarantees and assurances include:

--Federal assurances that CRBR will be completed, licensed, and operated. Such assurances must be unconditional if private investment is to obtained. In the event CRBR is not completed, licensed, and operated, private investors must be able to recover their investment plus a return on the investment.

--Federal assurance that CRBR will produce the estimated revenues. The Federal Government must guarantee the amount of power CRBR will produce and that the power will be purchased at an assured price.

--Federal commitment that adequate Federal funds will be appropriated after fiscal year 1983 to enable current construction schedules to be met and a commitment that funding will continue until the project achieves a commercial level of reliability.

--Federal assurance that CRBR-related tax incentives will be available to private investors. The tax incentives include investment tax credits and accelerated depreciation. Further, the report suggested that if they were not adequate, the Congress might wish to consider other tax credits, tax deductions, and exemption of investment income.

To take full advantage of the Government's guarantees and the tax benefits, the corporation report concluded that the

private investment should be a combination of direct borrowing, repayable equity partnership, and debt securities.

The corporation's report provides few details. For instance, specific rates of return, payback methods, and timing were not discussed. Although the corporation's report was synopsized in DOE's report to the Congress, the Deputy Assistant Secretary for Breeder Programs told us that DOE's report would not recommend a specific proposal because it will be up to the Congress to select a proposal.

PRIVATE FINANCING WOULD CHANGE EXISTING CRBR ARRANGEMENTS

Under present arrangements, DOE is responsible for (1) managing the CRBR project, (2) supplying all but about $350 million (mainly the utilities' contribution) toward the cost of designing and constructing the CRBR, and (3) funding all cost overruns. In addition, although the Tennessee Valley Authority (TVA) is responsible for operating the CRBR during its first 5 years of operation, DOE will pay all operating costs and will receive all revenues from the sale of CRBR-produced electricity. Information obtained from operating the CRBR, as well as patent and licensing rights, belong to the Federal Government and to the contributing and noncontributing utilities.

DOE's and the Breeder Reactor Corporation's reports predict that in order to attract additional private sector investment, many of the existing arrangements will need to be changed. For example, (1) the private investors will take over partial ownership of CRBR from DOE, (2) TVA would have to give up its option to purchase CRBR after its first 5 years of operation, and (3) TVA will have to give up its right to purchase CRBR power at its marginal power cost. If the private financing proposal includes the types of guarantees outlined in the DOE and corporation's reports, the Federal Government, still retains most risks if the project fails, or if cost overruns occur.

POTENTIAL IMPACT OF PRIVATE FINANCING

DOE's and the Breeder Reactor Corporation's reports state that private sector investment could provide an alternative financing source for the funds needed to construct the CRBR. The reports estimate that private financing could replace from $385 million to $800 million (depending on the timing of the investment) that would alternatively have to be provided by the Federal Government. Such private investment would offer the distinct short-term advantage of reducing the need for appropriated funds to complete construction of the CRBR.

Although private funding for CRBR will reduce the amount of Federal appropriations required for construction, it could increase the Government's overall cost. The added cost could accrue if the Government has to repay the investment at a rate of return higher than the Government's cost of borrowing, a likely possibility. The tax benefits available to private investors will, in effect, enhance the investors rate of return by reducing their Federal taxes.

Private investors generally need a higher return than Government must pay for funds

Although no specific proposals have been presented, apparently the corporation report views private investment as a mixture of debt (loans and/or bonds) and equity (partnership) financing. Our discussions with corporation representatives indicate that a private equity investment would have to be repaid--both principal and interest--just as the loans and/or bonds are repaid. For that reason, the discussion of private investment repayment pertains to both the debt and equity portions of the funding. DOE officials projected that a rate of return in the range of 10 to 20 percent would be required to attract private funding. The Breeder Reactor Corporation expects debt financing to carry a rate of return of about 10 percent while the equity financing is expected to carry a rate of return--including tax benefits--of about 20 percent.)

According to the Breeder Reactor Corporation's report, if private investment for CRBR is obtained, all such investment--including both equity and debt investment--must be repaid either from CRBR revenues or by the Federal Government, which would provide guarantees to project investors if the CRBR fails to provide the estimated revenues. Because the Federal Government is expected to guarantee that the investors will be repaid either from project revenues the Government is giving up, or from appropriations, the private investment can be viewed as a loan to the Government. Similarly, the direct Federal financing option can also be viewed as a borrowing arrangement because the Government raises much of its money through direct borrowing in the capital market.

Thus, the value of private versus direct Federal financing can be determined by comparing the Government's borrowing cost under each alternative. In the private funding alternative the Government must pay the investor a rate of return which the corporation report estimates to be over 10 percent. In direct Federal borrowing the Government's interest rate is determined by the rate it pays on Treasury securities, which is currently under 10 percent. As illustrated, as long as the Government can raise funds by selling Treasury securities at a rate less than the rate

of return which is anticipated for the CRBR private sector funds, it would cost the Government more--in interest payments--to build the CRBR with funds from private investors. The Government will incur this increased cost whether the project succeeds or fails. If the project succeeds, the higher interest cost will be paid from the project revenue. However, because of the difference in interest rates, the same amount of revenue could offset higher levels of Government borrowing. If the project fails or does not provide adequate revenues to repay investors, the Government will pay the cost with appropriations. Hence, obtaining private sector financing for the CRBR, of the type conceptually described by DOE and the Breeder Reactor Corporation, appears to offer no cost advantage over the current CRBR financing arrangement.

Need to consider tax consequences of obtaining private financing

The Breeder Reactor Corporation report stated that the tax benefits which may be associated with CRBR would help make it a more attractive investment to the private sector. The report cites investment tax credits and accelerated depreciation as the primary forms of tax incentives for private investors. Further, the report suggested that if these tax incentives were not adequate, the Congress may want to consider energy tax credits, research and development tax deductions, and exemption of investment income. While CRBR's tax benefits may attract private investors by raising the effective rate of return, it is important to note that they will result in reduced Federal tax revenues. However, this lost revenue must be balanced against increased revenues that the Government would receive by taxing income private investors would earn from investing in CRBR. Whether these increased future tax revenues would offset the short-term reduction in Federal tax revenues is a question we cannot answer because the corporation's report does not provide the necessary specific information.

Investment tax credits could be an important incentive in attracting private investors. Generally, the investment tax credit allows a reduction in the investors' tax liability amounting to 8 percent of their investment. Although the size of private equity investment is not now known, the credit on an $800 million investment could reduce investor's tax liability by a total of as much as $64 million (in year of expenditure dollars from 1984 through 1989).

The incentives resulting from accelerated depreciation provide another area in which the proposed private investment could affect Federal tax revenues. Using a financing example contained in a March 18, 1983, DOE study,[7] tax savings resulting from ac-

[7]On March 18, 1983, DOE completed a study of a possible investment scenario. The study is not part of the submission to the Congress and is not a proposal. The scenario is, however, within the investment framework described in DOE's and the Breeder Reactor Corporation's reports.

celerating depreciation on a $763 million investment would reduce the investor's tax liability by about $351 million (assuming a Federal tax rate of 46 percent). Because the reduced tax liability is a loss to the Treasury, the Government could be giving up $351 million in future tax revenue--due to depreciation alone--to obtain an increased private investment of $763 million during 1984, 1985, and 1986.

The corporation report mentioned that additional tax credits could be made available to investors through energy tax credits.[8] The Energy Tax Act of 1978 (Public Law 95-618, Nov. 9, 1978) and the Crude Oil Windfall Profit Tax Act of 1980 (Public Law 96-223, Apr. 2, 1980) provided the Business Energy Investment Credit as one of several tax incentives to encourage the conversion from oil and gas to new energy systems. The credit applies to solar and wind energy systems and would have to be extended to apply to CRBR. Furthermore, the authority for the credit is scheduled to expire in 1985. If the act were amended to cover the CRBR and extended past 1985, investors could obtain a tax credit equal to 15 percent of their investment. This is in addition to the 8-percent investment tax credit available to CRBR investors and any other business investing in new machinery or equipment.

The corporation's report suggested that research and development tax deductions would also be an attractive incentive to private investors. That deduction would be equivalent to the difference between the cost of CRBR--about $4 billion--and the plant's market value. The market value is derived from expected sales revenue and tax savings to investors. The corporation task force estimates the market value to be about $1.1 billion. Therefore, the deduction could be based on about $3 billion. Because this incentive is a tax deduction and not a tax credit the actual impact on the tax liability would depend on the investors' tax rate. According to the corporation report, a favorable tax ruling or specific legislation would be required to make use of this incentive.

The final tax incentive suggested by the Breeder Reactor Corporation involves exempting investment income. If a portion of the private sector investment is obtained through industrial development bond issues, the income from that investment could be exempted from tax if special authorization by the Congress is enacted.

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[8]For further information on energy tax credits see our report "The Business Energy Investment Credit for Solar and Wind Energy" (GAO/RCED-83-81, Mar. 7, 1983).

The Breeder Reactor Corporation believes that the tax benefits associated with privately financing CRBR will not decrease Federal tax revenues. The rationale for that belief is that if CRBR is privately financed, investors will not build a similar amount of coal-fired powerplant capacity. Thus, tax benefits taken on CRBR will only displace tax benefits that would otherwise be taken on coal plants.

This reasoning does not appear appropriate. First, private investors' tax benefits are a real cost of the private financing option, whether or not the CRBR displaces a conventional powerplant and, therefore, should be considered. We recognize, however, that although these tax benefits are a short-term loss to the Federal Government they could be offset over the life of the project by taxing investors' future income. Second, one should not necessarily assume that investors would build a similar amount of coal-fired powerplant capacity if CRBR were not built. Given the relatively small contribution CRBR power output (350 megawatt) would make to total generating capacity it is unlikely that the loss of CRBR power would of necessity require investment in coal-fired facilities. This is especially true in light of the overcapacity which currently exists in the utility market.

OTHER MATTERS

The alternative ways that the Congress may finance CRBR and the guarantees that may be required in a private funding alternative raise two basic issues about how the various financing and guarantee impacts can be best identified in the budget process.

The first issue revolves around two options for the timing of appropriations. Under one option called full funding, the Congress would, under any financing alternative, appropriate in DOE's budget the Government's total estimated cost for CRBR construction in the year it commits to construct the project. The main advantage of this approach is that it allows the Congress to have a clear presentation of the project's full cost when it considers whether construction should be started. Recognizing this advantage, we have consistently supported the full funding approach for projects such as CRBR. For example, we have recommended that the General Services Administration fully fund leases[9] and that the Federal Maritime Administration fully fund ship construction.[10] The other option is continued yearly review and appropriation. The main advantage of this approach is that it allows the Congress to evaluate a project's needs and schedule yearly.

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[9]"Costs and Budgetary Impacts of the General Services Administration's Purchase Contract Program" (LCD-80-7, Oct. 17, 1979).

[10]"Further Implementation of Full Funding in the Federal Government" (PAD-78-80, Sept. 7, 1978).

The second question is how guarantees, which the Congress may have to honor in later years, should be shown in the budget. In numerous reports and testimony before the Congress we have stated that when the Federal Government makes guarantees which (1) could involve large amounts of money, (2) are directed to only a few entities, and (3) involve a considerable risk of failure, the Congress should provide--in the budget year of commitment--an amount of budget authority--an appropriation--sufficient to cover a significant portion of the guaranteed amount. The main advantage of this approach is that it ensures that the guarantees are given adequate visibility and appropriate attention in the budget process. Because CRBR meets these requirements any Federal guarantees suppporting the project should--to some extent--be covered by budget authority.

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In summary, this report discusses the salient aspects of the Breeder Reactor Corporation's preferred alternative for achieving additional private financing for the CRBR. We point out that this alternative would modify certain of the management arrangements for the CRBR and presents a tradeoff of short-term budgetary savings against possible higher overall Government costs for the project. However, we recognize that the efforts to obtain additional private financing are of a preliminary and evolving nature and that changing certain of the key provisions in the financing alternative presented in the Breeder Reactor Corporation report would likely impact its attractiveness to the Government in terms of costs and risks. While the focus of this report is on obtaining additional private financing, we continue to believe that it is important not to lose sight that the main element influencing continued funding decisions is the CRBR's research and development importance.

We did not solicit DOE's review and comments on a draft of this report. We have, however, discussed the report's contents with managers of DOE's CRBR project in an effort to include DOE's views and ensure the report's accuracy.

We plan no further distribution of this report until 7 days from the date of the report unless its contents are publicly announced by you or one of the other requestors. At that time, we will send copies of the report to the Director, Office of Management and Budget; the Secretary of Energy; and to other interested parties. We will also make copies available to others on request.

Sincerely yours,

J. Dexter Peach
Director