New nuclear power plants in the US: Governmental incentives for non-recourse project finance

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The commercial nuclear power plant industry in the US has established global standards for safety and operating performance. This track record and increased recognition of the economic and environmental advantages of nuclear energy have led the industry and the US government to explore ways to promote the construction of new nuclear plants. One promising approach would be through the formation of consortia to invest using a project finance model with non-recourse financing. This article proposes two government-backed financial incentives that could facilitate that approach.

As part of US President George W. Bush's efforts to encourage development of new nuclear power generation, the Secretary of Energy directed an advisory board, the Nuclear Energy Task Force ("NETF"), to assess the issues that must be addressed for the US government and private industry to undertake the financing, construction and deployment of new nuclear power generation in the US.

In its report dated January 10, 2005, the NETF identified the unavailability of financing as a significant obstacle to new nuclear power plant construction. The NETF recommended that the US government offer a range of financial incentives for the construction of the first few reactors, such as: secured loans, loan guarantees, accelerated depreciation, investment tax credits, production tax credits and government power purchase agreements.

The NETF's recommended "menu" of incentives is intended to address the anticipated financing needs of companies thought likely to pursue new plant construction without prescribing a particular financial model. The three financial models cited by the NETF as likely to be used for new plant construction are: the regulated utility model; the unregulated merchant generator model; and the non-recourse project finance model.

Some companies may be able to obtain financing based upon their portfolio of assets and/or access to ratepayer funding, and they may be willing to bear the substantial costs and risks of new nuclear plant construction on their own. For these companies, the regulated utility and merchant generator financial models offer certain advantages, such as maintenance of financial and operational control of the plant and exclusive rights to its output. Other companies may desire to participate in the development of a new nuclear plant, but lack the resources or appetite for risk to pursue projects on their own.

For such companies, investing through a consortium, whereby the members share the costs and financial and other risks of the undertaking, may be the best way to participate in new plant construction. In order to minimise their financial exposure to the new plant, the consortium members will want to use the non-recourse project finance model.

Non-recourse project finance model

A consortium using the non-recourse project finance model would need to first establish a separate company ("special-purpose entity" or "SPE") to develop, construct, own and operate the nuclear plant. The SPE would obtain funding for its activities in the form of equity from the members of the consortium and in the form of debt from banks, institutional investors and other sources. The defining characteristic of non-recourse financing is that, in the event of a default, the lenders have recourse only to the SPE and its assets, i.e. the power plant, contract rights and revenues from the sale of power. The consortium members are not responsible for the debts of the SPE, and thus, their losses would be limited to their investment in the SPE.

The non-recourse project finance model offers significant advantages to the consortium members. In addition to capping financial exposure for the individual companies, the project finance structure can reduce overall project capital costs and earnings-per-share dilution. For these reasons, the rating agencies will look more favourably on a company's participation in nuclear initiatives through non-recourse project financing than through other financial models.

The characteristics of the non-recourse project finance model that make it so appealing to project

sponsors raise issues for project lenders. Because the lenders do not have recourse to the project sponsors, repayment of debt is dependent in essence on the performance of a single asset, the power plant. This dependence on revenues from a single asset for repayment has led to the development of complex, highly negotiated transactions based on the non-recourse project finance model. Despite this complexity the financial markets have provided the debt funds for numerous gas-fired power plants structured using the non-recourse project finance model. Successful transactions feature proven design, technology and construction techniques; fixed-price, turnkey construction contracts; long-term, favourably priced contracts for fuel and energy sales; and minimal risks of delay arising from regulation or litigation.

For new nuclear plant construction, the comparison with gas-fired power plants is instructive. Fixed-price, turnkey construction contracts are widely available for gas-fired plants and may well be available for nuclear plants. However, from the standpoint of non-recourse lenders, the risk profile for new nuclear construction is significantly more worrisome than for new gas fired construction. Although there has been recent positive experience in other countries, modern nuclear designs, technology and construction techniques have not been proven in the US. Most important, lenders perceive regulatory risks to be significantly greater in the case of a new nuclear plant than in the case of a new gas-fired plant.

Examples of such regulatory risks are: (a) during the construction period, the risk of cost overruns and delays in the commencement of revenue flows arising from changes in design or construction made at the direction of the regulators or litigation; and (b) during the operating period, the risk of revenue shortfalls arising from prolonged outages necessary to address regulators' concerns or emerging safety-driven technical issues.

In order for the non-recourse project finance model to work for new nuclear plants, it is essential that these risks be addressed. One solution suggested by the NETF is for the US Government to provide a direct loan or to guarantee private debt. If this alternative is not available, we believe there are other financial incentives the government can

provide that may adequately address certain of the risks that private lenders currently are unwilling to accept. The use of two such financial incentives is discussed below.

Construction delay indemnity

The first incentive mechanism would take the form of a regulatory risk construction delay indemnity ("CDI") from the US government against losses caused to debt investors by regulatory action or inaction, or litigation, including litigation initiated by third parties, that delays or prevents the lawful operation of a new nuclear plant that has received a combined operating licence ("COL") from the US Nuclear Regulatory Commission ("NRC"). In such a case, the costs of the new nuclear plant can rise significantly, even though physical construction may have been completed on schedule and the plant may be capable of safely operating and generating revenue.

Amounts paid under the CDI would be used to pay debt service obligations of the SPE accruing during the period of delay and would not be recoverable by the government.

The CDI would not cover losses attributable to other risks common to project financings of other electrical generating projects, such as mismanagement of construction, force majeure events, or flaws in the design, construction or installation of the new nuclear plant. These generic risks should be manageable through the conventional techniques of structuring project finance transactions (such as fixed price, turnkey contracts, warranties and budget contingencies).

Past experience with regulatory and licensing difficulties in the US creates barriers to financing new nuclear construction that are particularly challenging, and these barriers are likely to persist until the NRC's COL regime is proven effective. The proposed CDI is intended to eliminate this risk for the lenders who participate in the financing of the initial new nuclear plants of each approved design. However, the CDI would not cover the sponsors of a new nuclear power plant.

The sponsors of new nuclear plants are likely to be experienced nuclear operators who will participate in NRC's review and approval process and, thus, will be in a good position to understand and manage the regulatory risks. In addition, the CDI would not create any financial incentive for project sponsors to walk away from a project.

Outage liquidity facility

The second new incentive, an "outage liquidity facility" ("OLF"), would deal with risks that become manifest after the new plant has commenced commercial operation. Despite the tremendous gains in operational efficiency by the nation's nuclear operators, there will always be a risk of unscheduled outages that can mean extended periods of lost revenue with significant ongoing costs. For a project finance lender relying on a single asset to repay a loan, an unscheduled outage, regardless of cause, could be catastrophic.

Thus, the risk of unscheduled nuclear plant outages makes private single asset project financing essentially unavailable without US government support of some kind. Business interruption insurance in the amounts required is unlikely to be available, and the use of reserve accounts of adequate size would be prohibitively expensive. The OLF would address the risk of unscheduled outages by providing liquidity to enable the SPE to make debt service payments until normal plant operations can be restarted. Amounts borrowed under the OLF would be repayable by the SPE as subordinated debt. The SPE would pay commitment fees on undrawn amounts under the OLF and interest on drawn amounts, both at rates that would provide reasonable compensation to the government for the risks assumed.

Conclusion

As the NETF found in its discussions with representatives of the industry and the financial community, it seems certain that, in order for the private sector to commit to financing the first new nuclear plants in the US in 30 years, financial incentives from the US government will be necessary. The need for such incentives will diminish after the first new plants are brought on-line, but, until then, regulatory uncertainty and the substantial capital required are likely to be insuperable obstacles to new plant construction.

The non-recourse finance model simply will not be viable as a means of financing construction of the first new nuclear plants unless there are government-sponsored mechanisms to assure repayment of debt in cases of regulatory failure or uncertainty. One option is for the US Government to provide direct loans to the SPE or to guarantee SPE debt from private lenders. However, if the US Congress is unwilling or unable to take this step, there may be an alternative.

We suggest the CDI and OLF be considered, along with other possible government incentives, as a means of appropriately allocating the risks of new plant construction and operation between the private and public sectors. From a cost perspective, the CDI and OLF may be attractive, because they

are limited to a relatively narrow scope of risks and, therefore, should "score" well when the government analyses the budgetary impact of the incentive package. If direct US government loans or loan guarantees are not available, the CDI and OLF may provide acceptable alternatives to support the non-recourse project finance model for new nuclear plant construction.

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