

Financing New Nuclear Power Plants

January 2009

Key Points

■ Experts agree that the electric power industry must invest \$1.5 trillion to \$2 trillion in new generating capacity, new transmission and distribution infrastructure, and energy efficiency and demand response technologies by 2030.

■ The Energy Policy Act of 2005 provides limited investment stimulus for the construction of clean energy facilities, including nuclear power plants.

■ Loan guarantees are important to new nuclear plant financing for companies operating in both unregulated and regulated markets.

■ The loan guarantee program is not a subsidy. Unlike other federal loan guarantee programs, project developers are required to pay the cost of the loan guarantee, as well as the full cost of administering the program.

■ The loan guarantee program provides benefits to consumers of electricity. Because it lowers the cost of capital for new reactors, the plants produce lower-cost electricity than they would in the absence of the loan guarantee.

Industry Must Invest up to \$2 Trillion In Electric Power Infrastructure

Consensus estimates suggest that the electric power industry must invest between \$1.5 trillion and \$2 trillion in new generating capacity, new transmission and distribution infrastructure, and energy efficiency and demand response technologies by 2030. This new capital spending represents a challenge to the electric power industry.

The Energy Policy Act of 2005 recognized this financing challenge and provided limited investment stimulus for construction of new

power plants. In the case of nuclear energy, that stimulus includes:

- A production tax credit of \$18 per megawatt-hour for 6,000 megawatts of new nuclear capacity for the first eight years of operation.
- A form of insurance (called standby support) under which the federal government will cover debt service for the first few plants if commercial operation is delayed for reasons beyond the company's control. This coverage is capped at \$500 million for the first two reactors and \$250 million for the next four reactors. The delays covered include the failure of the U.S. Nuclear Regulatory Commission to meet schedules and litigation.
- Federal loan guarantees for clean-energy technologies for up to 80 percent of total project cost.

Of the three incentives for new nuclear power plant development provided by the Energy Policy Act, the loan guarantee program is the most effective in addressing the major challenge facing new nuclear power plants: construction financing.

Loan Guarantees Offset Risks for First Nuclear Plants Built in Decades

Loan guarantees are important to new nuclear plant financing for both unregulated and regulated energy companies.

Unregulated companies will be hard-pressed to build nuclear power plants and other large capital-intensive baseload projects except on a project finance basis, with the debt financing secured by the federal government.



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Many regulated electric companies, especially those pursuing multiple power plant and transmission projects at the same time, may be limited in their ability to finance projects without project finance capability because of substantial pressure on credit quality and debt ratings.

The cost of a new nuclear plant is high compared to the size and financing capability of the typical U.S. electric company. The loan guarantee program offsets this disparity in scale.

Small Companies, Big Projects, Risk of Delays

- ***U.S. Electric Companies Are Small.*** The U.S. electric sector consists of many relatively small companies. The largest of these companies has a market value of approximately \$36 billion; most are much smaller. This compares with such major oil companies as ExxonMobil and Chevron (with market values of approximately \$400 billion and \$150 billion respectively).
- ***Nuclear Plants Are Large and Costly.*** New nuclear power plants are large facilities and are expected to cost \$6 billion to \$8 billion each (2008 dollars). Although projects of this size are not unique in the energy business, such projects typically are built by the major oil companies. The relatively small U.S. electric power companies do not have the financing capability or financial strength to finance nuclear power projects on their own.

Investors believe new nuclear plants face political and regulatory risks similar to those encountered when today's operating nuclear plants were built.

- ***Delays in Past Projects Led to Higher Costs.*** The capital markets remember the experience during construction of today's operating reactors—longer-than-expected construction times and cost overruns caused partly by the licensing process and litigation.
- ***Financial Markets Concerned About a Repeat.*** The capital markets are concerned

that new nuclear plants could face similar political and regulatory risks. Although the risk may be low, the potential consequences of licensing delays (given the cost of new nuclear plants) are high. Although the federal government has created a more efficient and predictable licensing process, which should reduce licensing risk, investors remain concerned given the high cost and long development times for nuclear power plants.

Since the licensing risk is a function of the federal government's regulatory process, only the federal government—through the loan guarantee program—can offset that risk.

Loan Guarantees Are Important in Regulated, Unregulated Markets

The federal government manages a successful loan guarantee portfolio of \$1.1 trillion. It uses loan guarantees widely and successfully to ensure investment in critical infrastructure, including shipbuilding, transportation infrastructure, exports of U.S. goods and services, affordable housing, and for many other purposes.

The energy loan guarantee program is not a subsidy. Unlike other federal loan guarantee programs, project developers are required to pay the cost of the loan guarantee, as well as the full cost of administering the program. The program addresses market imperfections that otherwise would restrict access to capital or impose inordinately high financing costs on projects. The Office of Management and Budget noted that federal credit programs, such as the energy loan guarantee program, “effectively fill the gaps created by market imperfections.”

The U.S. Department of Energy finalized the loan guarantee program in October 2007. According to the final rule, a guarantee may cover 100 percent of the project debt, provided the debt does not exceed 80 percent of the project's cost.

Congress has authorized \$38.5 billion in loan volume for the loan guarantee program—\$18.5 billion for nuclear power projects, \$2 billion for uranium enrichment projects, and the

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balance for advanced coal, renewable energy and energy efficiency projects. The Energy Department now is reviewing loan guarantee applications from a number of nuclear projects. The \$18.5 billion in loan volume clearly is necessary to support the four to eight nuclear plant projects expected in the first wave of new construction.

This policy brief is also available at www.nei.org, where it is updated periodically.