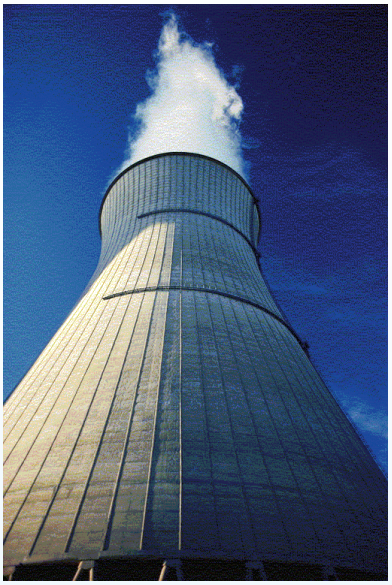
2005 Energy Act: The Impacts on Nuclear Power

As one in a series, this brief issue paper summarizes the key provisions, impacts, and implications that ICF International sees in the Energy Policy Act of 2005 for nuclear power.



Key Provisions

The Energy Policy Act of 2005 signed by President Bush has a number of provisions that apply to nuclear power. These include:

- Electricity produced from a qualifying advanced nuclear power facility can claim credit of 1.8 cents per kilowatt hour for the first eight years of operation. This provision applies up to 6,000 MW.
- The Secretary of Energy is authorized to provide a loan guarantee of up to 80% of the project cost of advanced nuclear energy facilities. The Secretary's ability to authorize loan guarantees is contingent on Congress appropriating funds for this purpose.
- Standby support for delays beyond 180 days in the commencement of full operation due to litigation or the U.S. Nuclear Regulatory Commission (NRC) approval. The support is available for up to 6 reactors. The first two reactors can receive up to US$500 million and the remaining four reactors can receive up to US$250 million apiece, for a total of up to US$2 billion. Covered costs of delay include principal and interest and the incremental cost of purchased power to replace contracted power from the nuclear facility.
- Funding support for construction of advanced new nuclear reactors totaling US$1.18 billion for core nuclear research, development, demonstration, and commercial application activities over the period 2007 through 2009. Of this amount, US$580 million is allocated for the Advanced Fuel Cell Initiative, and US$149.7 million for university nuclear science and engineering support.
- US$420 million was also authorized for the U.S. Department of Energy's (DOE) civilian nuclear infrastructure and facilities over the period 2007 through 2009.
- Price-Anderson Act Amendments extending liability protection for NRC licensees and DOE contractors to 2025. This Act limits the extent to which plant owners are subject to the financial risk of plant accidents.
- Allocates US$1.1 billion for the Fusion Energy Science Program covering the period 2007 through 2009. This funding includes support for U.S. participation in the International Thermonuclear Experimental Reactor.
- Requires the Secretary of Energy to carry out a Nuclear Power 2010 Program. Also requires the Secretary of Energy to carry out a Generation IV Nuclear Energy Systems Initiative. The purpose of this initiative is to "develop an overall technology plan for and to support research and development necessary to make an informed technical decision about the most promising candidates for eventual commercial application."
- Modifies the rules for qualified decommissioning funds by repealing the cost of service requirement for such contributions and permitting the transfer of pre-1984 decommissioning costs to a qualified fund. This provision is estimated to cost US$1.3 billion.

The 2005 Energy Act provisions for nuclear power R&D clearly demonstrate a commitment from the Federal government to the construction of new nuclear facilities.

Anticipated Impacts

- The nuclear energy research and development provisions demonstrate a renewed commitment from the U.S. government to the construction of next generation nuclear generation facilities.
- The combination of the 1.8 cents per kilowatt hour credit, the standby support for litigation and NRC delays, and the extension of the Price-Anderson liability protection, will play an important part in making the financing and construction of new nuclear reactors more economic.
- The legislation does not have any impact or provisions on the long-term storage of nuclear waste materials proposed to be housed at the Yucca Mountain facility in Nevada. The federal government is still obligated to provide such a facility since waste is accumulating at the existing nuclear plant sites.

Industry Implications

- With coal prices more than US$60 per ton and natural gas futures prices approximately US$9.00 per MMBtu, electric power executives are well aware of the need to diversify their generation portfolio. This new legislation puts nuclear power into contention as a component of some electric power companies' fuel diversity strategies.
- To determine whether nuclear power should be a part of their optimal generation mix, power companies should be answering the following questions:
    - What is the value of existing and new nuclear capacity in the context of volatile coal and natural gas prices, increasingly stringent NO_X, SO_2, and mercury regulations, and growing support for CO_2 regulations?
    - What is the 'sweet spot' in terms of each power company's generation mix of nuclear, coal, and natural gas, and renewable capacity?
    - Does the utility have a 'critical mass' of existing nuclear power and financial wherewithal, such that it should take the lead on such generation, or does it make sense to collaborate with another utility that does?
    - In which region will baseload nuclear plants have the highest value?
- Public opposition will inevitably accompany any proposal to build new nuclear facilities. The new NRC process streamlines plant approval by combining the construction and operating permits, consolidating the public's right to raise concerns. State protests should also be expected. Despite the 'standby support' in the legislation, the time and expense for receiving Federal and State approvals needs to be carefully incorporated into an assessment of anticipated plant costs.
- As new plants are proposed, there will be greater clamoring among the current plant owners for the authorization of Yucca Mountain, and possible lawsuits to cover the cost of local storage of the waste stream.
- As with all power plants—especially with nuclear ones—security issues will loom large.

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