License Renewal

NUCLEAR ENERGY INSTITUTE
SUITE 400
1776 I STREET, NW
WASHINGTON, DC
20006-3708
202.739.8000
www.nei.org

- Reactors with 20-year license extensions: 10

Calvert Cliffs-2 units, Lusby, MD (60 miles south of Baltimore), March 23, 2000 (Constellation Energy Group),
Oconee-3 units, Seneca, SC (near Greenville), May 23, 2000 (Duke Energy)
Arkansas Nuclear One Unit 1, Russellville, AR (80 miles northwest of Little Rock) June 2001 (Entergy Operations Inc.)
Edwin E. Hatch 1 & 2, Baxley, GA (67 miles west-south west of Savannah) January 2002 (Georgia Power Co.)
Turkey Point 3 & 4, Florida City, FL (24 miles south-southwest of Miami) June 2002 (Florida Power & Light)

- Reactors filed for license renewal: 16

Surry 1 & 2, Surry, VA (8 miles south of Williamsburg, VA) June 2001 (Dominion Energy)
North Anna 1 & 2, Mineral, VA (40 miles north-northwest of Richmond, VA) June 2001 (Dominion Energy)
Catawba 1 & 2, York County, SC (19 miles southwest of Charlotte, NC) June 2001 (Duke Energy)
McGuire 1 & 2, Huntersville, NC (17 miles northwest of Charlotte, NC) June 2001 (Duke Energy)
Peach Bottom 2 & 3, York County, PA (4 miles northeast of Delta, PA) July 2001 (Exelon Nuclear)
St. Lucie 1 & 2, Hutchinson Island, FL (7.5 miles southeast of Ft. Pierce, FL) December 2001 (Florida Power & Light)
Ft. Calhoun Unit 1, Blair, NE (5 miles northwest of Ft. Calhoun, NE) January 2002 (Omaha Public Power District)
Robinson Unit 2, Hartsville, SC (5 miles west-northwest of Hartsville, SC on 2,250 acre man-made Lake Robinson) June 2002 (Carolina Power & Light)
R.E. Ginna, Ontario, NY (on south shore of Lake Ontario) July 2002 (Rochester Gas & Electric Co.)
V.C. Summer, Jenkinsville, SC (26 miles north of Columbia, SC) August 2002 (SCANA Corp.)

- Reactors expected to apply for license renewal over next six years: 24

Plant	Licensee	Application Date
Farley 1 & 2	Alabama Power Co.	June 2003
Arkansas Nuclear One Unit 2	Entergy Operations Inc.	September 2003
Nine Mile Point 1 & 2	Constellation Energy Group	October 2003
D.C. Cook 1 & 2	American Electric Power	November 2003
Browns Ferry 2 & 3	Tennessee Valley Authority	December 2003
Cooper	Nebraska Public Power District	April 2005
Dresden 2 & 3	Exelon Corp.	March 2003
Quad Cities 1 &2	Exelon Corp.	March 2003
Brunswick 1 &2	Carolina Power & Light	July 2004

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Pilgrim 1	Entergy Operations Inc.	2004
Davis-Besse	FirstEnergy Corp.	December 2004
Beaver Valley 1 & 2	Duquesne Light Co.	September 2004 (Unit 2 requires exemption)
Susquehanna 1 & 2	PPL Susquehanna LLC	2005
Sequoyah 1 & 2	Tennessee Valley Authority	December 2007

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License Renewal

The renewal of nuclear power plant licenses is imperative if the United States is to meet its environmental goals.

Nuclear power plants are licensed by the Nuclear Regulatory Commission to operate for 40 years, and can renew their licenses for an additional 20 years.

These plants are an emission-free source of electricity; so it is important to keep the economical ones operating. They are continually maintained, tested and inspected to ensure the highest levels of safety and reliability.

The NRC formally reviews all license renewal applications. This stringent review typically takes 22 months. Nuclear operating companies will have to pay several million dollars for NRC review and for new programs. But compared with building any type of new generating plant, the total cost for license renewal will be significantly less.

The first license renewal application was filed in April 1998 and was approved in March 2000. To date, the licenses of 10 nuclear power plants have been renewed, the applications of an additional 16 are under review, and the owners of 27 more have expressed the intention to file. In all, the owners of more than half of the nation's 103 nuclear power plants have committed to apply for license renewal by 2005 and more are anticipated to follow.

The NEI is working to ensure that license renewal is effectively implemented by the applicants and the NRC. We want to make sure that the applications are focused on issues relevant to license renewal and are processed in a timely manner.

The industry will also strive to inform policymakers and the public about the significant economic, environmental and

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energy reliability benefits of license renewal.

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FACT SHEET

Nuclear Power Plant License Renewal

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SUITE 400
1776 I STREET, NW
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20006-3708
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Key Facts

Nuclear power plants in the United States are licensed to operate for 40 years. The 40-year license term reflects the amortization period generally used by electric utility companies for large capital investments. It is not based on safety, technical or environmental issues. The Atomic Energy Act of 1954 permits nuclear power plants to renew their 40-year operating licenses.

- Nuclear power plants are subject to a rigorous program of Nuclear Regulatory Commission (NRC) oversight, inspection, preventive and corrective maintenance, equipment replacement, and extensive equipment testing. These programs ensure that nuclear plant equipment continues to meet safety standards, no matter how long the plant has been operating. Because of these sustained maintenance programs, the date that a nuclear plant started operating is not a reliable indication of its age or condition.
- The NRC has renewed the operating licenses of eight reactors. It is reviewing license renewal applications for some 14 reactors and expects to receive applications for 26 more by 2005. These 48 reactors are nearly half the total number operating in the United States. Most of the remaining 55 reactors are expected to receive renewed licenses as well.
- A company's decision to renew a plant's license is fundamentally an economic one. It involves estimates of future electricity demand, the cost of other electricity supply options and the cost of continued operation of the nuclear plant.

Why Nuclear Plant Licenses Have a Term of 40 Years

U.S. nuclear power plants are licensed to operate for 40 years. This term was specified by Congress in the Atomic Energy Act of 1954. The law was fashioned after the Communications Act of 1934, in which radio stations were licensed to operate for several years and allowed to renew their licenses as long as the stations continued to meet their charters. The Atomic Energy Act also allowed for nuclear power plants to renew their licenses.

Congress selected a 40-year term for nuclear power plants because this period was a typical amortization period for an electric power plant. The 40-year license term was not based on safety, technical or environmental factors.

Each nuclear power plant is licensed based on a given set of requirements, depending primarily on the type of plant. This set of requirements is called the plant's "licensing basis."

A plant's licensing basis is an evolving set of requirements and

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commitments. Over time, as technology advances and operating experience provides new information, a plant's licensing basis may be changed-when the NRC issues new requirements and requires plant modifications, for example. These new and additional requirements become part of the plant's licensing basis.

This constant oversight by the NRC ensures that a plant will operate safely throughout its life.

Economics Drives the License Renewal Decision
In deciding whether to pursue license renewal, a company will consider the economic situation of its plant-including where it is located, its capital cost and the competition in that area.

At the end of a nuclear plant's 40-year license, initial capital costs for the plant will have been fully recovered, and the decommissioning costs will have been fully funded. Any incremental cost incurred over the original license period could be amortized over a longer period of time because of license renewal, further reducing the cost of electricity. For many nuclear power plants, license renewal represents the most inexpensive option for future electricity generation.

As part of the planning process, each company must make some assumptions about future electricity demand and other supply options, including purchased power.

The first U.S. electric utility to file an application with the NRC was Baltimore Gas and Electric Co. On April 10, 1998, the utility applied for a 20-year license extension for its two-unit Calvert Cliffs nuclear power plant. Unit 1's initial operating license would have expired in 2014; Unit 2's, 2016. On July 7, 1998, Duke Power submitted an application to the NRC to renew the licenses of its three-unit Oconee Nuclear Station. The initial operating license for Unit 1 would have expired in 2013. The licenses for units 2 and 3 would have expired in 2014. The NRC renewed the licenses for all five units for another 20 years.

NRC's License Renewal Requirements
For the NRC, a license renewal review must answer one basic question: Can the plant continue to operate safely in the renewal period?

In 1995, the NRC issued an efficient, tightly focused rule that made license renewal a safe, viable option. To extend the operating license for a reactor, a company must demonstrate to the NRC that aging effects will be adequately managed during the renewal term, thus ensuring equipment functionality. The rule allows licensees to apply for extensions of up to 20 years over the initial 40-year term.

Some nuclear power plant components are replaced on fixed schedules, while others are used until they show wear and then replaced. These activities will continue for as long as the plant operates.

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The situation is somewhat different for components that were designed to last the life of the plant and might never be replaced. License renewal reviews focus on passive, long-lived components that are important to safety-for example, the massive concrete containment building that surrounds the steel vessel holding the plant's fuel, and the vessel itself.

License renewal reviews also will consider the potential environmental impact of continued plant operation.

The NRC amended its environmental protection rule in 1996 to establish requirements for environmental reviews of license renewal applications.

The agency said many potential environmental impacts of license renewal are common to all nuclear power plants and could be resolved for all plants through the revised rule.

The agency identified about two dozen other issues that would require plant-specific reviews. They include the storage and disposal of radioactive waste, some aspects of water quality and use, aquatic life and endangered or threatened species.

License Renewal Status
For information on upcoming license renewal applications, visit the NRC's license renewal Web page at:
www.nrc.gov/reactors/operating/licensing/renewal/applications.html#plant

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