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## **License Renewal in the United States**

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Nuclear plants in the United States are licensed for 40 years, a length specified in the Atomic Energy Act of 1954, which laid out much of the regulatory basis for the commercial nuclear industry. The Act, however, made provision for license renewal. The original 40-year license period was chosen arbitrarily by the U.S. Congress because it was the typical period over which utilities recovered their investment in electricity generating plants.

Nuclear plants, however, are subject to a rigorous program of Nuclear Regulatory Commission oversight, maintenance and equipment replacement. In effect, they must be in the same operating condition on the last day of their licenses as they were on the first. As the industry matured, it became apparent that there was no physical limitation on the continued operation of nuclear plants past 40 years. The industry turned its attention toward license renewal.

When the issue was first raised, the NRC considered stringent process equivalent to seeking a new operating license for each plant. The complexity, length and cost of the process made it unlikely that many nuclear plants would seek license renewal. The nuclear industry worked successfully with NRC on the application of generic principles to license renewal, however, and 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 terms, thus ensuring equipment functionality. The rule allows licensees to apply for extensions of up to 20 years.

The first license renewal application was filed in 1998 by the owner of the two-unit Calvert Cliffs plant. Shortly thereafter, an application was filed for the three-unit Oconee Nuclear Station. The NRC renewed the licenses for all five units in 2000, and since then, five more licenses have been renewed. The NRC has received 37 license renewal applications, and virtually every reactor in the United States is now expected to apply.

License renewal is economically beneficial since the plants are fully amortized and operating and maintenance costs of an efficiently-operating plant is low. Continued operation of nuclear plants, by far the largest source of emission-free electricity generation in the U.S., will also bring environmental benefits. Nuclear plant operations avoided emissions of nearly 175 million metric tons of carbon dioxide in 2000, in addition to millions of tons of sulfur dioxide and nitrogen oxide.

NEI continues to work with the NRC on generic principles and streamlining regulations, with the aim of further reducing both the time and the cost of license renewal.