



human health, postulated accidents, environmental justice, waste management, and cumulative impacts. For plant-specific issues, applicants typically present an analysis of the potential impacts associated with the issue using site-specific information or disposition the issue as not applicable. Where adverse impacts are identified, mitigation and alternatives to reduce the adverse impacts must also be discussed. The use of a generic environmental impact statement with a plant-specific supplement improves the efficiency and focus of the environmental review process for licensees and the NRC.

Public Involvement

The public plays an important role in the license renewal process. Members of the public have multiple opportunities to contribute to the process, including at the beginning of the environmental review and when the NRC publishes the draft environmental impact statement. The NRC shares information provided by the applicant and holds public meetings. The NRC fully and publicly documents the results of its technical and environmental reviews. In addition, the ACRS public meetings discuss technical or safety issues related to reactor designs or a particular plant or site.

Individuals or groups whose interests may be affected by a license renewal application may request intervention and a hearing before the Atomic Safety and Licensing Board. Such individuals or groups must be able to demonstrate that they would be affected by the renewal and meet the requirements for requesting a hearing. The NRC provides notices of public meetings and opportunities for participation in a hearing through the *Federal Register*, local news media, or the NRC's Web site.

More information about license renewal can be found at <https://www.nrc.gov/reactors/operating/licensing/renewal/process.html>.



NUREG/BR-0291, Rev. 3
April 2018



REACTOR LICENSE RENEWAL & SUBSEQUENT RENEWAL

The Atomic Energy Act of 1954 (as amended) authorizes the NRC to issue 40-year initial licenses for commercial power reactors. The Act also allows the NRC to renew these licenses. Under the NRC's regulations, the agency can renew reactor licenses for 20 years at a time. Congress set the original 40-year term for reactor licenses based on economic and antitrust issues, not on limitations of nuclear technology. However, some parts of a reactor may have been engineered based on an expected 40-year service life. The NRC has established a license renewal process to ensure that these parts are maintained and monitored during any additional period of extended operation. Licensees may also choose to replace some of these parts and components.

Nuclear power plant owners typically seek license renewal based on a plant's economic situation and on whether it can continue to meet NRC regulatory requirements during the period of extended operation.

The license renewal application (LRA) includes general information and technical information as required by Title 10 of the *Code of Federal Regulations* (10 CFR), Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." The applicant must also submit an environmental report as required by 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions." The NRC staff reviews a license renewal application on two tracks: (1) the safety review and (2) the environmental impact review. The license renewal process ensures that plants can safely operate, with acceptable environmental impacts, during the period of extended operation. The NRC has considerable experience with license renewals with the first such renewal issued in 2000. To date, the NRC has approved renewed licenses for approximately 90 percent of the currently operating reactors. More information is available on the NRC's Web site: <https://www.nrc.gov/reactors/operating/licensing/renewal/applications.html>

Safety

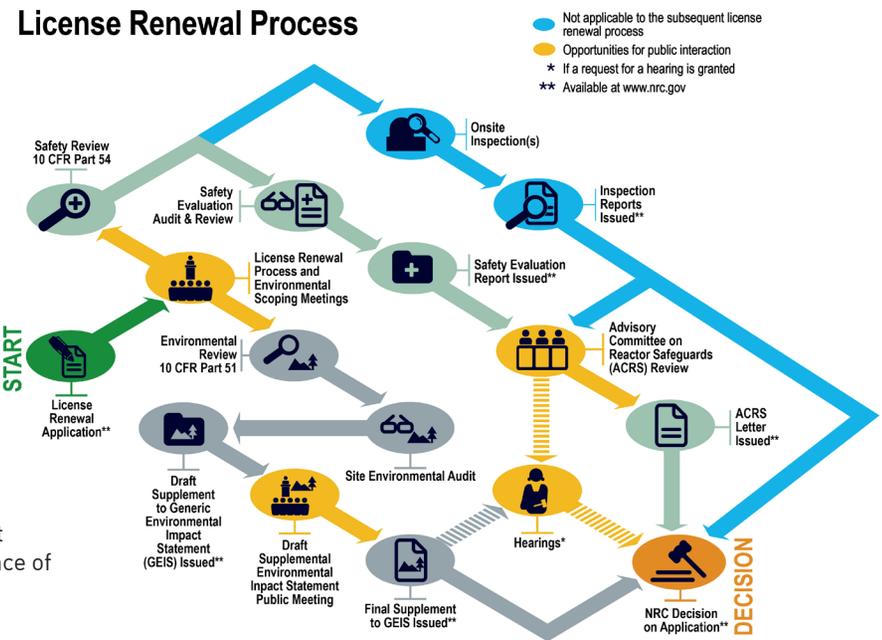
An applicant must describe and justify the methods that it will use to manage the effects of aging for each structure and component in the scope of license renewal. The NRC provides guidance documents for license renewal

including NUREG-1800, "Standard Review Plan for the Review of License Renewal Applications for Nuclear Power Plants," and NUREG-1801, "Generic Aging Lessons Learned (GALL) Report."

The figure, "License Renewal Process," shows how a license renewal application goes from review to NRC decision. The NRC staff first performs an acceptance review of the application (not depicted in the figure) and then upon acceptance and docketing of the application, evaluates the licensee's plans for managing aging for structures and components in the scope of license renewal during the renewal period (i.e., the period from 40 to 60 years). The NRC will renew a license only if it determines that a currently operating plant will continue to maintain reasonable assurance of safe operation during the renewal period.

The NRC staff has also developed guidance and a standard review plan for subsequent license renewals that would allow plants to operate for more than 60 years (i.e., following the 40-year original license term plus the 20-year initial license renewal term). These guidance documents include NUREG-2192, "Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants," and NUREG-2191, Volumes 1 and 2, "Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report." As with the initial license renewal process, the NRC staff evaluates the licensee's plans for managing aging for structures and components. However, in subsequent license renewal, the staff reviews for safe operation from 60-to-80 years instead of 40-to-60 years.

The Advisory Committee on Reactor Safeguards (ACRS) conducts an independent safety review of license renewal and subsequent license renewal applications and NRC evaluations. The independently appointed committee provides a forum where experts representing many technical perspectives give advice that the Commission considers in its decisionmaking. For the remaining license renewals and for subsequent license renewals, the NRC staff intends to present their completed safety evaluation to streamline the interactions with ACRS.



Environmental

An applicant must also provide the NRC with an evaluation of the environmental impacts of extended operation. The NRC uses NUREG-1437, "Generic Environmental Impact Statement (GEIS) for the License Renewal of Nuclear Plants," to evaluate impacts common to all nuclear power plants. In accordance with its responsibilities under the National Environmental Protection Act (NEPA), the NRC staff prepares a supplemental environmental impact statement for each individual plant. The supplement examines impacts unique to the plant's site.

Using the Generic Environmental Impact Statement (also called the GEIS) allows the applicant and the NRC staff to concentrate on those environmental issues that have potential plant-specific impacts. The NRC assesses the effects of extended plant operation for the following areas: land use, visual resources, air quality, noise, geologic environment, surface water, groundwater, terrestrial resources, aquatic resources, special status species and habitat, historic and cultural resources, socioeconomics,