

Executive Summary

This report evaluates the history and effects of the licensing fee system at the Nuclear Regulatory Commission (NRC), compares it to other regulatory agencies, finds that the current fee system poses a barrier to carbon free advanced nuclear energy, and recommends options for reform. NRC recovers its costs by charging industry for regulatory activities, including licensing. The current fee model limits NRC's capabilities to review advanced reactors, slows innovation, and makes the U.S. a less attractive regulatory environment. There is no evidence that the current fee model enables innovation. Alternative models at other federal agencies provide examples for how fee models can support innovation, particularly with clear and efficient regulatory processes. Compared to NRC fees, which cover all an applicant's costs, the Federal Aviation Administration (FAA) does not charge fees for licensing. The Food and Drug Administration (FDA) successfully balances public and private funding to expeditiously review innovative activities. Fee reform for new license applicants is a timely next step in the ongoing regulatory modernization at NRC.

As currently structured, the fee model inhibits carbon-free advanced nuclear innovation in two primary ways:

First, the current model limits NRC's resources, flexibility, and efficiency. It constrains NRC's ability to conduct broad, important rulemakings, licensing reviews, and proactive research to support risk-informed, performance-based regulation. It also limits NRC's flexibility to assign and prepare staff ahead of application submittals. The NRC's budget has declined more than 30% since the mid-2010s due to plant retirements and reduced application activity, accompanied by a 25% reduction in NRC staff. As NRC looks to handle future applications for novel reactor applications, the fee model constrains the agency's ability to apply the right resources to the right projects at the right time.

Second, the open-ended costs associated with paying fees imposes barriers to new entrants. License applicants must pay NRC fees before they begin earning revenues. This is particularly burdensome for developers with limited capital and new customer types like small towns, rural communities, and industrial users. NRC is in the process of modernizing its existing regulatory framework, which was designed for light water reactors. At least until this modernization is complete, advanced reactor licensing requires significant extra regulatory work. Thus, the current fee model leads to inefficient and more costly reviews for advanced reactors, despite safety performance that is expected to be better than existing designs. This further discourages early applicants as they essentially subsidize NRC to develop procedures and train staff that can then assist later applications from other companies.

Given the importance of developing advanced reactors, Congress should reevaluate the licensing fee recovery system. User fees can be effective models to internalize regulatory costs of regulated industries, but they can also discourage innovation and limit agency capabilities and flexibility. Generally, fees should be levied based on benefits – those entities that benefit should pay the costs. Although advanced reactor designers and applicants benefit from reactor licensing, the public also receives substantial benefits through NRC's adequate protection

of public health and safety, as well as reductions in carbon and air pollution emissions from the use of nuclear energy. Encouraging research and development also serves a public benefit, over and above the direct benefit to the designer or applicant. To maximize the climate, economic, and security benefits of nuclear power, NRC fees must not pose an undue barrier on innovation.

Alternative fee approaches can support nuclear innovation activities while achieving greater public benefits. Fee reform is especially important in the short term as the inefficiency of current NRC regulations leads to higher fee expenses for near-term applications by first movers. NIA recommends that Congress:

- 1. Significantly reform, modify, or replace the licensing fee cost recovery model to exclude or substantially reduce fees for new license applicants at NRC.** Multiple aspects of U.S. nuclear regulation bring benefits to the public and entities rather than just the applicant. Reduced fees, especially for new designs and innovative technologies, can reflect these broad benefits. Increasing the fraction of the NRC's budget that is funded from general revenues can incentivize more innovation, improve regulatory efficiency, and ensure the American regulatory environment remains competitive. If licensing fees are not completely replaced, then excluding fees for other items such as pre-application, topical reports, and environmental reviews from fees can still bring substantial benefits. Alternative fee designs, such as fixed fees or deferred fees, could also offer flexibility compared to the current model.
- 2. Alternatively, expand options for Department of Energy (DOE) funding of advanced reactor licensing.** Although the Nuclear Energy Innovation Capabilities Act authorized a program for DOE funding for advanced reactor licensing, it does not appear the program has been implemented. While this would not fully address the challenges of the current NRC structure, Congress could consider appropriating funds for this authorization, as well other measures such as licensing prizes, fee caps, and fee deferrals.
- 3. Expand funding for advanced reactor regulatory infrastructure.** Recent increases in "off-fee" NRC funding have helped NRC prepare to review advanced reactor designs, but individual license applications are also innovation activities. Large increases in off-fee funding are needed to develop the regulatory infrastructure to maintain NRC as a world-leading nuclear regulator. Just as Congress is considering infrastructure funding for roads and bridges, so too does the nuclear regulatory infrastructure deserve support.

Additionally, NIA recommends that NRC take several actions to reduce the negative impacts of the fee model on nuclear innovation. First, NRC should expand the definition of activities that can be funded as advanced reactor regulatory infrastructure and seek additional funding for these activities. Second, NRC should evaluate what it can do with existing authorities to defer fee collection or otherwise reduce the impacts of fees on new reactor license applicants.

More broadly, the NRC funding model should be reevaluated to ensure that it is consistent with U.S. climate goals. While NIA did not look at the impact of current annual fees for operating nuclear power plants, the time is ripe to review how the fee model impacts the industry's overall competitiveness domestically and internationally.