

Answers to Questions for the Record Received May 26, 2016
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H.R.____, “Nuclear Utilization of Keynote Energy Policies Act” (Apr. 29, 2016)

Questions from the Honorable Ed Whitfield:

- 1. Your testimony notes that a number of existing power plants may enter the decommissioning process in the near future. First, is the existing decommissioning process safe and does it protect public health and environment?*

Answer:

The existing decommissioning process for commercial nuclear power reactors is safe and protective of public health and the environment. To date, ten power reactors have been successfully decommissioned under the oversight of the Nuclear Regulatory Commission (NRC) and the agency is currently overseeing the ongoing decommissioning of 19 additional power reactor units at 17 sites across the country. In its recent Advanced Notice of Proposed Rulemaking (ANPR) on decommissioning, the NRC confirmed that the decommissioning process continues to ensure protection of public health and safety. The NRC stated that it had “not identified any significant risks to public health and safety in the current regulatory framework for decommissioning power reactors” and confirmed that its current rulemaking activities are “not based on any identified safety-driven or security driven concerns.”¹

The agency’s current decommissioning program includes both regulations and guidance that cover a wide range of decommissioning-related activities, from funding assurance to site restoration. The NRC’s current decommissioning framework had its genesis in a rulemaking that unfolded over a ten-year period and culminated in a 1988 final rule.² The NRC clarified ambiguities in the 1988 rule in 1996. That revision codified procedures to reduce regulatory burden, provide greater flexibility, and allow greater public participation in the decommissioning process.³ Within a year of the 1996 rulemaking, the NRC promulgated generic, dose-based standards for determining the extent to which lands and structures must be remediated before decommissioning of a site can be considered complete.⁴ Most recently, the NRC promulgated changes to its decommissioning planning regulations to expressly require that power plant

¹ 80 Fed. Reg. 72,358 (Nov. 19, 2015).

² 53 Fed. Reg. 24,018, 24,019-20 (June 27, 1988).

³ See 61 Fed. Reg. 39,278 (July 29, 1996).

⁴ 62 Fed. Reg. 39,058 (July 21, 1997).

licensees minimize contamination during operation and monitor the subsurface in radiation surveys already required by the agency's rules.⁵

The NRC's current regulatory structure also provides for decommissioning funding assurance through multiple layers of requirements and limitations, which apply from the time of initial licensing through the time of license termination. These requirements and limitations include:

- Establishing a minimum certification amount representing the minimum amount of decommissioning financial assurance that power reactor licensees must provide during operation.⁶
- Requiring adjustment of the minimum certification amount annually to account for changes in estimated labor, energy, and low-level radioactive waste disposal costs.⁷
- Limiting funding assurance mechanisms to those considered appropriate by the NRC for assuring that decommissioning funding will be available when needed.⁸
- Limiting the estimated future growth of decommissioning funds over time to a conservative rate of return over inflation, absent allowance of a different rate of return by a rate-setting authority.⁹
- Requiring a biennial report on the status of decommissioning funds during operation.¹⁰
- Providing for updating of funding levels, if necessary.¹¹
- Requiring a more precise preliminary decommissioning cost estimate at or about five years prior to plant shutdown, and requiring a site-specific cost estimate within two years of plant shutdown.¹²
- Requiring an annual financial assurance status report during decommissioning.¹³
- Requiring an updated site-specific estimate of remaining decommissioning costs at least two years prior to license termination.¹⁴
- Prohibiting use of decommissioning funds for any purpose other than decommissioning, both during operation and after plant shutdown.¹⁵

In sum, from a safety and environmental protection standpoint, the NRC's regulatory framework for decommissioning nuclear power reactors is sound. Further, the industry has extensive

⁵ 76 Fed. Reg. 35,512 (June 17, 2011). *See also* 10 C.F.R. §§ 20.1406, 20.1501.

⁶ *See* 10 C.F.R. § 50.75(c).

⁷ *See* 10 C.F.R. § 50.75(b).

⁸ *See* 10 C.F.R. § 50.75(e).

⁹ *Id.*

¹⁰ 10 C.F.R. § 50.75(f).

¹¹ *See* 10 C.F.R. § 50.75(e)(2).

¹² 10 C.F.R. §§ 50.75(f)(3), 50.82(a)(4)(i).

¹³ 10 C.F.R. § 50.82(a)(8)(v).

¹⁴ 10 C.F.R. § 50.82(a).

¹⁵ *See* 10 C.F.R. § 50.82(a)(8).

experience in undertaking and the NRC has extensive experience overseeing the decommissioning of nuclear power reactors in the United States.

A. How would a revised decommissioning process increase efficiency?

Answer:

Although the NRC’s regulatory framework for decommissioning covers a wide range of activities and provides for the safe decommissioning of power reactors, one area that is not explicitly addressed is the transition from operating to defueled status. On this score, the Commission has long recognized the reduction in risk inherent in transitioning a commercial nuclear power plant from operation to a defueled condition. For example, in its 1996 final rule, the Commission concluded that during the decommissioning stage, “[s]afety concerns for a spent fuel pool are greatly reduced regarding both control of the nuclear fission process and the resultant generation of large amounts of heat, high neutron flux and related materials degradation, and the stresses imposed on the reactor system.”¹⁶ In its recent ANPR, the NRC emphasized the continued validity of these prior conclusions, stating: “When compared to an operating reactor, the risk of an offsite radiological release is significantly lower, and the types of possible accidents are significantly fewer, at a nuclear power reactor that has permanently ceased operations and removed fuel from the reactor vessel.”¹⁷

Despite these conclusions, many NRC regulations applicable to *operating nuclear power plants* continue to apply after facilities have permanently shut down, defueled, and entered the decommissioning process. That is, the current regulatory framework does not recognize the inherent reduction in risk that occurs at *all plants*, as they defuel and progress through the decommissioning process. As a result, facilities that have permanently ceased operations and defueled must either continue complying with requirements that are intended to apply to operating plants, or pursue facility-specific exemptions and license amendments to ensure the requirements applicable during decommissioning appropriately address the facility’s risk profile.

Requiring facility-specific exemptions and licensing actions to ensure that requirements reflect reductions in risk at all plants undergoing decommissioning is inefficient and creates undue burden, particularly because the decisions at issue are capable of being resolved generically via rulemaking. An appropriately scoped rulemaking that identifies several generic decommissioning milestones or transition points at which requirements can be adjusted to reflect the reduced risk profile associated with a permanently defueled facility would eliminate the need for most facility-specific exemptions and license amendments that are currently necessary to efficiently transition through the decommissioning process. These proposed milestones and the associated regulatory requirements could be derived primarily from the plant-specific licensing actions that have already been approved by the NRC staff. In our comments on the NRC’s

¹⁶ 61 Fed. Reg. at 39,279.

¹⁷ 80 Fed. Reg. at 72,361.

ANPR, NEI provided detailed recommendations for rule changes in areas such as emergency preparedness, security, insurance, staffing, and training.¹⁸

2. *Your testimony raises the point that corporate support costs result in additional costs to licensees and, in turn, ratepayers. What are some options to reduce this financial burden without just shifting the costs to the American taxpayers?*

Answer:

In an April 2015 congressionally-mandated report, Ernst and Young found that the NRC spends 37 percent of its budget on mission support costs (*i.e.*, overhead).¹⁹ The NRC's peer agencies spend only 20, 25, and 32 percent of their total budgets on mission support.²⁰ Ernst and Young also found that “[w]ith the exceptions of FY 2015 and FY 2016, NRC’s mission support costs as a percentage of total outlays have increased year-over-year for the last decade.”²¹ To help roll back this decade-long increase in overhead costs, Congress limited the portion of the NRC’s FY 2016 budget allocated to corporate support (which constitutes the bulk of NRC’s mission support costs) to roughly one-third (34 percent) of the agency’s total budget. The NRC recently indicated in its FY 2017 budget justification that it would remain below this cap in FY 2016, spending about 32 percent of its budget on corporate support.²²

Notwithstanding this recent effort to limit the NRC’s longstanding increases in corporate support costs, the NRC’s FY 2017 budget would *increase* corporate support costs to more than \$319 million—an increase both in real dollars (an additional \$3.3 million) and as a percent of the agency’s total budget (bringing it to 33 percent).²³ Given the NRC’s actions and its apparent willingness to continue increasing its level of corporate support, legislation is needed to ensure the NRC’s overhead costs are consistent with its peer agencies. One effective approach to drive greater efficiency in agency operations would be to establish a cap on the percentage of the NRC’s budget that it can spend on corporate support. Using this approach, Congress could start with a more modest cap and phase in more aggressive targets over several years, thereby placing the NRC on a trajectory to reduce its corporate support to a more reasonable level by implementing cost reductions such as those already identified by Ernst and Young and the agency’s Project Aim efforts. While Congress would need to ensure the cap on corporate support is low enough to incentivize significant efficiency improvements, any cap has the benefit of not shifting costs to the American taxpayer.

¹⁸ See Letter from Rod McCullum, Industry Comments on the NRC Advance Notice of Proposed Rulemaking (ANPR) on Regulatory Improvements for Decommissioning Power Reactors; Docket ID: NRC-2015-0070” (Mar. 17, 2016) (ML16081A486).

¹⁹ Letter from NRC Chairman Burns to Honorable Thad Cochran (May 1, 2015), Attach. 3, Ernst and Young, Final Report, Overhead Assessment Nuclear Regulatory Commission at 3 (Apr. 30, 2015) (ML15100A369) (“Ernst and Young Report”).

²⁰ *Id.* at 15.

²¹ *Id.* at 5.

²² NUREG-1100, Vol. 32, NRC, Congressional Budget Justification: Fiscal Year 2017 at 95 (Feb. 2016) (ML16036A086).

²³ *Id.*

An additional benefit of a cap on corporate support is that it would not constrain the NRC's ability to decide how to allocate resources among the numerous items currently covered by that category of spending, which includes spending on acquisitions, administrative services, financial management, human resources, information management, information technology, outreach, policy support, and training.²⁴ This means that a cap to bring the NRC's spending on corporate support in line with other federal agencies would not, for example, impair the agency's ability to provide physical and personnel security services for the agency's facilities and employees. Although the NRC has noted that it "has additional security requirements that contribute to higher costs in areas such as physical and personnel security," those costs constitute only one portion of the "administrative services" portion of the corporate support budget.²⁵ Given that administrative services constitutes only about a third of the entire corporate support budget, the NRC has many other areas where it can identify efficiencies to bring its corporate support spending in line with other federal agencies.²⁶

3. *Your testimony notes the trend in length of time for NRC to review and act upon license applications. How does that increased time impact the applicant and what are the economic ramifications of this trend?*

Answer:

Since 2011, the NRC has, on average, nearly doubled the time it takes to review license renewal and power uprate applications.²⁷ Unfortunately, we have seen a similar trend with the NRC's review of new plants applications. The reviews for the first four early site permits (ESPs) took about 3 to 4 years, whereas the review for the most recent ESP application for the PSEG site lasted nearly 6 years.²⁸ Recent and ongoing reviews for combined licenses (COLs) have likewise taken longer than the 4 years that it took for the NRC to review the first four COLs; the NRC has taken more than 8 years to review subsequent COLs.²⁹

These longer reviews are often the result of the NRC's ineffective and inefficient management of its request for additional information (RAI) process, which correspondingly increases the cost of the NRC's review fees. In a 2013 report entitled, "New Reactor Licensing Process Lessons Learned Review: 10 CFR Part 52," the NRC staff identified problems with how the agency manages RAIs. This report reflected a review of several design certification and COL applications involving thousands of RAIs, and found that many were duplicative, inconsistent,

²⁴ See *id.* at 96.

²⁵ *Id.* at 111; see also *id.* at 97.

²⁶ See *id.* at 96. To be sure, Ernst and Young has identified physical security as an area where the NRC should identify cost reductions, recommending that the agency examine the size and deployment of security staffing at NRC facilities "to identify opportunities to reduce costs without decreasing effectiveness." Ernst and Young Report at 20. The NRC agreed with this recommendation and has started to implement it as part of Project Aim. See SECY-15-0109, Assessment of the Recommendations in the April 30, 2015 Ernst and Young Overhead Assessment, Encl. 2, Assessment of Cost Reduction Recommendations at 14-15 (Sept. 16, 2015) (ML15239B326).

²⁷ See Letter from NRC Chairman Burns to Honorable James Inhofe (Apr. 7, 2015), Encl., Responses to Requests for Information Senators James Inhofe and Shelley Moore Capito Letter Dated March 24, 2015, at 13-28 (ML15086A177).

²⁸ See *id.* at 33.

²⁹ See *id.* at 30-33.

or outside the required scope of NRC safety findings. The NRC's data also reveals problems with the RAI process used in other licensing reviews. For example, in recent years the agency has significantly increased the average number of RAIs it has issued when considering NRC license renewal and power uprate applications.³⁰

Rather than longer review times and increases in RAIs, the industry would have expected the NRC to apply improvements and efficiencies when reviewing subsequent applications. These unnecessarily longer and more extensive reviews can add significant financial costs for an applicant. For example, from 2000 to 2010, the NRC on average completed each reactor license renewal review in 24 months and billed \$2.86 million in fees.³¹ However, since 2011 each of these figures has moved in the wrong direction: the NRC has on average completed each license renewal application review in 40 months and billed \$4.02 million in fees.³²

Questions from the Honorable Michael Doyle:

- 4. Mr. Fertel, Congress limited the portion of the NRC's FY 2016 budget allocated to corporate support (which constitutes the bulk of NRC's mission support costs) to roughly one-third (34 percent) of the agency's total budget. Is it your position that this level is still too high and that Congress should take further action to bring the NRC's overhead costs in line with other federal agencies?***

Answer:

The industry fully supports Congress limiting the portion of the NRC's FY 2016 budget allocated to corporate support. However, one-time limitations are not enough to bring the NRC's overhead costs in line with other federal agencies. Although the NRC recently indicated it will meet the cap imposed by Congress in FY 2016 and will spend only about 32 percent of its budget on corporate support,³³ in reality this reduction is both illusory and short-lived. Some of this reduction appears to be the result of the NRC simply "realigning" (*i.e.*, re-categorizing) certain activities that previously would have been listed as corporate support.³⁴ And even with this realignment, the NRC's FY 2017 budget would *increase* corporate support spending both in real dollars (an additional \$3.3 million) and as percent of the agency's total budget (bringing it to 33 percent).³⁵

Given the NRC has neither aggressively implemented nor sustained relatively modest cost reductions such as those identified by Ernst and Young and the agency's Project Aim efforts, Congress should take further action to bring the NRC's overhead costs in line with other federal agencies. As I noted in my response to question number 2, one effective approach to drive greater efficiency in agency operations and, in turn, drive down annual fees, would be for

³⁰ *See id.* at 14-20, 23-27.

³¹ *See id.* at 23-27.

³² *See id.*

³³ NUREG-1100, Vol. 32, NRC, Congressional Budget Justification: Fiscal Year 2017 at 95 (Feb. 2016) (ML16036A086).

³⁴ *See id.* at 112-114.

³⁵ *Id.* at 96.

Congress to establish caps on the percentage of the NRC's budget that it can spend on corporate support. Using this approach, Congress would have long-term certainty that the agency was implementing sustainable efficiency measures.

5. *The COO of your organization recently testified before EPW in the Senate and explained that NRC review fees for operator reactor license renewals have increased annually at a rate of almost 17% since 2000. Could you explain the impact this has on nuclear facilities?*

Answer:

As I noted in my response to question number 3, inefficient licensing reviews have higher costs. In addition to higher licensing costs, the regulatory uncertainty associated with an inefficient and unpredictable licensing process may deter existing plants operators from seeking license renewal and may dissuade developers from committing to construct and operate new nuclear power plants. At bottom, it is difficult for companies to engage in reasonable planning, when they cannot predict with any certainty the length of the NRC's review. Our concerns stem from the NRC's failure to maintain schedules for issuance of licenses for nuclear power plants. Reducing the duration of the NRC's licensing reviews would not only reduce the cost of the reviews for both NRC and applicants but perhaps more importantly, would provide certainty that will enable applicant and energy planners to ensure nuclear generation's place in our future.

A. *Do you think this draft legislation could help address those issues?*

Answer:

The draft legislation would help to address the trend of longer and more expensive licensing reviews by requiring that the NRC complete its safety and environmental reviews within congressionally-established milestones. Directing the NRC to act more expeditiously to review and conduct hearings on license applications is necessary to establish regulatory and fiscal discipline at the NRC. Specifically, amending section 185 of the Atomic Energy Act is necessary to require the NRC to complete its environmental and safety reviews in a timely fashion. The draft legislation establishes milestones of 24 months for completing environmental and safety reviews and 30 months for completing hearings on applications for new and renewed nuclear power plants. The NRC's previous issuance of construction permits for new nuclear power plants within about two years demonstrates that NRC can complete its reviews within a reasonable period without sacrificing the quality of its reviews.