
Regulatory Analysis for Proposed Rule: Alternatives to the Use of Credit Ratings

U.S. Nuclear Regulatory Commission

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Executive Summary

The U.S. Nuclear Regulatory Commission (NRC) is proposing to amend the regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) on approved financial assurance mechanisms for decommissioning, specifically, for parent company guarantees and self-guarantees that require bond ratings issued by credit rating agencies. The rulemaking proposes to implement the required provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Public Law 111-203) (“the Dodd-Frank Act”). The Dodd-Frank Act directed agencies to amend their regulations to remove any reference to or requirement of reliance on credit ratings. Applicants and licensees that are required to provide decommissioning financial assurance may be impacted. Accordingly, the NRC staff conducted rulemaking to satisfy this Federal statute, and the proposed rule will be exempt from backfitting considerations because the changes are congressionally mandated. The rule would require applicants and licensees that relied on bond ratings issued by credit rating agencies for their financial guarantee to either (1) rely on alternative financial tests currently provided in NRC regulations that do not contain a credit rating criterion or (2) provide information to the NRC to demonstrate their creditworthiness using self-determined metrics.

The NRC proposes the following key changes to the regulations:

- Revise paragraphs II.A.2(i) and II.B from 10 CFR Part 30, Appendix A, “Criteria Relating to Use of Financial Tests and Parent Company Guarantees for Providing Reasonable Assurance of Funds for Decommissioning,” to remove bond rating requirements and rely instead on a new criterion: creditworthiness that demonstrates an adequate capacity to provide full and timely payment of the amount guaranteed.
- Revise paragraphs II.A.(3) and II.B(2) from 10 CFR Part 30, Appendix C, “Criteria Relating to Use of Financial Tests and Self Guarantees for Providing Reasonable Assurance of Funds for Decommissioning,” to remove bond rating requirements and rely instead on a new criterion: creditworthiness that demonstrates an adequate capacity to provide full and timely payment of the amount guaranteed.
- Revise paragraphs II.A.(1) and (2), II.B.(1) and (2), and II.C(1) from 10 CFR Part 30, Appendix E, “Criteria Relating to Use of Financial Tests and Self-Guarantee for Providing Reasonable Assurance of Funds for Decommissioning by Nonprofit Colleges, Universities, and Hospitals,” to remove bond rating requirements and rely instead on a new criterion: creditworthiness that demonstrates an adequate capacity to provide full and timely payment of the amount guaranteed.
- Change the title for 10 CFR Part 30, Appendix D, to “Alternative Criteria Relating to Use of Financial Tests and Self-Guarantee for Providing Reasonable Assurance of Funds for Decommissioning by Commercial Companies,” which removes the reference to bonds in the current title.
- Revise the reporting requirement in paragraph III.E.(1) of 10 CFR Part 30, Appendix C, from 20 to 90 days, that any time the licensee becomes aware of information that is material to its capacity to provide full and timely payment of the amount guaranteed, the licensee will notify the Commission in writing.

- Revise the reporting requirement in paragraph III.E.(1) of 10 CFR Part 30, Appendix E, from 20 to 90 days, that any time the licensee becomes aware of information that is material to its capacity to provide full and timely payment of the amount guaranteed, the licensee will notify the Commission in writing.

With respect to the financial tests to use a parent company guarantee or self-guarantee for decommissioning financial assurance, NRC licensees under 10 CFR Parts 30, 40, 70, and 72 use the guidance in NUREG-1757, Volume 3, Revision 1, “Consolidated Decommissioning Guidance: Financial Assurance, Recordkeeping, and Timeliness,” issued February 2012 (NRC 2012), and NRC licensees under 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities,” use Regulatory Guide 1.159, Revision 2, “Assuring the Availability of Funds for Decommissioning Nuclear Reactors,” issued October 2011 (NRC 2011). The NRC is also issuing interim staff guidance, “Draft Interim Staff Guidance on Removal of Bond Ratings from Parent and Self-Guarantees, Decommissioning Financial Assurance,” (NRC 2021) to assist the NRC staff and industry to implement the NRC rule changes resulting from the Dodd-Frank Act requirement for agencies to remove bond ratings from their regulations. This regulatory analysis examines the benefits and costs of the changes to the requirements and guidance described above.

The requirement to provide financial assurance is based on the authorized possession limits specified in NRC licenses. In general, above a threshold quantity of radioactive material, the licensee must provide increasing amounts of financial assurance as its authorized possession limit increases. Based on a review of current licensee financial assurance mechanisms, the staff is using 17 as the mean number of NRC licensees that would be affected by the changes resulting from the final rule.

Costs and Benefits

This regulatory analysis measures the incremental costs of the proposed rule relative to a “baseline” that reflects anticipated behavior if the NRC undertakes no additional regulatory action (Alternative 1, the “no-action” alternative). The analysis quantifies the costs and benefits to industry and the NRC for implementation and operations, as summarized in Table ES-1 below. The implementation cost captures the industry startup cost and the NRC rulemaking cost. The operations cost captures the reporting and recordkeeping costs incurred during the first reporting period after rule promulgation. The analysis quantifies benefits and costs associated with the requirements for financial reporting and recordkeeping accrued to those licensees that relied on bond ratings issued by credit rating agencies for their financial guarantee.

The analysis resulted in the following key findings:

- **Costs to the Industry.** The rule would result in estimated incremental implementation and operations costs of approximately (\$515,000) using a 7-percent net present value (NPV). This corresponds to approximately (\$30,000) per impacted licensee in incremental costs.
- **Costs to the NRC.** The rule would result in estimated incremental implementation and operations costs to the NRC of approximately (\$630,000) using a 7-percent NPV.

- **Total Costs.** To implement the aforementioned statutory requirements, the rule would result in total costs to the NRC and the industry of (\$1.15 million) using a 7-percent NPV.

Table ES-1 Industry and NRC Cost Summary

| Attribute | Costs | | |
|-----------------------------|----------------------|---------------|---------------|
| | Undiscounted | 7% NPV | 3% NPV |
| Industry Costs | (\$779,000) | (\$515,000) | (\$625,000) |
| NRC Costs | (\$830,000) | (\$630,000) | (\$710,000) |
| Net Costs | (\$1,610,000) | (\$1,150,000) | (\$1,340,000) |
| Benefits | | | |
| Attribute | Benefits | | |
| | Undiscounted | 7% NPV | 3% NPV |
| Industry Benefits | \$0 | \$0 | \$0 |
| NRC Benefits | \$0 | \$0 | \$0 |
| Net Benefits | \$0 | \$0 | \$0 |
| Net Benefits (Costs) | | | |
| Attribute | Net Benefits (Costs) | | |
| | Undiscounted | 7% NPV | 3% NPV |
| Industry | (\$779,000) | (\$515,000) | (\$625,000) |
| NRC | (\$830,000) | (\$630,000) | (\$710,000) |
| Net | (\$1,610,000) | (\$1,150,000) | (\$1,340,000) |

Note: Dollars are rounded to the nearest thousand. There may be small differences due to rounding in totals between tables.

- **Benefits.** The proposed rule aligns NRC regulations with the Dodd-Frank Act by removing any references to credit ratings and requiring an appropriate standard of credit worthiness. The rule also improves the accountability and transparency of the NRC's financial assurance requirements because bond ratings issued by credit rating agencies can be inaccurate. Such inaccuracy could contribute to the mismanagement of risks, which in turn may adversely impact the licensee's ability to meet its financial assurance requirements. In accordance with the Dodd-Frank Act, the rule changes are designed to modify the NRC's financial assurance requirements that are part of the overall NRC strategy to maintain safety and protection of public health and the environment during decommissioning and decontamination of nuclear facilities. The rule also achieves the qualitative benefits of (1) improvements in knowledge due to the additional financial tests required and (2) increased public confidence by responding to the statute with regulation instead of relying on the exemption request process.

Decision Rationale

The staff considered two alternatives: (1) no action and (2) rulemaking to amend Appendices A, C, D, and E to 10 CFR Part 30 and to make conforming changes to 10 CFR Parts 40, 50, 70, and 72. The proposed rule would require licensees that relied on bond ratings issued by credit rating agencies for their financial guarantee to instead use existing alternative financial tests that do not rely on credit ratings.

The NRC has selected the rulemaking alternative in order to comply with the provisions of the Dodd-Frank Act, which directed agencies to amend their regulations to remove any reference to

or requirement of reliance on credit ratings. Although this alternative results in costs to the licensees, the NRC believes that the rulemaking alternative is the most cost-efficient approach practicable for complying with the Dodd-Frank Act. In addition, the staff has identified qualitative benefits that will result from implementation of the proposed rule.

Glossary of Terms and Acronyms

| | |
|--------|--|
| ADAMS | Agencywide Documents Access and Management System |
| 10 CFR | Title 10 of the <i>Code of Federal Regulations</i> |
| BLS | Bureau of Labor Statistics |
| CPI-U | Consumer Price Index for All Urban Consumers |
| CRGR | Committee to Review Generic Requirements |
| NPV | net present value |
| NRC | U.S. Nuclear Regulatory Commission |
| OMB | Office of Management and Budget |
| PERT | program evaluation and review technique |

1. Introduction

This document presents a regulatory analysis of the U.S. Nuclear Regulatory Commission's (NRC's) proposed rule to amend Title 10 of the *Code of Federal Regulations* (10 CFR) on approved financial assurance mechanisms for decommissioning, specifically, for parent company guarantees and self-guarantees that require bond ratings issued by credit rating agencies. The rule proposes to implement the provisions of the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Public Law 111-203) ("the Dodd-Frank Act" or "the Act"), which directed agencies to amend their regulations to remove any reference to or requirement of reliance on credit ratings.

This analysis presents background material, rulemaking objectives, alternatives, and input assumptions, and describes the consequences of the proposed rule and the alternative approaches considered to accomplish the regulatory objectives.

2. Background, Statement of the Problem, and Objective

2.1 Background

Applicants and licensees must demonstrate reasonable assurance that funds will be available when needed for decommissioning in order to obtain and maintain a reactor license and certain materials licenses. NRC regulations at 10 CFR 30.35, 40.36, 50.75, 70.25, and 72.30 specify the requirements for certain licensees to provide financial assurance for decommissioning to assure that adequate funding will be available for timely decommissioning by licensees. The objective of the NRC's financial assurance requirements is to ensure that a suitable mechanism for financing the decommissioning of licensed facilities is in place if a licensee is unable or unwilling to complete decommissioning. Financial assurance for decommissioning must be obtained before beginning licensed activities or receipt of licensed material, and it must be maintained until termination of the license.

Financial assurance is achieved through the use of financial instruments. NRC regulations allow for the use of a number of different types of financial instruments to demonstrate financial assurance, including prepayments into a trust; payment of funds into an external sinking fund; and use of letters of credit, surety bonds, parent company guarantees, and self-guarantees. The rulemaking concerns only NRC regulations that govern applicant and licensee use of parent company guarantees and self-guarantees, as their use may rely, in part, on bond ratings issued by credit rating agencies.

For each licensee or applicant (entity) from whom the NRC accepts a parent company guarantee or self-guarantee to provide financial assurance, there exist two alternative financial tests: one test for entities that issue bonds and have a bond rating issued by a credit rating agency, and a second test for those without bond ratings. Generally speaking, the criteria for the two tests (i.e., based on bond ratings and not based on bond ratings) are largely similar, with one main difference: entities with bond ratings must show a current rating for their most recent uninsured, uncollateralized, and unencumbered bond issuance of AAA, AA, or A

(Standard & Poor's) or Aaa, Aa, A, or Baa (Moody's), including adjustments. (Entities that do not issue bonds or without bond ratings must instead meet certain financial thresholds.¹)

2.2 Statement of the Problem

Several paragraphs of the appendices to 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," reference credit or bond ratings as an acceptable financial metric to determine creditworthiness of decommissioning financial assurance. Congress passed the Dodd-Frank Act to "promote the financial stability of the United States by improving accountability and transparency in the financial system."² In the Act, Congress found that "ratings on structured financial products have proven to be inaccurate" and that "[t]his inaccuracy contributed significantly to the mismanagement of risks by financial institutions and investors, which in turn adversely impacted the health of the economy."³ In Section 939A of the Act, Congress directed each Federal agency to "review any regulation issued by such agency that requires the use of an assessment of the [creditworthiness] of a security or money market instrument and any references to or requirements in such regulations regarding credit ratings."⁴ Section 939A further directed each such agency to "modify any such regulations identified by the review...to remove any reference to or requirement of reliance on credit ratings and to substitute in such regulations such standard of [creditworthiness] as each respective agency shall determine as appropriate for such regulations."⁵

2.3 Objective

The objective of this proposed rule is to remove the reference to credit or bond ratings as statutorily required by the Dodd-Frank Act, and either ensure that acceptable alternative criteria exist in current impacted regulations or add acceptable criteria to these regulations.

3. Identification and Preliminary Analysis of Alternative Approaches

The following sections describe the two regulatory alternatives that the NRC is considering in order to meet the rulemaking objective. Section 4 presents the cost estimation methodology, and Section 5 contains a detailed analysis of the benefits and costs of the two regulatory alternatives.

3.1 Alternative 1: No Action

Alternative 1, the no-action alternative, would maintain the regulations as written. The no action alternative would avoid the costs that the proposed rule provisions would impose. This alternative is equivalent to the status quo and serves as a baseline against which other alternatives can be measured. Under this alternative, no rulemaking would be done, and as a result, the NRC could be in violation of the Dodd-Frank Act.

¹ The financial test differs, depending on the entity. For example, the aspect of the financial test that does not rely on bond ratings for colleges or universities is less complex than the aspect of the financial test for parent company guarantees without bond ratings. Compare 10 CFR Part 30, Appendix E, paragraph II.A.(2), with 10 CFR Part 30, Appendix. A, paragraph II.A.1.

² Public Law 111-203, Preamble.

³ Public Law 111-203, Sec. 931(5).

⁴ Public Law 111-203, Sec. 939A(a)(1)-(2).

⁵ Public Law 111-203, Sec. 939A(b).

3.2 Alternative 2: Amend 10 CFR Part 30

Under Alternative 2, the proposed rule would remove from NRC regulations those financial tests that rely in part on bond ratings issued by credit rating agencies and would retain those financial tests that do not include a bond rating criterion. Each of these changes impacts licensees that currently rely on self-guarantees. Specifically, the rule would do the following:

- Revise paragraph II.A.2(i) and II.B from 10 CFR Part 30, Appendix A, “Criteria Relating to Use of Financial Tests and Parent Company Guarantees for Providing Reasonable Assurance of Funds for Decommissioning,” to remove bond rating requirements and rely instead on a new criterion: creditworthiness that demonstrates an adequate capacity to provide full and timely payment of the amount guaranteed.
- Revise paragraphs II.A.(3) and B(2) from 10 CFR Part 30, Appendix C, “Criteria Relating to Use of Financial Tests and Self Guarantees for Providing Reasonable Assurance of Funds for Decommissioning,” to remove bond rating requirements and rely instead on a new criterion: creditworthiness that demonstrates an adequate capacity to provide full and timely payment of the amount guaranteed.
- Revise paragraphs II.A.(1) and II.B from 10 CFR Part 30, Appendix E, “Criteria Relating to Use of Financial Tests and Self-Guarantee for Providing Reasonable Assurance of Funds for Decommissioning by Nonprofit Colleges, Universities, and Hospitals,” to remove bond rating requirements and rely instead on a new criterion: creditworthiness that demonstrates an adequate capacity to provide full and timely payment of the amount guaranteed.
- Change the title for 10 CFR Part 30, Appendix D, to “Alternative Criteria Relating to Use of Financial Tests and Self-Guarantee for Providing Reasonable Assurance of Funds for Decommissioning by Commercial Companies,” which removes the reference to bonds in the current title.
- Revise the reporting requirement in paragraph III.E.(1) of 10 CFR Part 30, Appendix C, from 20 to 90 days, that any time the licensee becomes aware of information that is material to its capacity to provide full and timely payment of the amount guaranteed, the licensee will notify the Commission in writing.
- Revise the reporting requirement in paragraph III.E.(1) of 10 CFR Part 30, Appendix E, from 20 to 90 days, that any time the licensee becomes aware of information that is material to its capacity to provide full and timely payment of the amount guaranteed, the licensee will notify the Commission in writing.

The proposed rule concerns only NRC regulations that govern applicant and licensee use of parent company guarantees or self-guarantees. Each licensee from which the NRC currently accepts a parent company guarantee and that relies on bond ratings issued by credit rating agencies in accordance with paragraph II.A.2 of 10 CFR Part 30, Appendix A, will now need to meet the financial test in paragraph II.A.1 of that appendix or otherwise demonstrate an adequate capacity to provide full and timely payment of the amount guaranteed. The existing financial test requires the licensee to meet at least two of the following three financial ratios: (1) a ratio of total liabilities to total net worth less than 2.0; (2) a ratio of the sum of net income

plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and (3) a ratio of current assets to current liabilities greater than 1.5.

Each commercial company licensee from which the NRC currently accepts a self-guarantee and relies on bond ratings issued by credit rating agencies in accordance with 10 CFR Part 30, Appendix C, will now need to meet the financial test in 10 CFR Part 30, Appendix D, or otherwise demonstrate an adequate capacity to provide full and timely payment of the amount guaranteed. This financial test requires the licensee to meet a ratio of cash flow divided by total liabilities greater than 0.15 and a ratio of total liabilities divided by net worth less than 1.5.

Each nonprofit college or university licensee from which the NRC currently accepts a self-guarantee and relies on bond ratings issued by credit rating agencies under 10 CFR Part 30, Appendix E, will now need to meet the financial test in paragraph II.A.2 of that appendix or otherwise demonstrate an adequate capacity to provide full and timely payment of the amount guaranteed. This financial test requires an unrestricted endowment consisting of assets located in the United States of at least \$50 million, or at least 30 times the total current decommissioning cost estimate, whichever is greater.

Each hospital licensee from whom the NRC currently accepts a self-guarantee will now need to meet the financial test in paragraph II.B.(2) of 10 CFR Part 30, Appendix E, as opposed to the bond rating test in paragraph II.B.(1), or otherwise demonstrate an adequate capacity to provide full and timely payment of the amount guaranteed. This financial test requires (1) [total revenues less total expenditures] divided by total revenues must be equal to or greater than 0.04, (2) long-term debt divided by net fixed assets must be less than or equal to 0.67, (3) [current assets and depreciation fund] divided by current liabilities must be greater than or equal to 2.55, and (4) operating revenues must be 100 times the total current decommissioning cost estimate.

The NRC is also issuing interim staff guidance, “Draft Interim Staff Guidance on Removal of Bond Ratings from Parent and Self-Guarantees, Decommissioning Financial Assurance,” (NRC 2021) to assist the NRC staff and industry to implement the NRC rule changes resulting from the Dodd-Frank Act requirement for agencies to remove bond ratings from their regulations.

3.3 Other Alternatives Considered

The staff considered the alternative of removing only the criteria related to bond ratings issued by credit rating agencies, as opposed to completely removing the financial tests containing credit rating criteria (i.e., in 10 CFR Part 30, removing paragraph II.A.2.(i) of Appendix A, paragraph II.A.(3) of Appendix C, and removing paragraphs II.A.(1) and II.B.(1) of Appendix E). However, the staff concluded that following the removal of the bond rating criteria, the financial tests in Appendices A and C would not retain their effectiveness in providing adequate assurance of decommissioning funds.

The staff also considered removing all financial tests containing credit rating criteria and relying on the existing financial tests in Appendices A, D, and E to 10 CFR Part 30 that do not rely on credit ratings. However, the staff concluded from public comments and internal deliberation that these criteria may be too costly for some licensees, and therefore, alternative criteria would be needed.

4. Estimation and Evaluation of Benefits and Costs

This section describes the analytical approach that the NRC used to evaluate the two regulatory alternatives. Section 4.1 describes the attributes that would be affected by the proposed rule, Section 4.2 details the analytical methodology used in this regulatory analysis, and Section 4.3 explains the data sources that were used.

4.1 Identification of Affected Attributes

This section identifies the attributes within the public and private sectors that the proposed rule is expected to affect, using the list of potential attributes in Section 5.2 of NUREG/BR-0058, Revision 5 (draft final), "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission," issued January 2020 (NRC 2020). The basis for selecting those attributes is presented below.

The proposed rule would affect the following attributes:

- **Industry Implementation**—This attribute measures the projected net economic effect on the industry of implementing the regulatory action for all affected licensees. Under this action, the industry would review the regulations and update its processes and procedures as necessary.
- **Industry Operations**—This attribute measures the projected net economic effect of routine and recurring activities required by the regulatory action for all affected licensees. This regulatory analysis estimates that each licensee will expend a relatively high level-of-effort the first time it compiles and submits financial information to the NRC in order to meet the new requirements, but subsequent submissions in future years will be relatively simple.
- **NRC Implementation**—This attribute measures the projected net economic effect on the NRC of implementing the regulatory action for all affected licensees. Under this action, the NRC would develop the proposed rule package, which includes the companion rule and the final guidance documents.
- **NRC Operations**—This attribute measures the projected net economic effect on the NRC after the regulatory action is implemented. Additional inspection, evaluation, and enforcement activities are examples of such costs.
- **Improvements in Knowledge**—This attribute accounts for the potential value of new information. The additional reporting requirements will improve the NRC's knowledge of the financial stability of its licensees with respect to their decommissioning funding obligations.
- **Other Considerations**—This attribute accounts for the increased public confidence achieved by complying with the Dodd-Frank Act by revising the regulations through rulemaking instead of using the exemption request process.

Unaffected attributes include Public Health (Accident), Public Health (Routine), Occupational Health (Accident), Occupational Health (Routine), Offsite Property, Onsite Property, Other

Government Entities, General Public, Regulatory Efficiency, Safeguards and Security Considerations, and Environmental Considerations.

4.2 Analytical Methodology

This section describes the process used to evaluate costs and benefits associated with the alternatives. Benefits include any desirable changes in affected attributes (e.g., monetary savings, improved safety, and improved security). Costs include any undesirable changes in affected attributes (e.g., monetary costs, increased exposures).

Of the six affected attributes, the analysis evaluates four—industry implementation, industry operations, NRC implementation, and NRC operations—quantitatively. Quantitative analysis requires a baseline characterization of the affected society, including factors such as the number of affected power plants, the nature of the activities currently performed, and the types of systems and procedures that licensees or applicants would implement, or would no longer implement, because of the alternatives. The staff calculated costs for these four attributes using three-point estimates to quantify the uncertainty in the calculations. The detailed cost tables used in this regulatory analysis appear in the individual sections for each of the provisions. The NRC evaluated the other two attributes qualitatively, because the benefits of improvements in knowledge and public confidence are not quantifiable, or because the data necessary to quantify and monetize the effects on these attributes are not available. The staff has documented its assumptions throughout this regulatory analysis.

4.2.1 Regulatory Baseline

This regulatory analysis identifies the incremental impacts of the final rule compared to a baseline that reflects anticipated behavior if the NRC does not undertake regulatory or nonregulatory action. The regulatory baseline assumes full compliance with existing NRC requirements, including current regulations and relevant orders. This is consistent with NUREG/BR-0058, Revision 5 (draft final), which states the following:

In establishing the baseline case, the analyst should assume that all existing NRC and Agreement State requirements and written licensee commitments are already being implemented and that the costs and benefits associated with these requirements are not part of the incremental estimates prepared for the regulatory analysis.

Section **Error! Reference source not found.** of this regulatory analysis presents the estimated incremental costs and benefits of the alternatives compared to this baseline.

4.2.2 Affected Entities

The requirement to provide financial assurance is based on the authorized possession limits specified in the NRC license. In general, above a threshold quantity of radioactive material, the licensee must provide increasing amounts of financial assurance as its authorized possession limit increases. Based on a review of current licensee financial assurance mechanisms, the staff estimates that the new regulations will impact 15 existing NRC licensees, but all licensees will review the regulatory changes, as shown in Table 1 and Table 2 (see Appendix A for more details).

Table 1 Affected Licensees Reviewing Regulatory Changes

| 10 CFR Part | Activity | Licensees |
|--------------------|---------------------|------------------|
| Part 30 | Review Requirements | 8 |
| Part 40 | Review Requirements | 3 |
| Part 50 | Review Requirements | 155 |
| Part 52 | Review Requirements | 2 |
| Part 70 | Review Requirements | 7 |
| Total | | 175 |

Table 2 Licensees Updating Procedures and Performing Financial Tests

| 10 CFR Part | Activity | Licensees |
|--------------------|--|------------------|
| Part 30 | Update Procedures and Report Financial Metrics | 6 |
| Part 40 | Update Procedures and Report Financial Metrics | 3 |
| Part 50 | Update Procedures and Report Financial Metrics | 5 |
| Part 70 | Update Procedures and Report Financial Metrics | 1 |
| Total | | 15 |

Table 2 includes the 10 licensees currently using 10 CFR Parts 30, 40, and 70, as well as the 5 decommissioned commercial or research and test reactors under 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," the staff estimates may also choose to use these surety mechanisms. Although the staff's best estimate is that 15 licensees will update their procedures and perform the creditworthiness demonstrations, to account for uncertainty, this regulatory analysis uses 17 as the mean number of affected licensees, as described in Section 5.7 of this analysis.

The amendments in the proposed rule have been given a compatibility category "D" rating, and thus Agreement States are not required to meet any of the criteria for compatibility purposes. Therefore, the Agreement States are given the flexibility to allow for different financial assurance mechanisms based on jurisdiction and local conditions. As a result, the rulemaking does not impact the licensees in Agreement States, and this regulatory analysis does not give further consideration to these licensees.

4.2.3 Base Year

All monetized costs are expressed in 2021 dollars. Ongoing costs of operations related to Alternative 2 are assumed to begin no earlier than 30 days after publication of the final rule in the *Code of Federal Regulations* unless otherwise stated, and they are modeled on an annual cost basis. Estimates are made for recurring annual operating expenses. The values for annual operating expenses are modeled as a constant expense for each year of the analysis horizon.

4.2.4 Discount Rates

In accordance with guidance from Office of Management and Budget (OMB) Circular A-4, “Regulatory Analysis,” dated October 9, 2003 (OMB 2003), and NUREG/BR-0058, Revision 5 (draft final), the staff used net present value (NPV) calculations to determine how much society would need to invest today to ensure that the designated dollar amount is available in a given year in the future. Using NPVs, costs and benefits, regardless of when they are incurred, are valued to a reference year for comparison. The choice of and conceptual basis for the discount rate are topics of ongoing discussion within the Federal Government. Based on OMB Circular A-4, and consistent with NRC past practice and guidance, present-worth calculations in this analysis use 3-percent and 7-percent real discount rates. A 3-percent discount rate approximates the real rate of return on long-term government debt, which serves as a proxy for the real rate of return on savings to reflect reliance on the discounting concept of “social rate of time preference.”⁶ A 7-percent discount rate approximates the marginal pretax real rate of return on an average investment in the private sector. This is the appropriate discount rate whenever the main effect of a regulation is to displace or alter the use of capital in the private sector. A 7-percent rate is consistent with the concept of the “opportunity cost of capital,”⁷ reflecting the time value of resources directed to meet regulatory requirements.

4.2.5 Cost-Benefit Inflaters

The NRC estimated the analysis inputs for some attributes based on the values published in the sources referenced, which are provided in prior-year dollars. To evaluate costs and benefits consistently, these inputs are expressed in 2021 base-year dollars. The most common inflator used for conversion from prior-year dollars is the Consumer Price Index for All Urban Consumers (CPI-U), developed by the U.S. Department of Labor’s Bureau of Labor Statistics (BLS). The NRC used the CPI-U to convert 2020 dollar values into 2021 base-year dollars through the following formula:

$$\frac{CPI - U_{2021}}{CPI - U_{2020}} \times Value_{2020} = Value_{2021}$$

Table 3 summarizes the CPI-U values used in this regulatory analysis.

Table 3 CPI-U Inflator

| Base Year | CPI-U Annual Average ^a | Percent Change from Previous Year |
|-----------|-----------------------------------|-----------------------------------|
| 2020 | 258.811 | |
| 2021 | 267.999 | 3.55% |

^aFor 2021, the CPI-U annual average is the average value for the first 8 months based on data available at the time of the analysis.

Source: BLS 2020a

⁶ The social rate of time preference is the rate at which society is willing to postpone a marginal unit of current consumption in exchange for more future consumption.

⁷ An opportunity cost is what is forgone by undertaking a given action. If the licensee personnel were not engaged in revising procedures, they would be occupied by other work activities. Throughout the analysis, the NRC estimates the opportunity cost of performing these incremental tasks as the industry personnel’s pay for the designated amount of time.

4.2.6 Labor Rates

Licensee labor rates were obtained from National Wage Data available on the BLS website (www.bls.gov) using the available 2020 data (BLS 2020b). Depending on the industry (e.g., manufacturing, health and safety) and the occupation, the staff selected an appropriate mean hourly labor rate. Because exact hourly rates would be difficult to obtain and may not be sufficiently recent, nationwide mean hourly rates were used. The hourly cost was determined by multiplying the hourly labor rate by 2.4 to account for the cost of benefits (insurance premiums, pension, and legally required benefits) and then by the CPI-U calculation in Section 4.2.5 to estimate 2021 wages (the base year of this analysis) from the 2020 data. This process resulted in the following labor rates used in this analysis for the industry:

- Licensing Assistants (occupational code 23-2011): \$79.90
- Licensing Lawyers (occupational code 23-1011): \$199.74
- Accountant & Auditor (occupational code 13-2011): \$98.34
- Office Clerks, General (occupational code 43-9061): \$59.50
- Managers (occupational codes 11-1021 and 11-3051): \$170.58
- Executives (occupational code 11-1000): \$186.04

The staff determined the NRC's labor rates using the methodology in Abstract 5.2, "NRC Labor Rates," of NUREG/CR-4627, Revision 2, "Generic Cost Estimates: Abstracts from Generic Studies for Use in Preparing Regulatory Impact Analyses," issued February 1992 (NRC 1992). The NRC hourly labor rate used in this analysis is \$142, which is the 2020 labor rate of \$137 inflated to 2021.

4.2.7 Sign Conventions

This analysis uses the following sign conventions: all favorable consequences for the alternative are positive, and all adverse consequences for the alternative are negative. Negative values are shown using parentheses (e.g., negative \$500 is displayed as (\$500)).

4.2.8 Applicability Period

The staff used a 40-year applicability period across all affected entities based on the entity types and numbers shown above.

4.2.9 Cost Estimation

To estimate the costs associated with the evaluated alternatives, the NRC used a work breakdown approach to deconstruct each requirement into its mandated activities. For each mandated activity, the NRC subdivided the work across labor categories (i.e., executives/managers, technical staff, administrative staff, and licensing staff). The NRC estimated the level of effort required for each mandated activity and used a blended labor rate to develop bottom-up cost estimates.

The NRC gathered data from several sources and consulted the rulemaking working group members to develop level-of-effort and unit-cost estimates. The NRC staff applied several cost estimation methods in this analysis and used its collective professional knowledge and

judgment for many of the estimates. Additionally, the NRC estimated costs and benefits using a buildup method, solicitation of licensee input, and extrapolation techniques.

The NRC began by using the engineering buildup method of cost estimation for some activities. This method combines the incremental costs of an activity from the bottom up to estimate a net cost. For this step, the NRC reviewed previous license submittals and determined the number of pages in each section, then used these data to calculate preliminary levels of effort. The NRC consulted subject-matter experts within the agency to develop most of the level-of-effort estimates used in the analysis.

For some activities, the NRC extrapolated from actual past or current costs to estimate the future cost of similar activities. For example, to estimate the averted costs of alternative requests and the costs for preparation of the proposed rule, the NRC used data on past projects to determine the labor categories of those who would perform the work and to estimate the time required under each category to complete the work.

To evaluate the effect of uncertainty in the model, the NRC used Monte Carlo simulation, which is an approach to uncertainty analysis that expresses input variables as distributions. The staff ran the simulation 10,000 times, choosing input values at random from the distributions of the input variables. The result was a distribution of values for the output variable of interest. Monte Carlo simulation also shows which input variables have the greatest effect on the value of the output variable. Section 5.7 of this analysis describes the staff's Monte Carlo simulation methods and presents the results.

4.3 Data

This section discusses the data used in analyzing the quantifiable effects of the rulemaking alternative. For this regulatory analysis, the NRC used data from subject-matter experts, applied knowledge gained from past rulemakings, and obtained quantitative and qualitative (i.e., nonquantified) information from the staff on attributes affected by the proposed rule. The NRC considered the potential differences between the new requirements and the current requirements and incorporated the incremental changes into this analysis.

5. Results

This section presents the quantitative and qualitative results by attribute for Alternative 2 relative to the regulatory baseline (Alternative 1). As described in the previous sections, the NRC staff quantified costs and benefits when possible. These are shown as either positive or negative, depending on whether the alternative has a favorable or adverse effect compared to the regulatory baseline. Attributes not presented in monetary values are discussed in qualitative terms. This ex ante cost-benefit analysis⁸ provides information that can be useful when deciding whether to select an alternative, even if the analysis is based on estimates of future costs and benefits.

The cost estimate considers the regulatory changes contained within the proposed rule:

⁸ An ex ante cost-benefit analysis is one that is prepared before a policy, program, or alternative is in place. It can help an organization decide whether to allocate resources to that policy, program, or alternative.

- Revise paragraphs II.A.2(i) and II.B from 10 CFR Part 30, Appendix A, to remove bond rating requirements and rely instead on a new criterion: creditworthiness that demonstrates an adequate capacity to provide full and timely payment of the amount guaranteed.
- Revise paragraphs II.A.(3) and II.B.(2) from 10 CFR Part 30, Appendix C, to remove bond rating requirements and rely instead on a new criterion: creditworthiness that demonstrates an adequate capacity to provide full and timely payment of the amount guaranteed.
- Revise paragraphs II.A.(1) and II.B.(1) from 10 CFR Part 30, Appendix E, to remove bond rating requirements and rely instead on a new criterion: creditworthiness that demonstrates an adequate capacity to provide full and timely payment of the amount guaranteed.
- Change the title for 10 CFR Part 30, Appendix D, to “Alternative Criteria Relating to Use of Financial Tests and Self-Guarantee for Providing Reasonable Assurance of Funds for Decommissioning by Commercial Companies,” which removes the reference to bonds in the current title.
- Revise from 20 to 90 days the reporting requirement in paragraph III.E.(1) of 10 CFR Part 30, Appendix C, that any time the licensee becomes aware of information that is material to its capacity to provide full and timely payment of the amount guaranteed, the licensee will notify the Commission in writing.
- Revise from 20 to 90 days the reporting requirement in paragraph III.E.(1) of 10 CFR Part 30, Appendix E, that any time the licensee becomes aware of information that is material to its capacity to provide full and timely payment of the amount guaranteed, the licensee will notify the Commission in writing.

5.1 Industry Implementation

The industry would need to review the regulations and update its procedures as necessary. The NRC estimates all 175 licensees would review the regulatory changes, taking approximately 8 hours per licensee, and that approximately 17 licensees would update their procedures in preparation to use the new requirements, taking approximately 85 hours per licensee. These activities result in costs to licensees of approximately (\$260,000) using a 7-percent NPV and (\$280,000) using a 3-percent NPV, shown in Table 4. The NRC estimates a best value of 15 licensees as mentioned in Section 4.2.2, but using a high value of 30 licensees in the uncertainty analysis (to account for potentially more licensees using these mechanisms than the staff expects) produces the mean value of 17 licensees. Section 5.7 discusses the uncertainty analysis variables.

Table 4 Industry Implementation Costs

| Year | Activity | Number of Licensees | Hours | Weighted Hourly Rate | Cost | | |
|---------------|----------------------------------|---------------------|-------|----------------------|--------------------|--------------------|--------------------|
| | | | | | Undiscounted | 7% NPV | 3% NPV |
| 2023 | Licensee Review New Requirements | 175 | 8 | \$103 | (\$145,000) | (\$127,000) | (\$137,000) |
| 2023 | Licensee Procedure(s) Update(s) | 17 | 85 | \$103 | (\$152,000) | (\$133,000) | (\$143,000) |
| Total: | | | | | (\$300,000) | (\$260,000) | (\$280,000) |

5.2 NRC Implementation

The NRC’s development and implementation of revisions to its regulations in response to the Dodd-Frank Act through a final rulemaking stage would result in incremental costs to the agency. After publishing the proposed rule, the NRC would incur costs associated with resolving public comments, preparing the final rule, finalizing the regulatory guidance documents, and preparing other supporting documentation for the rulemaking (e.g., the *Federal Register* notice). The NRC has committed technical staff to develop the proposed rule and related guidance; however, at the conclusion of the proposed rule stage these costs are sunk, and the remaining costs are due to development and issuance of the final rule. Table 5 estimates the costs for each action at a labor rate of \$142 per hour, which is the NRC labor rate of \$137 per hour for 2020 adjusted to the base year of 2021 using the CPI-U process described in Section 4.2.5.

Table 5 NRC Implementation Costs

| Year | Activity | Number of Actions | Hours | Weighted Hourly Rate | Cost | | |
|---------------|----------------------------------|-------------------|-------|----------------------|--------------------|--------------------|--------------------|
| | | | | | Undiscounted | 7% NPV | 3% NPV |
| 2023 | Finalize Guidance for Final Rule | 1 | 434 | \$142 | (\$62,000) | (\$54,000) | (\$58,000) |
| 2022 | Develop/Issue Final Rule | 1 | 1,563 | \$142 | (\$222,000) | (\$207,000) | (\$216,000) |
| 2023 | Develop/Issue Final Rule | 1 | 1,563 | \$142 | (\$222,000) | (\$194,000) | (\$209,000) |
| Total: | | | | | (\$510,000) | (\$460,000) | (\$480,000) |

The NRC is also issuing interim staff guidance, “Draft Interim Staff Guidance on Removal of Bond Ratings from Parent and Self-Guarantees, Decommissioning Financial Assurance,” (NRC 2021) to assist the NRC staff and industry to implement the NRC rule changes resulting from the Dodd-Frank Act requirement for agencies to remove bond ratings from their regulations.

5.3 Industry Operations

The regulatory changes to Appendices A, C, and E to 10 CFR Part 30 will result in licensees determining their own creditworthiness criteria on a case-by-case basis, with suggested approaches provided in revised Regulatory Guide 1.159. The staff anticipates that this process will be fairly straightforward for most affected licensees, taking an estimated 80 hours to complete on average for the first submission. This estimate includes the process of determining which metrics to use, collecting data and reporting them to the NRC, and responding to any requests for additional information throughout the approval process. Because of the case-by-case nature of this approach, the cost estimate uses a high estimate of 240 hours—three times the best-case estimate—to account for the uncertainty that some licensees may take considerably more time making this report. This results in a mean estimate of 105 hours per licensee to generate the first report and obtain NRC approval.

In future years, after the first submission, the staff estimates that licensees will expend a low level of effort each year to repeat the successful process and demonstrate creditworthiness to the NRC; this is estimated at 4 hours per licensee per year. These activities result in estimated

costs to licensees of (\$255,000) using a 7-percent NPV and (\$345,000) using a 3-percent NPV, as shown in Table 6.

Table 6 Industry Operations Costs

| Year | Activity | Number of Licensees | Per Entity | | Cost | | |
|---------------|--|---------------------|-------------|----------------------|--------------------|--------------------|--------------------|
| | | | Labor Hours | Weighted Hourly Rate | Undiscounted | 7% NPV | 3% NPV |
| 2024 | Licensees Compile and Submit Financial Information | 17 | 105 | \$106 | (\$193,000) | (\$158,000) | (\$177,000) |
| 2025-2063 | Licensees Submit Financial Information | 17 | 4 | \$106 | (\$286,000) | (\$97,000) | (\$168,000) |
| Total: | | | | | (\$479,000) | (\$255,000) | (\$345,000) |

5.4 NRC Operations

The staff will need to review the annual reports that are submitted. The NRC estimates that the staff review will require approximately 53 hours per licensee the first time each licensee submits a report, given the new financial metrics that will be used. In future years, the reviews will take approximately 2 hours per licensee. Therefore, the incremental NRC operations costs are estimated to be (\$170,000) using a 7-percent discount rate and (\$230,000) using a 3-percent discount rate, as shown in Table 7.

Table 7 NRC Operations Costs

| Year | Activity | Number of Reviews | Hours | Weighted Hourly Rate | Cost | | |
|---------------|---|-------------------|-------|----------------------|--------------------|--------------------|--------------------|
| | | | | | Undiscounted | 7% NPV | 3% NPV |
| 2024 | NRC Licensee Creditworthiness Review(s) | 17 | 53 | \$142 | (\$129,000) | (\$105,000) | (\$118,000) |
| 2025-2063 | NRC Licensee Creditworthiness Review(s) | 17 | 2 | \$142 | (\$191,000) | (\$65,000) | (\$112,000) |
| Total: | | | | | (\$320,000) | (\$170,000) | (\$230,000) |

5.5 Totals

Table 8 summarizes the total costs grouped by implementation and operations costs for the industry and the NRC for Alternative 2.

Table 8 Total Costs

| Attribute | Total Averted Costs (Costs) | | |
|----------------------------|-----------------------------|----------------------|----------------------|
| | Undiscounted | 7% NPV | 3% NPV |
| Industry Implementation | (\$300,000) | (\$260,000) | (\$280,000) |
| Industry Operation | (\$479,000) | (\$255,000) | (\$345,000) |
| Total Industry Cost | (\$779,000) | (\$515,000) | (\$625,000) |
| NRC Implementation | (\$510,000) | (\$460,000) | (\$480,000) |
| NRC Operation | (\$320,000) | (\$170,000) | (\$230,000) |
| Total NRC Cost | (\$830,000) | (\$630,000) | (\$710,000) |
| Net | (\$1,609,000) | (\$1,145,000) | (\$1,335,000) |

Note: Values are rounded to the nearest \$1,000.

5.6 Uncertainty Analysis

The staff completed a Monte Carlo sensitivity analysis for this regulatory analysis. The Monte Carlo approach answers the question, “What distribution of net benefits results from multiple iterations of the probability distribution assigned to key variables?”

5.6.1 Uncertainty Analysis Assumptions

As this regulatory analysis is based on estimates of values that are sensitive to plant-specific cost drivers and plant dissimilarities, the staff provides the following analysis of the variables that have the greatest amount of uncertainty. To perform this analysis, the staff used a Monte Carlo simulation analysis using the @Risk software program.⁹

Monte Carlo simulations involve introducing uncertainty into the analysis by replacing the point estimates of the variables used to estimate base case costs and benefits with probability distributions. By defining input variables as probability distributions instead of point estimates, the influence of uncertainty on the results of the analysis (i.e., the net benefits) can be effectively modeled.

The probability distributions chosen to represent the different variables in the analysis were bounded by the range-referenced input and the staff’s professional judgment. When defining the probability distributions for use in a Monte Carlo simulation, summary statistics are needed to characterize the distributions. These summary statistics include the minimum, most likely, and maximum values of a program evaluation and review technique (PERT) distribution,¹⁰ the minimum and maximum values of a uniform distribution, and the specified integer values of a discrete population. The staff used the PERT distribution to reflect the relative spread and skewness of the distribution defined by the three estimates.

Table 9 identifies the data elements, the distribution and summary statistic, and the mean value of the distribution that were used in the uncertainty analysis.

Table 9 Uncertainty Analysis Variables

| Data Element | Mean Estimate | Distribution | Low Estimate | Best Estimate | High Estimate |
|------------------------------------|---------------|--------------|--------------|---------------|---------------|
| Industry Procedural Updates | | | | | |
| Weighted Hourly Rate | \$103.46 | PERT | \$73.13 | \$104.60 | \$129.22 |
| Hours to Review Regulations | 8 | PERT | 6 | 8 | 10 |
| Entities Reviewing Regulations | 175 | PERT | 175 | 175 | 175 |
| Hours to Update Procedures | 85 | PERT | 72 | 80 | 120 |

⁹ Information about this software is available at <http://www.palisade.com>.

¹⁰ PERT distribution is a special form of the beta distribution with specified minimum and maximum values. The shape parameter is calculated from the defined *most likely* value. The PERT distribution is similar to a triangular distribution in that it has the same set of three parameters. Technically, it is a special case of a scaled beta (or beta general) distribution. The PERT distribution is generally considered superior to the triangular distribution when the parameters result in a skewed distribution, as the smooth shape of the curve places less emphasis in the direction of skew. Similar to the triangular distribution, the PERT distribution is bounded on both sides, and therefore may not be adequate for some modeling purposes if it is desired to capture tail or extreme events.

| Data Element | Mean Estimate | Distribution | Low Estimate | Best Estimate | High Estimate |
|---|----------------------|---------------------|---------------------|----------------------|----------------------|
| Entities Updating Procedures and Performing Financial Reporting | 17 | PERT | 13.5 | 15 | 30 |
| Industry Financial Reporting | | | | | |
| Weighted Hourly Rate | \$106.45 | PERT | \$77.61 | \$107.35 | \$131.69 |
| Financial Ratio Test Reporting (Hours) | 105 | PERT | 72 | 80 | 240 |
| NRC Review Reports | | | | | |
| Weighted Hourly Rate | \$141.86 | | | | |
| Hours to Perform | 53 | PERT | 36 | 40 | 120 |
| Final Rule Stage | | | | | |
| Hours to Finalize Rule | 3,126 | PERT | 2,446 | 2,718 | 5,436 |
| Hours to Finalize Guidance | 434 | PERT | 340 | 378 | 755 |

5.6.2 Uncertainty Analysis Results

The NRC performed the Monte Carlo simulation by using software to repeatedly recalculate the results 10,000 times. For each iteration, the values identified in Table 9 were chosen randomly from the probability distributions that define the input variables. The values of the output variables were recorded for each iteration, and these resulting output variable values were used to define the resultant probability distribution.

For the analysis shown in each figure below, the staff ran 10,000 simulations, changing the key variables to assess the resulting effect on costs and benefits. Figures 1, 2, and 3 display the probability distributions of the incremental costs and benefits from the regulatory baseline. The analysis shows that the rulemaking results in incremental costs to both the NRC and the industry.

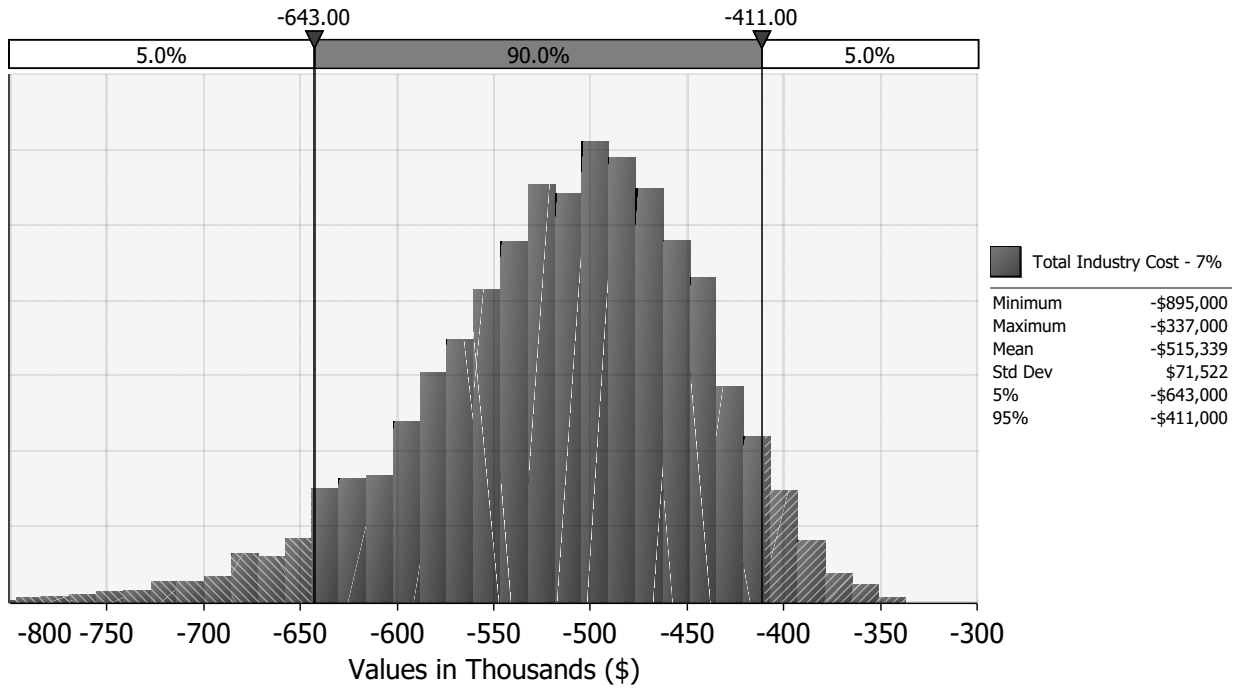


Figure 1 Total Industry Cost (7-Percent NPV)

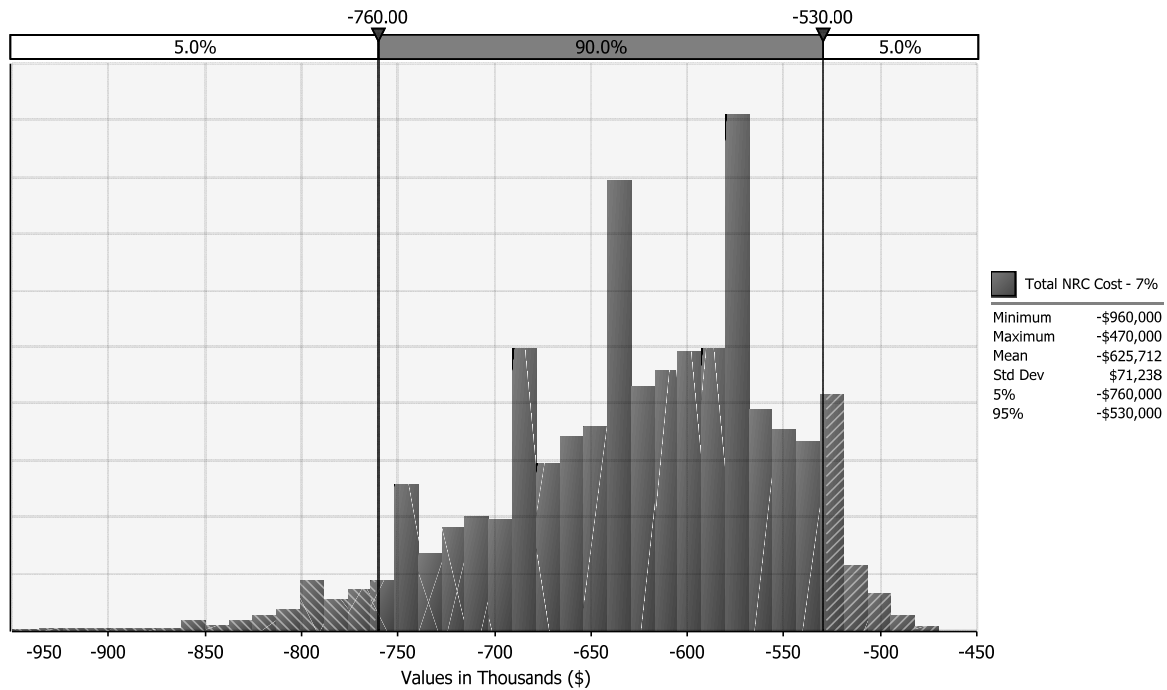


Figure 2 Total NRC Cost (7-Percent NPV)

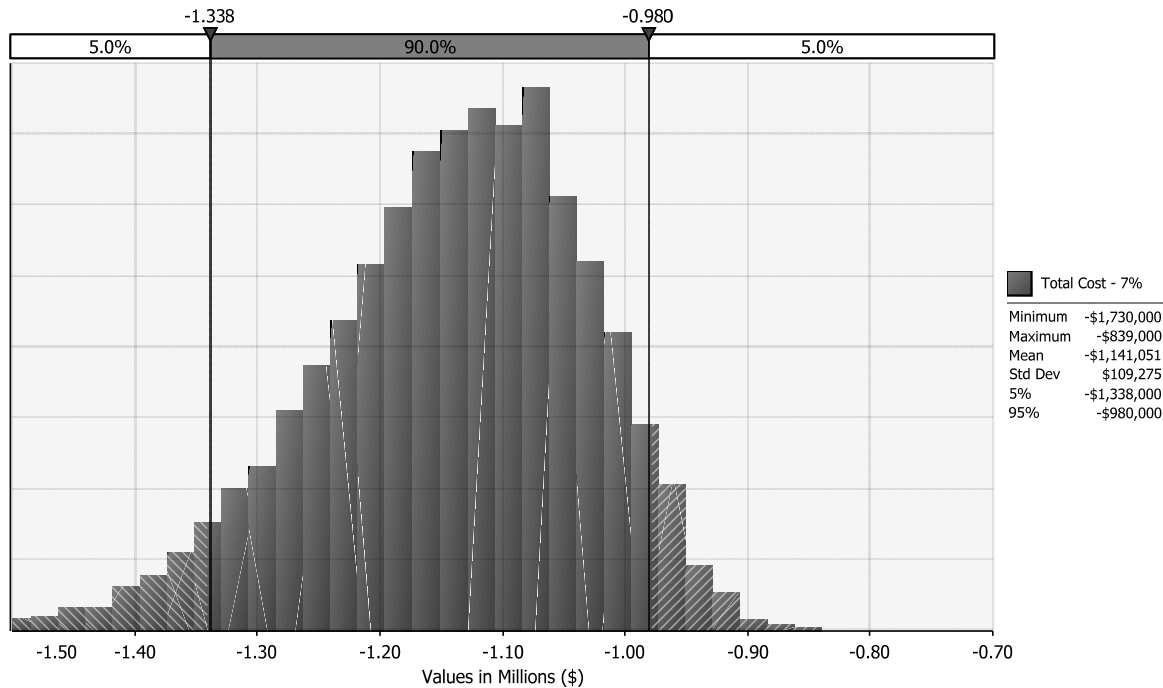


Figure 3 Net Costs (7-Percent NPV)

Table 10 presents descriptive statistics on the uncertainty analysis. The 5-percent and 95-percent values (i.e., the bands marked 5.0% on either side of the 90.0% confidence interval) that appear as numerical values on top of the vertical lines in Figure 1, 2, and 3 are reflected in the table (rounded) as the 0.05 and 0.95 values, respectively.

Table 10 Uncertainty Analysis Results

| Uncertainty Result | Incremental Cost-Benefit (2019 million dollars) | | | | | |
|---------------------|---|----------|----------|----------|----------|----------|
| | Min | Mean | St. Dev. | Max | 0.05 | 0.95 |
| Total Industry Cost | (\$0.89) | (\$0.52) | \$0.07 | (\$0.34) | (\$0.64) | (\$0.41) |
| Total NRC Cost | (\$0.96) | (\$0.63) | \$0.07 | (\$0.47) | (\$0.76) | (\$0.53) |
| Total Cost | (\$1.73) | (\$1.14) | \$0.11 | (\$0.84) | (\$1.34) | (\$0.98) |

Note: There may be small differences among tables due to rounding.

Examining the range of the resulting output distribution provided in Table 10, it is possible to discuss the potential incremental costs and benefits of the proposed rule with more confidence. This table displays the key statistical results, including the 90-percent confidence interval in which the net benefits would fall between the 5-percent and 95-percent percentile values, and shows with high certainty that both the industry and the NRC would incur a net cost.

Figure 4 shows a tornado diagram that identifies the key variables whose uncertainty drives the largest impact on total costs (and averted costs) for the proposed rule. This figure ranks the variables based on their contribution to cost uncertainty. Three variables—the number of entities demonstrating creditworthiness, the hours to develop and issue the final rule, and the number of hours for the initial creditworthiness demonstration—drive the most uncertainty in the costs. The remaining key variables show diminishing variation.

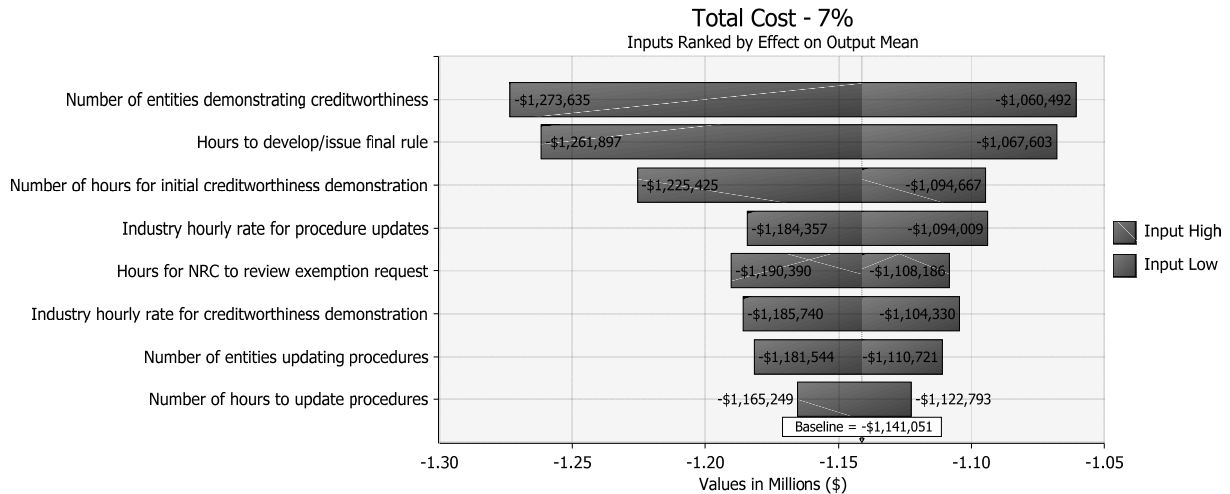


Figure 4 Tornado Diagram—Total Costs, 7-Percent NPV

The costs for the industry and the NRC for the proposed rule have a mean value of (\$1.14 million) at a 7-percent discount rate. The uncertainty analysis shows a greater than 99-percent chance that the rulemaking would not be cost effective. However, the rule implements changes to the regulations that are required by statute, which is the primary reason for continuing with the rule.

5.7 Disaggregation

In order to comply with the guidance in NUREG/BR-0058, the staff performed a screening review to determine whether any of the individual requirements (or set of integrated requirements) of the proposed rule would be unnecessary to achieve the objectives of the rulemaking. The objective of the rulemaking is to comply with the statutory requirements of the Dodd-Frank Act. The staff determined that each change to the regulatory language is necessary to meet the regulatory objective.

5.8 Summary

This regulatory analysis identified both quantifiable and nonquantifiable costs and benefits that would result from conducting rulemaking to meet the statutory requirements of the Dodd-Frank Act. Although the rulemaking is not quantitatively cost beneficial, the staff urges decisionmakers not to disregard the unquantifiable factors that may have beneficial effects on stakeholders. Ultimately, because these changes are required by statute, the staff will implement the rule using the least costly approach to compliance.

5.9 Quantified Net Benefit (Cost)

As shown in Figure 4, the estimated quantified incremental costs for Alternative 2 relative to the regulatory baseline (Alternative 1) over the analysis period are approximately (\$1.14 million) using a 7-percent discount rate.

5.10 Qualitative Benefits

In addition to the quantified costs discussed in this regulatory analysis, the attributes of improvements in knowledge and public confidence would produce qualitative benefits for the industry and the NRC, which are summarized below.

5.10.1 Improvements in Knowledge

The modified reporting requirements will improve the NRC's knowledge of the financial stability of its licensees in terms of their decommissioning funding obligations. The proposed rule would also enhance the accountability and transparency of the NRC's financial assurance requirements. Bond ratings for financial products can be inaccurate and could contribute to the mismanagement of risks, which in turn could adversely impact a licensee's ability to meet its financial assurance requirements. The rule changes are designed to modify the NRC's financial assurance requirements that are part of the overall NRC strategy to maintain safety and protection of public health and the environment during decommissioning and decontamination of nuclear facilities.

5.10.2 Increased Public Confidence

Modifying NRC regulations in accordance with statutory requirements will increase public confidence in the NRC's role as a responsible industry regulator. This role would otherwise be undermined if the NRC failed to change its regulations as required by statute.

5.11 Safety Goal Evaluation

The proposed rule alternative would remove the requirement for licensees to submit credit ratings and bond ratings metrics to the NRC. The NRC's safety goal evaluation is applicable only to regulatory initiatives considered to be generic safety enhancement backfits subject to the substantial additional protection standard at 10 CFR 50.109(a)(3). The NRC does not regard these changes to be backfitting or represent an inconsistency with any issue finality provisions in 10 CFR Part 52, "Licenses, Certification, and Approvals for Nuclear Power Plants." The basis for this determination is set forth in the proposed rule *Federal Register* notice.

Based on the reasons described above, a safety goal evaluation is not appropriate for this regulatory analysis.

5.12 Results for the Committee to Review Generic Requirements

This section addresses regulatory analysis information requirements for rulemaking actions or staff positions subject to review by the Committee to Review Generic Requirements (CRGR). All information called for by the CRGR procedures (NRC 2018) appears in this regulatory analysis or in the *Federal Register* notice for the proposed rule. Table 11 provides a cross-reference between the relevant information and its location in this document or the *Federal Register* notice.

Table 11 Specific CRGR Regulatory Analysis Information Requirements

| Citation in CRGR Procedures (NRC 2018) | Information Item to Be Included in a Regulatory Analysis Prepared for CRGR Review | Where Item Is Discussed |
|--|--|---|
| Appendix B, (i) | The new or revised generic requirement or staff position as it is issued as a final rule | Final rule text in <i>Federal Register</i> notice for the final rule |
| Appendix B, (ii) | Draft papers or other documents supporting the requirements or staff positions | <i>Federal Register</i> notice for the final rule |
| Appendix B, (iii) | The sponsoring office's position on whether each requirement or staff position would modify, implement, relax, or reduce existing requirements or staff positions | Regulatory Analysis, Sections 3 and 5, and Section XIII, "Backfitting and Issue Finality," of <i>Federal Register</i> notice for the final rule |
| Appendix B, (iv) | The method of implementation | Regulatory Analysis, Section 7 |
| Appendix B, (vi) | The category of power reactors, new reactors, or nuclear materials facilities or activities to which the generic requirement or staff position applies | Regulatory Analysis, Section 4.2.2 |
| Appendix B, (vii)–(viii) | The items required at 10 CFR 50.109(c) and the required rationale at 10 CFR 50.109(a)(3) if the action involves a power reactor backfit and the exceptions at 10 CFR 50.109(a)(4) are not applicable | Section XIII of <i>Federal Register</i> notice for the final rule |
| Appendix B, (xvi) | An assessment of how the action relates to the Commission's Safety Goal Policy Statement | Regulatory Analysis, Section 5.11 |

6. Decision Rationale

This section presents the benefits and costs from the proposed rule. The NRC has identified quantitative and nonquantitative benefits that would result from implementation of the proposed rule requirements. To the extent that the affected attributes can be analyzed quantitatively, the net effect of each alternative is calculated and presented below. However, the staff could evaluate some benefits and costs only on a qualitative basis.

Table 12 summarizes the results of the benefits and costs analysis. The rulemaking alternative results in additional costs when compared to the no-action alternative. Quantitatively, the rulemaking alternative is estimated to have a cost impact of approximately (\$1.15 million).

Table 12 Benefits and Costs Summary Table

| Net Monetary Savings (or Costs) | Qualitative Benefits and Costs |
|---|--|
| Option 1: No Action \$0 | <u>Qualitative Benefits and Costs</u> None |
| Option 2: Rulemaking: Industry: (\$515,000) NRC: (\$630,000) Net: (\$1.15 million) | <u>Qualitative Benefits:</u> <u>Improvements in Knowledge:</u> The additional reporting requirements will improve the NRC’s knowledge of the financial stability of its licensees with respect to their decommissioning funding obligations. The final rule would also enhance the accountability and transparency of the NRC’s financial assurance requirements. Bond ratings for financial products can be inaccurate, and this inaccuracy could contribute to the mismanagement of risks, in turn adversely impacting the licensee’s ability to meet its financial assurance requirements. The rule changes are designed to modify the NRC’s financial assurance requirements that are part of the overall NRC strategy to maintain safety and protection of public health and the environment during decommissioning and decontamination of nuclear facilities. <u>Increased Public Confidence:</u> Modifying NRC regulations in accordance with statutory requirements will increase public confidence in the NRC’s role as a responsible industry regulator. This role would otherwise be undermined if the NRC failed to change its regulations as required by statute. <u>Qualitative Costs:</u> None |

Note: Totals may not add directly due to rounding.

This regulatory analysis evaluated two alternatives: (1) the no-action alternative that would maintain the NRC’s current approach and (2) a rulemaking to amend 10 CFR Part 30. The proposed rule would require licensees that relied on bond ratings issued by credit rating agencies for their financial guarantee to instead rely on existing alternative financial tests or new submissions determined by each licensee that do not contain a credit rating criterion.

The NRC has selected the rulemaking alternative, which would result in costs to the NRC and licensees. However, this regulatory change is mandated by statute, and therefore must be implemented. The staff selected Alternative 2 as the most cost-effective path to changing NRC regulations in accordance with the Dodd-Frank Act.

The staff has identified qualitative benefits that would result from implementation of the final rule. The proposed rule would implement the provisions of the Dodd-Frank Act, which directed agencies to amend their regulations to remove any reference to or requirement of reliance on credit ratings. The staff has concluded that the rule is cost-justified because the statutory requirements are being enacted in the most cost-effective manner practicable.

7. Implementation

The staff has estimated the final rule will be effective in 2023. The staff assumes that it would take, on average, one year for the licensees to implement; thus, the licensees would begin compliance with the rule in calendar year 2024.

8. References

Bureau of Labor Statistics (BLS), "Historical CPI-U, April 2020," U.S. Department of Labor, April 2020 (2020a). Available at <https://www.bls.gov/cpi/tables/supplemental-files/home.htm> (<https://www.bls.gov/cpi/tables/supplemental-files/historical-cpi-u-202004.pdf>); last accessed on September 22, 2021.

BLS, "May 2020 National Industry-Specific Occupational Employment and Wage Estimates, NAICS 221113—Nuclear Electric Power Generation," U.S. Department of Labor, May 2020 (2020b). Available at https://www.bls.gov/oes/2020/may/naics5_221113.htm; last accessed on August 9, 2021.

U.S. Nuclear Regulatory Commission (NRC), Regulatory Guide 1.159, Revision 2, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," October 2011 (ADAMS Accession No. ML112160012).

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Appendix A—Impacted Entities

| Licensee Type | 10 CFR Part | Total Number of Licensees | Licensees Using 10 CFR Part 30 |
|--|-------------|---------------------------|--------------------------------|
| Materials Licensees | Part 30 | 8 | 6* |
| Materials Licensees | Part 40 | 3 | 3* |
| Operating Reactors | Part 50 | 94 | 0 |
| Operating Research and Test Reactors | Part 50 | 31 | 0 |
| Medical Radioisotope Facilities | Part 50 | 2 | 0 |
| Decommissioning Power Reactors | Part 50 | 25 | 4** |
| Decommissioning Research and Test Reactors | Part 50 | 3 | 1** |
| New Reactors Under Construction | Part 52 | 2 | 0 |
| Fuel Cycle Facilities | Part 70 | 6 | 0 |
| Materials Licensees | Part 70 | 1 | 1* |
| Total | | 175 | 15 |

* Denotes current usage

** NRC estimate

SUBJECT: Regulatory Analysis for Proposed Rule: Alternatives to the Use of Credit Ratings

ADAMS Accession Nos.: ML21306A356 Package ML21306A348

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|--------|--------------------------|-----------------|-------------------------|-------------------|----------------|
| OFFICE | NMSS/REFS/RASB | QTE | NMSS/REFS/RASB/RAT | NMSS/REFS/RASB/BC | NMSS/REFS/MRPB |
| NAME | ASanders | KAzariah-Kribbs | FSchofer (ASanders for) | CBladey | JShepherd |
| DATE | 9/23/2021 | 9/29/2021 | 11/9/2021 | 11/26/2021 | 11/23/2021 |
| OFFICE | NMSS/REFS/D | OGC - NLO | NRR/D | | |
| NAME | JTappert (KCoyne for) | BHarris | AVeil | | |
| DATE | 12/13/2021 | 1/29/2022 | 2/14/2022 | | |

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