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# **Regulatory Analysis for Direct Final Rule: Alternatives to the Use of Credit Ratings**

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**U.S. Nuclear Regulatory Commission**

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## Executive Summary

The U.S. Nuclear Regulatory Commission (NRC) is issuing a direct final rule to amend the approved financial assurance mechanisms for decommissioning in Title 10 of the *Code of Federal Regulations* (10 CFR), specifically for parent and self-company guarantees that require bond ratings issued by credit rating agencies. This final rule implements the required provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act). The Dodd-Frank Act directed agencies to amend their regulations to remove any reference to or requirements that rely on credit ratings. Applicants and licensees who are required to provide decommissioning financial assurance (hereafter “financial assurance”) may be impacted. Accordingly, the staff conducted rulemaking to satisfy this Federal statute, and this final rule is exempt from backfitting considerations because the changes are Congressionally mandated. This rule requires applicants and licensees who relied on bond ratings issued by credit rating agencies for their financial guarantee to instead rely on alternative financial tests currently provided in NRC regulations that do not contain a credit rating criterion.

The key changes to the regulations are:

- Removal of Section II.A.2 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,” and reliance on financial tests in Appendix A, Section II.A.1, for use of parent-company guarantees for providing financial assurance;
- Removal of 10 CFR Part 30, Appendix C, “Criteria Relating to Use of Financial Tests and Self Guarantees for Providing Reasonable Assurance of Funds for Decommissioning,” in its entirety, and reliance on financial tests in 10 CFR Part 30, Appendix D, “Criteria Relating to Use of Financial Tests and Self-Guarantee for Providing Reasonable Assurance of Funds for Decommissioning by Commercial Companies that Have No Outstanding Bonds,” by commercial companies, for their use of self-guarantees for providing financial assurance;
- Removal of Section II.A.(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,” and reliance on financial tests in Appendix E, Section II.A.(2), by colleges and universities, for their use of self-guarantees for providing financial assurance; and
- Removal of Section II.B.(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,” and reliance on financial tests in Appendix E, Section II.B.(2), by hospitals, for their use of self-guarantees for providing financial assurance.

The NRC currently provides two guidance documents related to the financial tests needed to utilize a parent-company guarantee or self-guarantee for decommissioning financial assurance. NRC licensees under 10 CFR Parts 30, 40, 70, and 72 use NUREG-1757, Volume 3, Revision 1, “Consolidated Decommissioning Guidance: Financial Assurance, Recordkeeping, and Timeliness” (NRC 2012). NRC licensees under 10 CFR Part 50 use Regulatory Guide 1.159, Rev. 2, “Assuring the Availability of Funds for Decommissioning Nuclear Reactors” (NRC 2011). The NRC is issuing interim staff guidance (NRC 2019) 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 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 review of current licensee financial assurance mechanisms, the staff estimates that 12 NRC licensees would be impacted by the changes that result from the final rule.

## Costs and Benefits

This regulatory analysis measures the incremental costs of the final rule relative to a “baseline” that reflects anticipated behavior in the event 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. The implementation cost captures the industry implementation cost and the NRC rulemaking cost. The operation 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 on those licensees who rely on bond ratings issued by credit rating agencies for their financial guarantee.

The key findings of the analysis are as follows (note the discounted total costs, when rounded, do not differ from the undiscounted total costs, as shown in Table ES-1):

**Costs to Industry.** The rule would result in estimated incremental implementation and operations (one-time) costs of approximately (\$100,000). This corresponds to approximately (\$8,000) per licensee in incremental costs.

**Costs to NRC.** The rule would result in an estimated incremental implementation and operations (one-time) costs to the NRC of approximately (\$60,000).

**Total Costs.** The rule, in implementing the aforementioned statutory requirements, results in total costs to the NRC and Industry of (\$160,000).

**Table ES-1 Combined Implementation and Operations Cost Summary**

Entity	Implementation Costs	Operating Costs	Total Costs (undiscounted)	Total Costs (3% NPV)	Total Costs (7% NPV)
Industry	(\$99,000)	(\$1,000)	(\$100,000)	(\$100,000)	(\$100,000)
NRC	(\$54,000)	(\$6,000)	(\$60,000)	(\$60,000)	(\$60,000)
Total	(\$153,000)	(\$7,000)	(\$160,000)	(\$160,000)	(\$160,000)

Note: Dollars are rounded to the nearest thousand.

**Benefits.** The final 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 which are part of the overall NRC strategy to maintain safety and protection during decommissioning and decontamination of nuclear facilities. This rule also achieves the nonquantified benefits of (1) increased public confidence, by responding to the statute with regulation instead of relying on the exemption request process, and (2) improvements in knowledge, given the additional financial tests required.

### **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 conforming changes to 10 CFR Parts 40, 50, 70, and 72. The final rule would require licensees who 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 the Dodd-Frank Act, which directed agencies to amend their regulations to remove any reference to or requirements that rely on credit ratings. Although this alternative results in costs to the licensees, the NRC believes that this 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 final rule.

## **Glossary of Terms and Acronyms**

The following are abbreviations of terms used in this regulatory analysis.

ADAMS	Agencywide Documents Access and Management System
10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
BLS	Bureau of Labor Statistics
NRC	U.S. Nuclear Regulatory Commission
OMB	U.S. Office of Management and Budget
PERT	Program evaluation and review technique

## 1.0 Introduction

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

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

## 1.1 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 in the event that a licensee is unable or unwilling to complete decommissioning. Financial assurance for decommissioning must be obtained prior to the commencement of 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. Under NRC regulations, a number of different types of financial instruments may be used to demonstrate financial assurance, including pre-payments 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. This 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 (bond rating-based and non-bond rating-based) 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, A (Standard & Poor's) or Aaa, Aa, A, or Baa (Moody's), including adjustments. (Entities that do not issue bonds and/or without bond ratings must, instead, meet certain financial thresholds.<sup>1</sup>)

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<sup>1</sup> As mentioned, 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



## **2.0 Identification of Alternative Approaches**

The following sections describe the two regulatory alternatives that the NRC is considering in order to meet the rulemaking objective identified in the previous section. Section 3 presents a detailed analysis of the benefits and costs of the two regulatory alternatives.

### **2.1 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 final 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.

### **2.2 Alternative 2: Amend 10 CFR Part 30**

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

- Remove Section II.A.2 from Appendix A to 10 CFR Part 30; applicants and licensees intending to use parent-company guarantees for providing financial assurance, would rely instead on meeting the requirements in Section II.A.1 in Appendix A.
- Remove in its entirety Appendix C to 10 CFR Part 30; applicants and licensees who are commercial companies intending to use self-guarantees for providing financial assurance would rely instead on meeting the requirements in Appendix D to 10 CFR Part 30.
- Remove Section II.A.(1) from Appendix E to 10 CFR Part 30; applicants and licensees who are nonprofit colleges or universities intending to use self-guarantees for providing financial assurance, would rely instead on meeting the requirements in Section II.A.(2) in Appendix E.
- Remove Section II.B.(1) from Appendix E to 10 CFR Part 30; applicants and licensees who are hospitals and intending to use self-guarantees for providing financial assurance, would rely instead on meeting the requirements in Section II.B.(2) in Appendix E.

The final rule concerns only NRC regulations that govern applicant and licensee use of parent-company guarantees or self-guarantees. Each parent-company guarantee that relies, in part, on bond ratings issued by credit rating agencies per Section II.A.2 of Appendix A to 10 CFR Part 30 would now need to meet the financial test in Section II.A.1 of Appendix A, to 10 CFR Part 30. This provision requires that at least two of the following three financial ratios be met: (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.

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parent-company guarantees without bond ratings. Compare Appendix E to 10 CFR Part 30, Section II.A.(2), with Appendix A to 10 CFR Part 30, Section II.A.1.

Each self-guaranteeing commercial company licensee that relies, in part, on bond ratings issued by credit rating agencies per Appendix C to 10 CFR Part 30 would now need to meet the financial test in Appendix D to 10 CFR Part 30. 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 self-guaranteeing nonprofit college or university licensee that relies, in part, on bond ratings issued by credit rating agencies under Appendix E to 10 CFR Part 30, would now need to meet the financial test in Section II.A.(2) of Appendix E to 10 CFR Part 30. 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 self-guaranteeing hospital licensee will now need to meet the financial test in Section II.B.(2) of Appendix E to 10 CFR Part 30, as opposed to the bond rating test in Section II.B.(1). This financial test requires: (1) [total revenues less total expenditures] divided by total revenues must be equal to or greater than 0.04; and (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.

Applicants and licensees who cannot meet the parent company or self-guarantee financials tests to demonstrate reasonable assurance that funds will be available when needed for decommissioning will have to use prepayment of funds, payment of funds into an external sinking fund, a surety method, insurance, or other guarantee method including a letter of credit.

### **2.3 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 criterion (i.e., removing Section II.A.2.(i) of Appendix A to 10 CFR Part 30; removing Section II.A.(3) of Appendix C to 10 CFR Part 30; and removing Sections II.A.(1) and II.B.(1) of Appendix E to 10 CFR Part 30). However, the staff concluded that following the removal of the bond rating criteria, the financial tests in Appendix A and C would not retain their effectiveness in providing adequate assurance of decommissioning funds.

The staff also considered developing a completely new set of criteria to assess the credit worthiness of entities without relying on credit ratings. However, the staff concluded that the existing financial tests in Appendices A, D, and E to 10 CFR Part 30 that do not rely on credit ratings adequately provide financial assurance. Therefore, for reasons of efficiency, the staff chose not to create a new set of criteria.

### **3.0 Estimation and Evaluation of Benefits and Costs**

This section describes the analysis that the NRC conducted to identify and evaluate the benefits and costs of the two regulatory alternatives. Section 3.1 describes how the benefits and costs were analyzed. Section 3.2 presents the labor rates made in the analysis. Section 3.3 identifies the entities expected to be affected by the final rule. Section 3.4 identifies the attributes expected to be affected by the rule.

### 3.1 Analytical Methodology

This section describes the methodology used to analyze the consequences associated with the rule. The methodology for NRC's regulatory analysis process is provided in NUREG/BR-0058, draft Revision 5, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission" (NRC 2018a).

Net present value is calculated using both 3-percent and 7-percent real discount rates consistent with guidance contained in U.S. Office of Management and Budget (OMB), Circular A-4, "Regulatory Analysis" (OMB 2003). The real discounted rates, or net present value calculation, 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. By using net present value calculations, benefits and costs are valued equally regardless of time. The 3-percent 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. This rate is appropriate when the primary effect of the regulation is on private consumption. Alternatively, the 7-percent rate approximates the marginal pretax real rate of return on an average investment in the private sector, and 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. Current trends in the marketplace reflect returns on investments well below the 3-percent and 7-percent discount rates, upon which OMB Circular No. A-4 is based. The staff is providing a undiscounted values as a further sensitivity analysis. The staff is reporting the undiscounted costs as part of the sensitivity analysis based on current market trends and future predictions. This analysis uses a base year of 2019.

In this regulatory analysis, the staff identifies all attributes related to the regulatory action and analyzes them either quantitatively or qualitatively. For the quantified regulatory analysis, the staff developed expected values for each benefit and cost. Then, for each alternative, the staff determined the benefits and costs, and discounted the consequences in future years to the current year of the regulatory action. Finally, the staff summed the benefits and costs for each alternative and compared them.

This regulatory analysis measures the incremental costs of the rule relative to a baseline that reflects anticipated behavior in the event the NRC does not undertake any regulatory action (Alternative 1, the "no action" alternative). As part of the regulatory baseline used in this analysis, the staff assumes full licensee compliance with existing NRC regulations. This alternative is equivalent to the status quo and serves as a baseline to measure against the other alternative. Section 4 of this analysis presents the estimated incremental benefits and costs of the rule relative to this baseline.

After performing the quantitative regulatory analysis, the staff addressed attributes that could only be evaluated qualitatively. The final rule includes changes that would affect attributes in a positive but not easily quantifiable manner. For example, the attribute "improvements in knowledge" would strengthen the NRC's financial assurance requirements by improving accountability and transparency. The rule changes are designed to modify the NRC's financial assurance requirements which are part of the overall NRC strategy to maintain safety and protection during decommissioning and decontamination of nuclear facilities. These estimations would be difficult to quantify.

The benefits include any desirable changes in the affected attributes. The costs include any undesirable changes in affected attributes.

The staff used both data from subject matter experts and knowledge gained from past rulemakings in this analysis.

### 3.1.1 Sign Conventions

The sign conventions used in this analysis are that all favorable consequences for the alternative are positive, and all adverse consequences for the alternative are negative. For example, additional costs above the regulatory baseline are shown as negative values and cost savings and averted costs are shown as positive values. Negative values are shown using parentheses (e.g., negative \$500 is displayed as (\$500)).

### 3.2 Labor Rates

Licensee labor rates were obtained from National Wage Data available on the U.S. Bureau of Labor Statistics Web site (<http://www.bls.gov>), using the available 2017 data. Depending on the industry and the occupation (e.g., manufacturing, health and safety), an appropriate mean hourly labor rate is selected. Because exact hourly rates would be difficult to obtain and may not be sufficiently recent, nationwide mean hourly rates are 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 inflator of 1.023 to estimate 2019 wages (the base year of this analysis) from the 2017 data. This resulted in the following labor rates for industry, used in this analysis:

Licensing Assistants (occupational code 23-2011): \$83.15  
 Accountant & Auditor (occupational code 13-2011): \$103.43

The NRC’s labor rates are determined using the methodology in Abstract 5.2, “NRC Labor Rates,” of NUREG/CR-4627, “Generic Cost Estimates, Abstracts from Generic Studies for Use in Preparing Regulatory Impact Analyses.” The 2019 NRC hourly labor rate is \$129.

### 3.3 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 review of current licensee financial assurance mechanisms, the staff identified 12 NRC licensees that will be impacted (see Appendix A – List of Impacted Entities). Table 3-1 groups these impacted licensees by category and type of financial assurance used. The staff estimates that all of the licensees who are impacted by the rule will be able to meet the financial tests and will not need to use another financial instrument to demonstrate reasonable assurance that funds will be available when needed for decommissioning.

**Table 3-1 Impacted Licensees**

Self or Parent Guarantee	Commercial	Nonprofit College or University	Nonprofit Hospital	Number of Licensees
Self	5	3	1	9
Parent	3	0	0	3
Total	8	3	1	12

The amendments in the final rule have been given a compatibility category “D” rating, so 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 licensees in Agreement States are not impacted by this rulemaking and further consideration of these licensees is excluded from this regulatory analysis.

### **3.4 Applicability Period**

The staff estimates no ongoing operational costs for this final rule and therefore calculated no applicability period.

### **3.5 Identification of Affected Attributes**

This section identifies the factors within the public and private sectors that the final rule is expected to affect, using the list of potential attributes provided in Section 5.2 of draft NUREG/BR-0058, Revision 5 (NRC 2018a). The basis for selecting those attributes is presented below.

Affected attributes include the following:

- **Industry Implementation** – This attribute measures the projected net economic effect on the Industry of implementing the regulatory action on all affected licensees. Under this action, the Industry would review the regulations and update their processes and procedures as necessary.
- **Industry Operation** – This attribute measures the projected net economic effect of routine and recurring activities required by the regulatory action on all affected licensees. In this regulatory analysis, the incremental operating cost occurs the first time licensees utilize the new financial metrics due to the changes in the final rule, and do not recur because the metrics are similar in complexity to the existing metrics.
- **NRC Implementation** – This attribute measures the projected net economic effect on the NRC of implementing the regulatory action on all affected licensees. Under this action, the NRC would develop the direct final 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 knowledge of the financial stability of the licensees in the 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.

Attributes that are not affected include the following: 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.

#### 4.0 Presentation of Results

This section presents the benefits and costs estimated for the regulatory options. To the extent that the affected attributes could be analyzed quantitatively, the net effect of each option has been calculated and is presented below. However, some values and impacts could be evaluated only on a qualitative basis.

#### 4.1 Alternative 1: No Action

This regulatory analysis measures the incremental impacts of the final rule relative to a baseline, which reflects anticipated behavior in the event that the regulation is not imposed. The baseline used in this analysis assumes full licensee compliance with existing NRC requirements, including current regulations and relevant orders.<sup>2</sup>

By definition, the “no action” alternative, the baseline for the main analysis, does not result in any change of benefits or costs. As noted above, however, the NRC could be in violation of the Dodd-Frank Act.

#### 4.2 Alternative 2: Amend 10 CFR Part 30

##### 4.2.1 Industry Implementation

The industry would need to review the regulations and update their procedures as necessary. The NRC estimates this effort to take 80 labor hours for the 12 impacted licensees.

**Table 4-1 Industry Implementation Cost**

Industry Implementation	Number of Licensees Impacted	Labor Hours	Cost (2019 dollars)
Update procedures	12	80	(\$99,292)

##### 4.2.2 NRC Implementation

Under the direct final rule process, if the NRC receives no significant adverse comments, the NRC reviews all public comments, revises guidance to accommodate the requirements that would be added or modified by the direct final rule, and the direct final rule goes into effect as scheduled. This effort would require an estimated 417 hours to conduct rule activities. The

<sup>2</sup> Section 5.3 of draft NUREG/BR-0058, Revision 5 (NRC 2018a), states that, “in establishing the baseline case, the [NRC] should assume that all existing NRC and Agreement State requirements and written licensee commitments have already been implemented and that the costs and benefits associated with these requirements are not part of the incremental estimates prepared for the regulatory analysis.”

analysis accounts for the NRC’s one-time implementation costs associated with the direct final rule and the companion proposed rule; most of the work on guidance documents are sunk costs.<sup>3</sup> The remaining costs are due to activities associated with the direct final rule process during and after the public comment period, such as comment review and withdrawal of the companion proposed rule, and will be incurred in 2019. These rulemaking costs are estimated to be (\$53,750). If there are any significant adverse comments and the direct final rule is withdrawn, this cost estimate would underestimate the true rulemaking costs; however, the staff expects no adverse comments, and can use the direct final rule process.

The staff has prepared a guidance document, “Interim Staff Guidance on Removal of Bond Ratings from Parent and Self-Guarantees, Decommissioning Financial Assurance,” to support implementation of the rulemaking. Updates to the following two related documents are not being conducted as part of this rulemaking:

- NUREG-1757, Volume 3, Revision 1, “Consolidated Decommissioning Guidance: Financial Assurance, Recordkeeping, and Timeliness” (NRC 2012)
- Regulatory Guide 1.159, Revision 2, “Assuring the Availability of Funds for Decommissioning Nuclear Reactors” (NRC 2011)

**Table 4-2 NRC Implementation Cost**

Description	Wage Rate (\$/hr)	Labor Hours	Implementation Cost (2019 dollars)
Final Rule Activities	\$129	417	(\$53,750)
Total Implementation Cost			(\$53,750)

### 4.2.3 Industry Operations

The revisions to Appendix A to 10 CFR Part 30 impact only the financial test for use of the parent-company guarantee funding assurance mechanism that relied on bond ratings issued by credit rating agencies. Each impacted entity will now be required to meet the financial test in Section II.A.1 from Appendix A to 10 CFR Part 30, which requires the licensee to meet financial ratios. The staff estimates that the initial creation and submittal of the report by the three affected licensees will take 3 labor hours per licensee (2 labor hours for the accountant or auditor and 1 labor hour for the licensing assistant) for the first time it is submitted, but that the metrics reported are similar in type and complexity that there will be no ongoing incremental operations costs as a result of this change.

The revision to Appendix C to 10 CFR Part 30 (i.e., removal of Appendix C in its entirety) impacts only the use of the self-guarantee funding assurance mechanism by commercial companies that relied on bond ratings issued by credit rating agencies. Each impacted entity will now be required to meet the financial test in Appendix D to 10 CFR Part 30. The staff estimates that this change will result in negligible incremental operations costs to the five

<sup>3</sup> Sunk costs are costs incurred before the start of the analysis period and for which there is no value to the resources in some alternative use. In this case, this includes the costs of rulemaking and guidance development undertaken at an earlier date.

licensees impacted, because the financial metrics are otherwise unchanged except for the removal of the bond rating metrics.

The deletion of Section II.A.(1) from Appendix E to 10 CFR Part 30 impacts only the financial test for use of the self-guarantee funding assurance mechanism by nonprofit colleges or universities that relied on bond ratings issued by credit rating agencies. Each impacted entity will now be required to meet the financial test in Section II.A.(2) in Appendix E to 10 CFR Part 30. The staff estimates that this change will result in negligible incremental operations costs to the three licensees impacted, because the financial metrics are otherwise unchanged except for the removal of the bond rating metrics.

The deletion of Section II.B.(1) from Appendix E to 10 CFR Part 30 impacts only the financial test for use of the self-guarantee funding assurance mechanism by hospitals that relied on bond ratings issued by credit rating agencies. Each impacted entity will now be required to meet the financial test in Section II.B.(2) in Appendix E to 10 CFR Part 30. The staff estimates that the initial creation and submittal of the report by the one licensee impacted will take 3 labor hours (2 labor hours for the accountant or auditor and 1 labor hour for the licensing assistant) for the first time it is submitted, but that the metrics reported are similar in type and complexity such that there will be no ongoing incremental operations costs as a result of this change.

The estimated undiscounted operations costs of these activities are provided in Table 4-3. The NPV ranges from (\$1,079) using a 7 percent discount rate to (\$1,125) using a 3 percent discount rate.

**Table 4-3 Industry Operations Cost**

Citation	Industry Operations Activity	Number of licensees impacted	Labor Hours	Cost (2019 dollars)
Part 30 Appendix A	Reporting criteria on licensee to provide financial ratio test results	3	2	(\$621)
	Recordkeeping	3	1	(\$249)
Part 30 Revised Appendix D	Reporting criteria on licensee to provide financial ratio test results	5	0	\$0
	Recordkeeping	5	0	\$0
Part 30 Revised Appendix E	Reporting criteria on licensee to provide financial ratio test results	3	0	\$0
	Recordkeeping	3	0	\$0
Part 30 Appendices A, D, and E	Report that licensee has to meet their financial test requirements.	1	2	(\$207)
	Recordkeeping	1	1	(\$83)
Total				(\$1,160)



#### 4.2.4 NRC Operations

The staff will need to review the annual reports that are submitted, however after the initial reports, the slight differences in the metrics licensees will report are not expected to cause incremental burden. The NRC estimates that the first time the staff reviews each submitted report will take four labor hours, for the 12 affected licensees, due to the new financial metrics that will be used. Therefore, the incremental NRC operations costs (in addition to the rulemaking costs) are estimated to be (\$5,759) using a 7-percent discount rate and (\$6,006) using a 3-percent discount rate, and are one-time costs that do not recur.

#### 4.2.5 Improvements in Knowledge

The additional reporting requirements will improve the NRC knowledge of the financial stability of the licensees in the decommissioning funding obligations. The final rule would also improve the accountability and transparency of the NRC’s financial assurance requirements. Bond ratings on financial products can be inaccurate and this inaccuracy could contribute to the mismanagement of risks that in turn adversely impacted the licensee 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 during decommissioning and decontamination of nuclear facilities.

#### 4.2.6 Totals

**Table 4-4** summarizes the total costs grouped by implementation and operations costs by attribute, for Alternative 2.

**Table 4-4 Summary of Total Cost**

Attribute	Total Averted Costs (Costs)		
	Undiscounted	7% NPV	3% NPV
Industry Implementation	(\$99,000)	(\$99,000)	(\$99,000)
Industry Operation	(\$1,000)	(\$1,000)	(\$1,000)
<i>Total Industry Cost</i>	(\$100,000)	(\$100,000)	(\$100,000)
NRC Implementation	(\$54,000)	(\$54,000)	(\$54,000)
NRC Operation	(\$6,000)	(\$6,000)	(\$6,000)
<i>Total NRC Cost</i>	(\$60,000)	(\$60,000)	(\$60,000)
<b>Net</b>	<b>(\$160,000)</b>	<b>(\$160,000)</b>	<b>(\$160,000)</b>

Note: Values are and rounded to the nearest \$1,000. Industry and NRC Operations cost are discounted and rounded to the nearest \$1,000.

#### 4.3 Uncertainty Analysis

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

### 4.3.1 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.<sup>4</sup>

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,<sup>5</sup> 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 4-5 identifies the data elements, the distribution and summary statistic, and the mean value of the distribution that were used in the uncertainty analysis.

**Table 4-5 Uncertainty Analysis Variables**

Data Element	Mean Estimate	Distribution	Low Estimate	Best Estimate	High Estimate
<b>Industry Appendix A, C, D, and E requirements</b>					
<b>Industry Procedural Updates</b>					
Weighted Hourly Rate	\$103.43	PERT	\$77.38	\$104.08	\$126.89
Time to Update (Hours)	80	PERT	60	80	100
<b>Industry Financial Reporting (Appendix A Implementation)</b>					
Weighted Hourly Rate (Reporting)	\$103.43	PERT	\$77.38	\$104.08	\$126.89
Financial Ratio Test Reporting (Hours)	2	PERT	1	2	3
Weighted Hourly Rate (Recordkeeping)	\$83.15	PERT	\$67.72	\$83.20	\$98.38
Financial Ratio Test Recordkeeping (Hours)	1	PERT	0	1	2

<sup>4</sup> Information about this software is available at <http://www.palisade.com>.

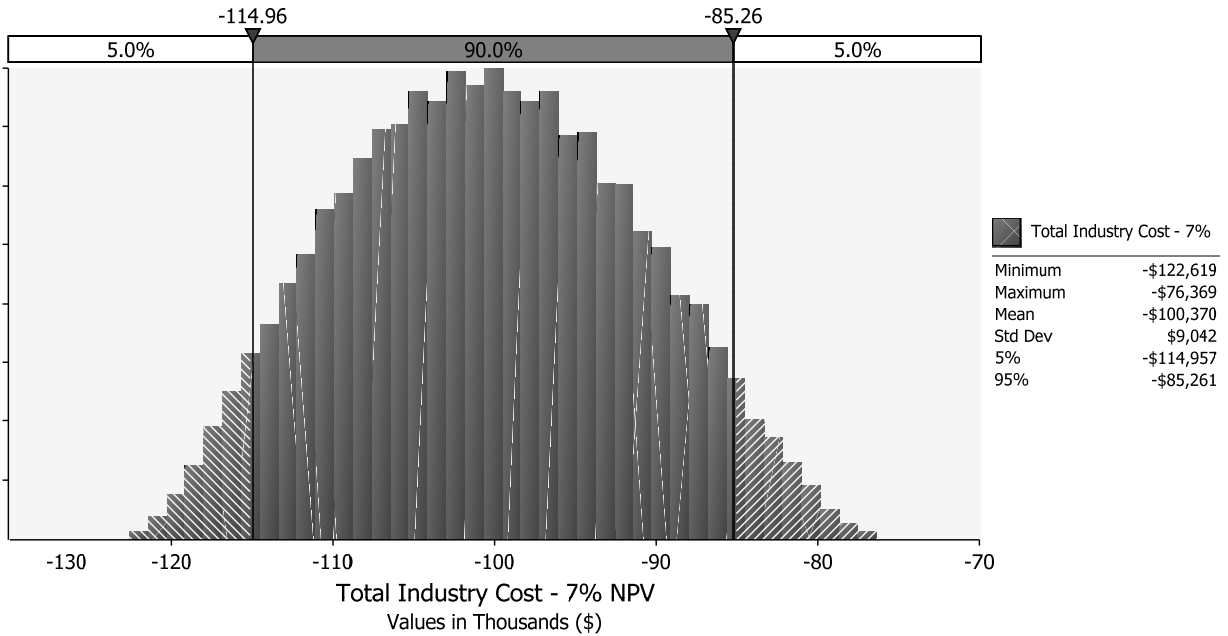
<sup>5</sup> A PERT distribution is a special form of the beta distribution with specified minimum and maximum values. The shape parameter is calculated from the defined *most likely* value. The PERT distribution is similar to a triangular distribution in that it has the same set of three parameters. 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
Number of Licensees (Appendix A)	3				
Number of Licensees (Appendix D)	5				
Number of Licensees (Appendix E)	3				
Number of Licensees (Appendices A, D, E)	1				
Total Number of Licensees	12				
<b>NRC Licensing Actions</b>					
Weighted Hourly Rate	\$129				
Hours to perform	4	PERT	3	4	5
Number of actions	12	PERT	12	12	12
<b>Direct Final Rule Stage</b>					
<b>NRC Review Public Comments and Publish Final Rule</b>					
Weighted Hourly Rate	\$129				
Hours to Finalize	417	PERT	300	400	600

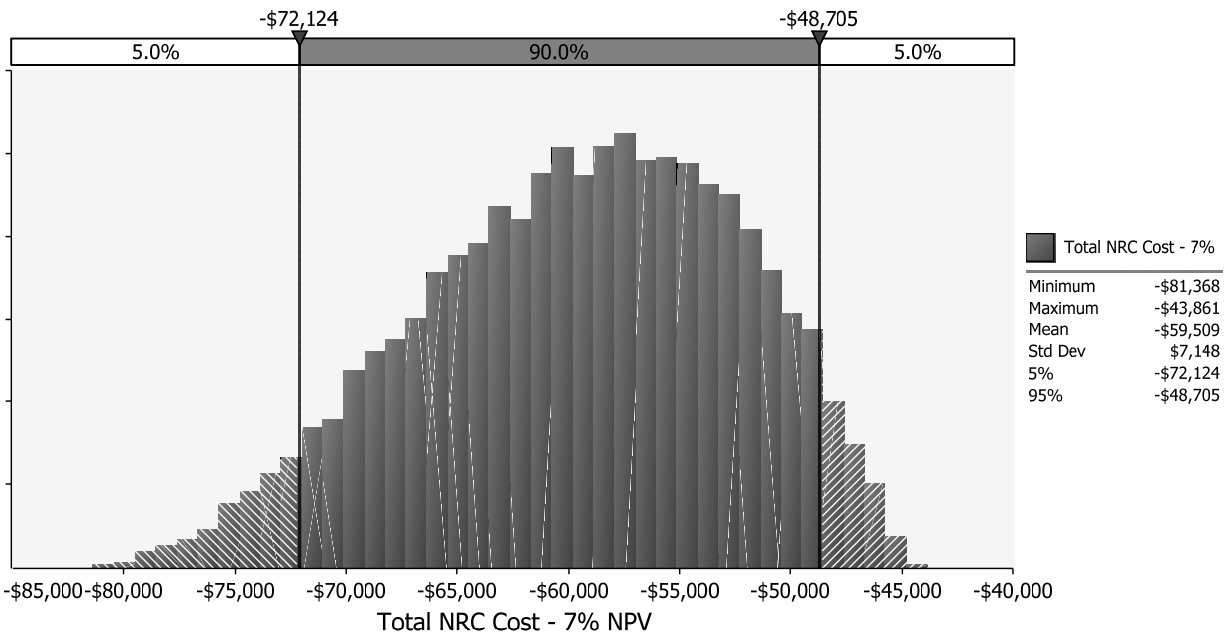
**4.3.2 Uncertainty Analysis Results**

The NRC performed the Monte Carlo simulation by repeatedly recalculating the results 10,000 times. For each iteration, the values identified in Table 4-5 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.

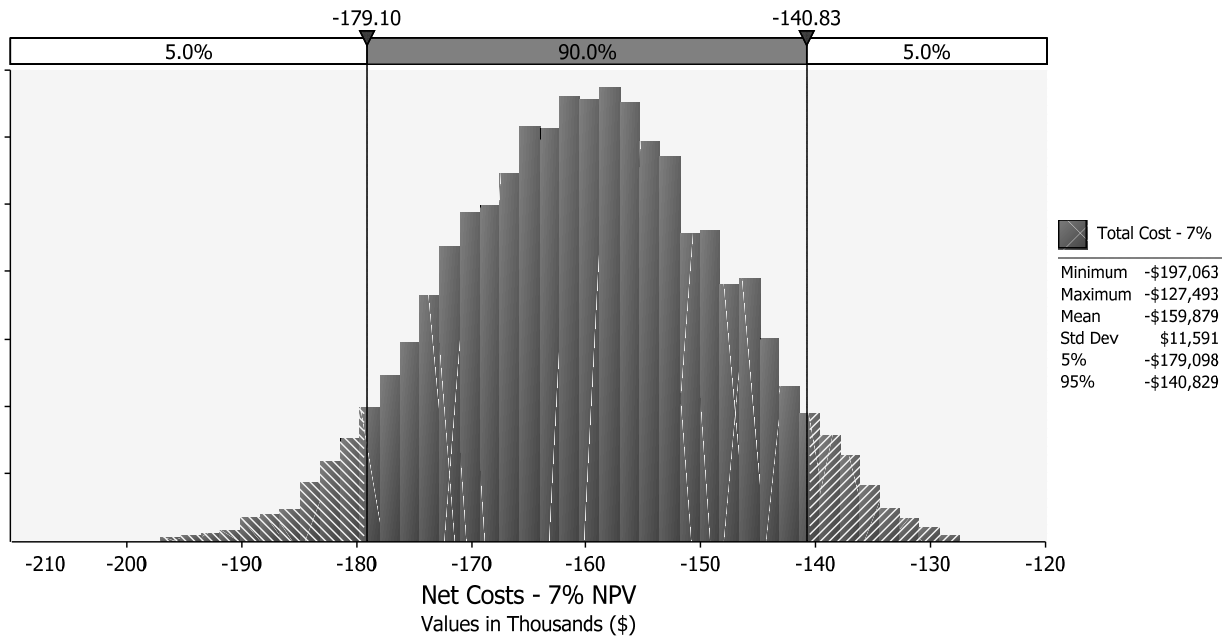
For the analysis shown in each figure below, 10,000 simulations were run in which the key variables were changed to assess the resulting effect on costs and benefits. Figures 4-1, 4-2, and 4-3 display the histograms of the incremental costs and benefits from the regulatory baseline. The analysis shows that the industry would benefit if this rule is issued, and the NRC would break even between costs and averted costs.



**Figure 4-1 Total Industry Cost (7% NPV)**



**Figure 4-2 Total NRC Cost (7% NPV)**



**Figure 4-3 Net Costs (7% NPV)**

Table 4-6 presents descriptive statistics on the uncertainty analysis. The 5-percent and 95-percent values (in other words, the bands marked 5% on either side of the 90% confidence interval) that appear as numerical values on the top of the vertical lines in Figures 4-1, 4-2, and 4-3 are reflected in Table 4-6 (rounded) as the 0.05 and 0.95 values, respectively.

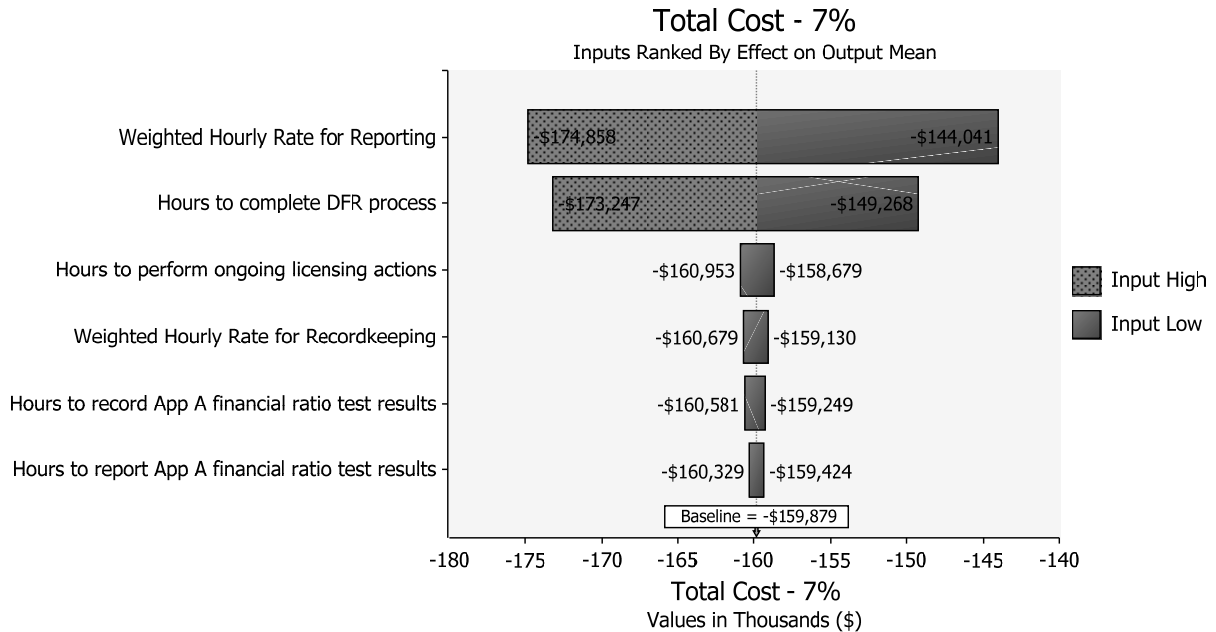
**Table 4-6 Uncertainty Analysis Results**

Uncertainty Result	Incremental Cost-Benefit (2019 million dollars)					
	Min	Mean	St. Dev.	Max	0.05	0.95
Total Industry Cost	(\$0.12)	(\$0.10)	\$0.01	(\$0.08)	(\$0.11)	(\$0.09)
Total NRC Cost	(\$0.08)	(\$0.06)	\$0.01	(\$0.04)	(\$0.07)	(\$0.05)
Total Cost	(\$0.20)	(\$0.16)	\$0.01	(\$0.13)	(\$0.18)	(\$0.14)

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

Examining the range of the resulting output distribution provided in Table 4-6, it is possible to more confidently discuss the potential incremental costs and benefits of the regulatory basis. 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 industry and NRC would incur a net cost.

Figure 4-4 shows a tornado diagram that identifies the key variables whose uncertainty drives the largest impact on total costs (and averted costs) for the final rule. This figure ranks the variables based on their contribution to cost uncertainty. Two variables—the weighted hourly to report financial assurance metrics and the hours to perform the final rule activities mentioned in the NRC Implementation section—drive the most uncertainty in the costs. The remaining key variables show diminishing variation.



**Figure 4-4 Tornado Diagram – Total Costs – 7% NPV**

The costs for the industry and the NRC for the final rule have a mean value of (\$160,000) 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, this rule implements changes to the regulations that are required by statute, which is the primary reason for continuing with the rule.

#### 4.4 Disaggregation

In order to comply with the guidance in Appendix E, Section E2.3, “Criteria for the Treatment of Individual Requirements,” of draft NUREG/BR-0058, Revision 5(NRC, 2018a), the staff performed a screening review to determine whether any of the individual requirements (or set of integrated requirements) of the final rule would be unnecessary to achieve the objectives of the rulemaking. The objective of this 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.

#### 4.5 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 this rulemaking is not quantitatively cost beneficial, the unquantifiable factors may have beneficial effects on stakeholders. Ultimately, because these changes are required by statute, the staff will implement the statutory requirement via the least costly approach—a direct final rule.

#### **4.6 Quantified Net Benefit (Cost)**

As shown in Figure 4-4 above, the estimated quantified incremental costs for Alternative 2 relative to the regulatory baseline (Alternative 1) over the analysis period are approximately (\$160,000).

#### **4.7 Non-quantified Benefits**

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

##### **4.7.1 Increased Public Confidence**

Addressing these changes through rulemaking instead of the licensing process will increase public confidence in the NRC's ability to adapt to new regulatory needs, and will maintain the NRC's role as an effective industry regulator. This role would otherwise be undermined if the NRC failed to respond to new statutory direction.

##### **4.7.2 Improvements in Knowledge**

The additional reporting requirements will improve the NRC knowledge of the financial stability of the licensees in the decommissioning funding obligations. The final rule would also enhance the accountability and transparency of the NRC's financial assurance requirements. Bond ratings on financial products can be inaccurate, and this inaccuracy could contribute to the mismanagement of risk that could in turn adversely impact licensees' ability to meet their financial assurance requirements. The rule changes are designed to modify the NRC's financial assurance requirements, which are part of the overall NRC strategy to maintain safety during decommissioning and decontamination of nuclear facilities.

#### **4.8 Safety Goal Evaluation**

The rulemaking 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 to represent an inconsistency with any issue finality provisions in 10 CFR Part 52. The basis for this determination is set forth in the direct final rule.

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

#### **4.9 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 charter (NRC 2018b) is presented in this regulatory analysis or in the final rule. Table 4-7 provides a cross-reference between the relevant information and its location in this document or the *Federal Register* notice.

**Table 4-7 Specific CRGR Regulatory Analysis Information Requirements**

<b>CRGR Charter Citation (NRC 2018b)</b>	<b>Information Item To Be Included in a Regulatory Analysis Prepared for CRGR Review</b>	<b>Where Item Is Discussed</b>
Appendix C, (i)	The new or revised generic requirement or staff position as it is proposed to be sent out to licensees or issued for public comment.	Companion proposed rule
Appendix C, (ii)	Draft papers or other documents supporting the requirements or staff positions.	Direct final rule
Appendix C, (iii)	The sponsoring office's position on each proposed requirement or staff position as to whether the proposal would modify, implement, or relax or reduce existing requirements or staff positions.	Not applicable
Appendix C, (iv)	The proposed method of implementation.	Regulatory Analysis, Section 6
Appendix C, (vi)	Identification of the category of power reactors, new reactors, or nuclear materials facilities or activities to which the proposed generic requirement or staff position is applicable.	Regulatory Analysis, Section 3.3
Appendix C, (vii)–(viii)	If the proposed action involves a power reactor backfit and the exceptions at 10 CFR 50.109(a)(4) are not applicable, the items required at 10 CFR 50.109(c) and the required rationale at 10 CFR 50.109(a)(3) are to be included.	Not applicable
III.	For proposed generic relaxations or decreases in current requirements or staff positions, provide a determination along with the rationale that (a) the public health and safety and the common defense and security would be adequately protected if the proposed relaxations were implemented and (b) the cost savings attributed to each action would be significant enough to justify the action.	Not applicable
Appendix C, (xi)	Preparation of an assessment of how the proposed action relates to the Commission's Safety Goal Policy Statement (NRC 1986).	Regulatory Analysis, Section 4.8

## 5.0 Decision Rationale

This section presents the benefits and costs from the final rule. To the extent that the affected attributes can be analyzed quantitatively, the net effect of each alternative is calculated and presented below. However, some benefits and costs could be evaluated only on a qualitative basis.

The NRC has identified quantitative and non-quantitative benefits that would result from implementation of the final rule.



Table 5-1 summarizes the results of the benefits and costs analysis. The rulemaking alternative results in additional costs when compared to the no-action alternative. The quantitative impact of the rulemaking alternative is estimated to cost approximately (\$160,000).

**Table 5-1 Benefits and Costs Summary Table**

Net Monetary Savings (or Costs)	Non-Quantified Benefits and Costs
<b>Option 1: No Action</b> \$0	<u>Non-Quantified Benefits and Costs</u> This regulatory change is mandated by statute, and therefore must be implemented.
<b>Option 2: Rulemaking:</b>  <b>Industry: (\$100,000)</b>  <b>NRC: (\$60,000)</b>  <b>Net: (\$160,000)</b>	<u>Non-Quantified Benefits:</u>  <u>Improvements in Knowledge:</u> The additional reporting requirements will improve the NRC knowledge of the financial stability of the licensees in the decommissioning funding obligations. The final rule would also enhance the accountability and transparency of the NRC's financial assurance requirements. Bond ratings on financial products can be inaccurate and this inaccuracy could contributed to the mismanagement of risks which in turn adversely impacted the licensee ability to meet its financial assurance requirements. The rule changes are designed to modify the NRC's financial assurance requirements which are part of the overall NRC strategy to maintain safety and protection during decommissioning and decontamination of nuclear facilities.  <u>Increased Public Confidence:</u> Processing SMRs and NLWRs through rulemaking instead of the exemption request process will increase public confidence in the NRC's ability to adapt to new regulatory needs, and will maintain the NRC's role as an effective industry regulator. This role would otherwise be undermined if the NRC failed to respond to new technology and relied on the exemption request process.  <u>Non-Quantified Costs:</u> None

\*Note: totals may not add directly due to rounding. Discounted total costs, when rounded, do not differ from the undiscounted total costs and are therefore not shown.

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 final rule would require licensees who relied on bond ratings issued by credit rating agencies for their financial guarantee to instead rely on existing alternative financial tests that do not contain a credit rating criterion.

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

The staff has identified non-quantified benefits that would result from implementation of the final rule. The final rule will implement the provisions of the the Dodd-Frank Act, which directed agencies to amend their regulations to remove any reference to or requirements 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.

## **6.0 Implementation**

The staff has estimated the final rule will be effective in 2019. The staff assumes that it would take, on average, 1 year for the licensees to implement, thus the licensee would begin compliance with the rule beginning in calendar year 2020.

## References

U.S. Department of Labor, Bureau of Labor Statistics (BLS), "Occupational Employment Statistics: OES Databases," <https://www.bls.gov/oes/data.htm>.

BLS, "Databases, Tables & Calculators by Subject: CPI Inflation Calculator," [http://www.bls.gov/data/inflation\\_calculator.htm](http://www.bls.gov/data/inflation_calculator.htm).

U.S. Nuclear Regulatory Commission (NRC), "Safety Goals for the Operations of Nuclear Power Plants; Policy Statement; Republication," *Federal Register*, Vol. 51, August 21, 1986, (51 FR 30028). Available at <http://www.nrc.gov/reading-rm/doc-collections/commission/policy/51fr30028.pdf>.

NRC, "Generic Cost Estimates, Abstracts from Generic Studies for Use in Preparing Regulatory Impact Analyses," NUREG/CR-4627, Revision 2, February 1992, ADAMS Accession No. ML13137A259.

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

NRC, "Consolidated Decommissioning Guidance: Financial Assurance, Recordkeeping, and Timeliness," NUREG-1757, Volume 3, Revision 1, February 2012, ADAMS Accession No. ML12048A683.

NRC, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission," NUREG/BR-0058, draft Revision 5, April 2018a, ADAMS Accession No. ML17221A000.

NRC, "Charter: Committee to Review Generic Requirements," Revision 9, June 2018b, ADAMS Accession No. ML17355A532.

OMB, Circular No. A-4, "Regulatory Analysis," September 17, 2003.

## Appendix A – List of Impacted Entities

<b>Licensee</b>	<b>Part Licensed</b>	<b>Type of Guarantee</b>
General Atomics (SNM-696)	Part 70	Parent-company guarantee
Global Nuclear Fuel – Americas (SNM-1097)	Part 70	Parent-company guarantee
Homestake Mining Co. (SUA-1471)	Part 40	Parent-company guarantee
Mass. Institute of Technology (SNM-986, R-37)	Part 70	Self-guarantee
Penn State University (SNM-95, R-2)	Part 70	Self-guarantee
Purdue University (SNM-142)	Part 70	Self-guarantee
Lantheus MI Radiopharmaceuticals, Inc., Pcode 03210 - Radionuclide Production Using An Accelerator	Part 30	Self-guarantee
Rolls Royce Nuclear Services, Inc. Pcode 03225 - Other Services - Source Less Than Or Equal To 100 Curies	Part 30	Self-guarantee
Cardinal Health 414, LLC, Pcode 03210 - Radionuclide Production Using An Accelerator	Part 30	Self-guarantee
Conopco, Inc., Pcode 03620 - Research And Development Other	Part 30	Self-guarantee
Yale-New Haven Hospital (nonprofit) Pcode 04711 - Medical Institution Broad	Part 30	Self-guarantee
Sofie Company Pcode 02500 - Nuclear Pharmacies	Part 30	Self-guarantee