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Conceptual Example of a Proposed Risk Management Regulatory Framework Policy Statement

**Comment On:** NRC-2013-0254-0027

Evaluation of a Proposed Risk Management Regulatory Framework; Request for Comment on Draft White Paper

**Document:** NRC-2013-0254-DRAFT-0034

Comment on FR Doc # 2015-11454

5/12/2015  
80 FR 27191

## Submitter Information

**Name:** Daniel Shrum

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## General Comment

Please accept the enclosed letter as our comments to Docket ID NRC-2013-0254.

Thanks,

Dan Shrum

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## Attachments

Docket-2013-0254, FRN 27191 June 11 2015

SUNSI Review Complete

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Add= R. Dudley (rfd)

June 11, 2015

CD15-0143

Cindy Bladey  
Chief, Rules, Announcements, and Directives Branch  
Office of Administration  
Mail Stop: OWFN-12-H08  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**Subject: Evaluation of a Proposed Risk Management Regulatory Framework  
Docket-2013-0254, FRN 27191**

Dear Ms. Bladey:

EnergySolutions appreciates the opportunity to provide comments in response to the *Federal Register* notice regarding the U.S. Nuclear Regulatory Commission's (NRC) evaluation of a proposed risk management framework. We support NRC initiatives to increase the emphasis of risk management in its regulatory programs. The proposed rulemaking affects many aspects of EnergySolutions business operations.

EnergySolutions believes a risk-based approach to regulation provides significant benefits to the NRC and the regulated community. EnergySolutions agrees with the Nuclear Energy Institute (NEI) comments on the proposed rulemaking made during the May 27 public meeting. The industry needs more information on how NRC would define and develop risk-informed regulatory processes to better understand the proposed changes and assess their benefits. We also agree that the design basis (DB) extension category is not needed because the existing regulatory programs adequately protect public health and safety.

EnergySolutions believes there remain several critical elements of a risk management regulatory framework (RMRF) policy that have not been adequately developed related to decision criteria, implementation guidance, and improvements in regulatory processes. We caution the NRC against adopting a single approach to risk management without defining criteria and providing clear guidance on how to uniformly apply risk-informed decisions across the diverse NRC-regulated program areas. As currently written, the revised agency-wide policy statement does not clearly define defense-in-depth within the context of a risk management regulatory framework. Therefore, we encourage NRC to more clearly define defense-in-depth within this policy statement.



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## ENERGYSOLUTIONS

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EnergySolutions is concerned that the NRC has not yet explained how the licensing process will accommodate the increase in activity that would follow from the proposed risk-informed rulemaking.

EnergySolutions encourages the NRC to engage stakeholders to better inform the rulemaking initiatives, develop guidance for each impacted regulated program area, and identify near and long-term process improvements that govern risk-informed licensing actions. We encourage the NRC to organize additional public workshops focused on improving risk-informed and performance-based regulatory approaches on a targeted basis for each program area (reactors, materials, fuel cycle, waste disposal, transportation, and storage).

In light of the above, EnergySolutions recommends that the Commission increase its use of risk-informed decision making for plant specific licensing actions under the existing regulatory framework while continuing to develop an agency-wide policy and risk management regulatory framework. Our specific comments on the three topics described in the subject notice are provided in the attachment to this letter.

Thank you again for this opportunity to comment. Questions regarding these comments may be directed to me at (801) 649-2109 or [dshrum@energysolutions.com](mailto:dshrum@energysolutions.com).


Sincerely,



Daniel B. Shrum  
Senior Vice President  
Regulatory Affairs

Dan Shrum

Jun 11 2015 6:23 PM

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Attachment

**EnergySolutions Comments on the Evaluation of a Proposed  
Risk Management Regulatory Framework**

EnergySolutions hereby provides comments on the evaluation of a proposed risk management regulatory framework. As requested in the Federal Register Notice FRN 27191, our comments are organized in the following three areas: (1) three options for enhancing risk management for reactor safety; (2) the Fukushima Near Term Task Force (NTTF) Recommendation 1 Improvement Activities related to Design Basis Extension (DBE) category and Defense-in-Depth; and, (3) a revised Agency-Wide Risk Management Policy Statement, which includes recommendations on how to apply risk management in the regulatory framework for all regulated programs. EnergySolutions generally agrees with the comments made by the Nuclear Energy Institute (NEI) during the NRC public meeting on May 27, 2015,<sup>1</sup> as discussed below.

**1) Implementation Options for Nuclear Power Reactors**

**Option 1: Maintain the Current Regulatory Framework** – In Option 1, the NRC staff would maintain the existing regulatory framework while continuing to use risk-informed decision making as is currently done in licensing actions. While this approach is well understood and has been generally successful, it provides limited benefits in using the advances in risk management that have been made over the past decade. Further, deterministic requirements would continue to be applied to classes of plants without evaluating plant-specific risk insights. Thus, deterministic requirements providing little or low safety benefit would continue to be a resource burden to licensees and detract industry focus from higher priority areas that have more risk-significant safety implications.

Should the NRC choose to advance Option 1, EnergySolutions encourages the NRC to increase risk-informed licensing actions to the extent practicable within the existing regulatory framework. The NRC should encourage licensees to apply risk-informed licensing decisions to the broad range of NRC-regulated activities beyond operating reactor safety including reactor decommissioning, spent nuclear fuel storage, and low level waste transportation and storage. The NRC should expand the use of risk-informed decision-making within the existing regulatory framework rather than wait to develop consensus within an agency-wide policy statement.

**Option 2: Establish a Risk-Informed Alternative Licensing Basis** – In Option 2, the NRC staff would pursue a rulemaking to allow licensees to adopt a risk-informed alternative for certain aspects of current licensing bases. EnergySolutions believes

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<sup>1</sup> Notice of Forthcoming Category 3 Public Meeting on staff Recommendations Regarding a Risk Management Regulatory Framework (ML15118A642).

Option 2 could be a reasonable option that has potential to enhance operating power reactor safety. In addition, it could provide a reasonable pathway for the NRC to develop risk-informed regulations that provide an optional alternative for compliance.

However, *EnergySolutions* agrees with NEI's comments from May 27<sup>th</sup>, 20015 that the NRC's White Paper does not provide enough information to decide whether Option 2 is beneficial without more details about how the NRC would implement an alternative licensing basis. As presently written in the White Paper, there are many uncertainties related to scope, decision criteria, probabilistic risk assessment (PRA) updates and NRC internal processes to fully assess the Option 2 approach.

The White Paper lacks sufficient information to assess the benefits and justify the costs to be realized from Option 2. Therefore, it is difficult to weigh the potential benefits of Option 2 when the scope of the proposed regulation changes is not well defined. The NRC staff indicated on May 27<sup>th</sup> that more than thirty regulations could be amenable to the risk-informed approach; some regulations (such as emergency preparedness, fitness for duty and security) would not be amenable. The NRC needs to define which deterministic regulations would be amenable to the risk-informed regulatory framework for the industry to assess the costs versus benefits.

Under Option 2, each licensee that adopts the risk-informed alternative approach would be required to have an upgraded PRA that meets NRC-specified criteria for scope and level of detail and peer reviewed per RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities." The detailed criteria for deciding the adequacy of the PRA would need to be developed as an implementation activity associated with Option 2. For the industry to assess Option 2, the NRC needs to define the expectations on upgrading plant specific PRAs and the criteria used to judge their adequacy to understand the impacts of this risk-informed approach.

Under Option 2, licensees that adopt the risk-informed alternative licensing basis would be required to use PRA to search for and mitigate risk-significant events and accident sequences in accordance with criteria to be developed and specified in the implementing regulation. The NRC needs to provide more details on the decision criteria NRC would use for licensees to search for and mitigate plant-specific events, and what cost formulas would be used to factor mandatory changes into the licensing basis.

For Option 2, the industry needs more details on the expectations and process used to submit risk-informed licensing actions to the NRC for review and approval. The NRC staff needs to develop and implement enhanced internal processes to handle risk-informed licensing actions once the regulations are in effect. NRC internal processes

need to be made more efficient to assure the NRC can keep up with the surge in licensing actions that would follow from any risk-informed Option adopted in rulemaking.

The NRC needs to better define the above implementation details with input from the external stakeholders. The NRC staff should develop these details prior to presentation of the SECY paper to the Commission to allow for stakeholder input to the process.

***Option 3: Implement the NUREG-2150 Plant-Specific Risk Management Regulatory Framework*** – Under Option 3, the NRC would adopt a risk management regulatory framework for nuclear power reactor safety as described in NUREG-2150. Option 3 would require significant resource expenditures while providing uncertain benefits to individual licensees. NEI commented on May 27 that Option 3 in the current form does not apply to advanced reactors and the current fleet of operating reactors would not endorse the approach. Nonetheless, *EnergySolutions* offers these comments for NRC staff consideration.

The NRC needs to provide information that better defines the decision criteria and implementing details for this approach in order to determine the potential costs and benefits associated with this pathway. For example, Option 3 creates a plant-specific risk-informed licensing basis in which licensees would be required to use an upgraded PRA to search for and mitigate risk-significant events and accident sequences. Licensees would also have to address all risk significant vulnerabilities using criteria to be developed and promulgated by the implementing regulation. The prospect of having to address all plant vulnerabilities without clearly defined limits tied to performance goals is unacceptable. The NRC needs to provide details on the decision criteria NRC would use for licensees to both search for and mitigate plant-specific events, and how cost would be factored into mandatory changes to the licensing basis.

Similar to the second option, Option 3 would require each licensee to upgrade their PRA to meet NRC-specified criteria per RG 1.200. The NRC would need to develop detailed criteria for the adequacy of the PRA as an implementation activity associated with Option 3. For the industry to assess the benefits of Option 3, the NRC staff needs to better define the expectations on upgrading plant specific PRAs and the criteria used to judge their adequacy to understand the impacts of this approach.

For Option 3, as currently described in the White Paper and during the May 27 public meeting, the NRC does not adequately explain the design enhancement category of events to be incorporated in the proposed risk-informed regulatory framework. The NRC has not adequately described how the design enhancement category is different from the design basis extension category. Further, the NRC staff needs to develop risk-informed criteria for determining which events would be placed in the new category, how the

existing set of design-basis events would be re-categorized as design-enhancements, and how the process would be modified to allow plant-specific license requirements to replace existing generic regulations. It is difficult to assess the safety and cost benefits of Option 3 without these details.

EnergySolutions encourages NRC initiatives that give better definition to these issues. The NRC staff needs to further develop the Option 3 implementation details with input from the external stakeholders. The NRC staff should develop these details prior to presentation of the SECY paper to the Commission to allow for meaningful dialog and stakeholder input to the process.

Finally, we agree with the NRC staff assertion that full implementation of Option 3 would take longer than 10 years to implement. We question whether it would ever be justifiable from a cost or safety perspective to apply Option 3 to the current fleet of operating reactors under the original license term or for the period of extended operation. The safety of the existing fleet of power reactors would be better assured by the continued application of risk-informed licensing actions on a plant-specific basis while focusing NRC and industry resources on the higher priority safety issues described in Section C below. The wholesale change in regulatory structure envisioned in Option 3 would be better applied to the next generation of power reactors.

## **2) *Reevaluation of NTTF Recommendation 1 Improvement Activities 1 and 2***

EnergySolutions provides comments on the proposed regulatory framework improvement initiatives for nuclear power reactor safety: NTTF Recommendation 1 Activity 1 (establish a design basis extension category) and Activity 2 (establish NRC expectations on defense-in-depth).

***Design Basis Extension Category*** – EnergySolutions agrees with the NRC staff determination that creating a new design basis (DB) extension category for the regulatory framework in Options 1 and 2 is not needed. As described in the White Paper and during the May 27<sup>th</sup> public meeting (Slide 15), the DB extension category is not needed because the existing regulatory programs are adequate to protect public health and safety. Please refer to Section A above for Option 3 regarding our comments on the design basis enhancement category for nuclear power reactor events.

***Defense-in-Depth*** – As stated in NTTF Recommendation 1, the NRC should establish a logical, systematic and coherent regulatory framework for adequate protection that appropriately balances defense-in-depth and risk considerations. EnergySolutions believes there is merit in implementing a risk management regulatory structure, but the same regulatory approach may not apply uniformly to regulations of reactors, material,

waste, fuel cycle and security. We agree with a key NRC staff point in the White Paper that Options 2 or 3 for enhancing reactor safety would (potentially) provide licensees with substantial additional opportunities to remove or reduce certain existing regulatory requirements based on a demonstration of their low risk significance as long as sufficient defense-in-depth is maintained (emphasis added).

However, as provided in past *EnergySolutions* comments on this topic<sup>2,3</sup>, there is a need to better define how defense-in-depth will be applied across all regulated program areas, and to better integrate defense-in-depth concepts within the context of a Risk Management Regulatory Framework.

For example, a structured decision making model for a fuel cycle facility analysis is not the same as for a reactor or waste disposal site. Although the staff intends to revise and clarify RG 1.174 with the goal to enhance interpretation and consistent implementation, not much progress has been made in defining defense-in-depth across all the NRC-regulated program areas. As currently written, neither the White Paper nor the revised policy statement clarifies how to appropriately balance defense-in-depth and risk considerations in the major program areas. In fact, compared to prior versions of the White Paper,<sup>4</sup> there is now less definition on how to apply risk-informed, decision-making criteria to specific program areas.

The NRC should conduct workshops for each program area to clearly define how risk-informed analytical techniques apply and how to appropriately integrate defense-in-depth concepts.

### **3) *Development of an Agency-Wide Risk Management Policy Statement***

In this section of the draft White Paper, the NRC staff has developed a revised example of an over-arching risk management policy statement, along with a proposed approach to implement such a policy statement across a broad range of NRC-regulated activities areas using the concepts described in NUREG-2150. *EnergySolutions* agrees with industry comments on May 27<sup>th</sup> that the revised risk management policy statement would require substantial industry resources to develop and implement without clear safety benefits. It is better to focus industry resources in other areas having more pressing safety priorities, such as better definition of defense-in-depth, safety margins, uncertainties in risk

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<sup>2</sup> *EnergySolutions* letter dated January 6, 2012, Incorporation of Risk Management Concepts in Regulatory Programs, Docket ID NRC-2011-0269.

<sup>3</sup> *EnergySolutions* letter dated February 14, 2014, Conceptual Example of a Proposed Risk Management Regulatory Framework Policy Statement

<sup>4</sup> Federal Register Notice 70354, White Paper on a Conceptual Example of a Proposed Risk Management Regulatory Framework Policy Statement, Draft Work-In-Progress



assessments, and the aggregation of risk. Focused NRC and industry efforts to address these matters within a broader application of risk-informed decision making across all NRC-regulated program areas would better advance reactor safety and public health. Nonetheless, we offer the following observations for NRC staff consideration.

EnergySolutions noted that, compared to the 2014 version<sup>5</sup>, the current revised Risk Management policy statement is more high level with a stated intention to provide the NRC program offices more flexibility to implement the policy based on specific goals of each regulated activity. However, the revised policy statement provides less definition of defense-in-depth (such as it was). The revised policy still does not clearly address how defense-in-depth will be applied broadly across all NRC program areas, and it does not sufficiently explain in detail how defense-in-depth will be implemented within the context of a risk management framework across the regulated program areas. As currently written, the risk management policy will be difficult to apply across diverse agency activities due to ambiguity in the language used and a lack of clear guidance on how to apply defense-in-depth within the regulatory framework. Please refer to Section B above for additional comments on defense-in-depth.

As stated in Section A for Option 1 above, EnergySolutions believes the best action for the present is to continue to pursue risk-informed licensing actions to the extent practicable under the existing regulatory framework. The NRC should expand the use of risk-informed decision-making now across the broad range of NRC-regulated activities to include reactor operations through decommissioning, spent nuclear fuel storage, and low level waste transportation and storage. This approach enhances public safety by deriving the benefits of risk management without waiting for a developed consensus on a policy statement and avoids the delays in a wholesale revision to the regulatory framework.

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<sup>5</sup> Federal Register Notice 70354, White Paper on a Conceptual Example of a Proposed Risk Management Regulatory Framework Policy Statement, Draft Work-In-Progress