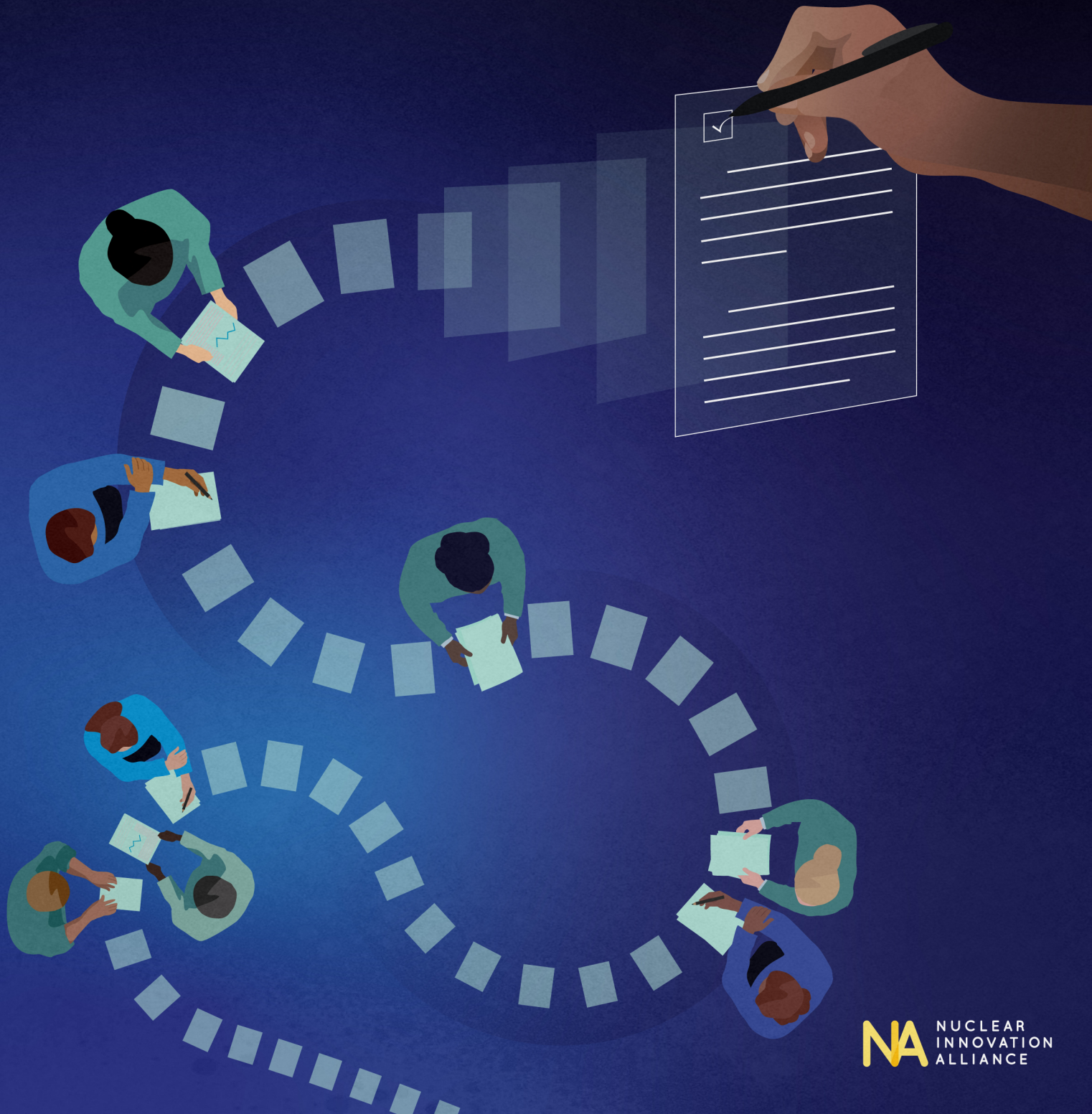


Improving the Effectiveness and Efficiency of the Advisory Committee on Reactor Safeguards

March 2023



Improving the Effectiveness and Efficiency of the Advisory Committee on Reactor Safeguards



Authors:

Danielle Emche, Nuclear Innovation Alliance, In Memoriam
Judi Greenwald, Nuclear Innovation Alliance
Victor Ibarra, Jr., Nuclear Innovation Alliance
The Honorable Jeffrey S. Merrifield, Pillsbury Winthrop Shaw Pittman LLC
Anne Leidich, Pillsbury Winthrop Shaw Pittman LLC

Acknowledgements:

The contents of this report are based on interviews with over thirty-five individuals, including current and several former members of the ACRS, current and former ACRS staff, several former NRC Commissioners, former NRC Staff, and members of the ACRS stakeholder community.

Disclaimer:

The views expressed herein are those of the authors and the Nuclear Innovation Alliance.

March 2023
© 2023 Nuclear Innovation Alliance, All Rights Reserved

This full report is available online at: <https://nuclearinnovationalliance.org/resources>

Contents

| | |
|--|----|
| I. Executive Summary | 3 |
| II. Introduction..... | 7 |
| III. Background on the Advisory Committee on Reactor Safeguards | 8 |
| A. History..... | 8 |
| B. Authorizing Statute | 10 |
| IV. Recommendation 1: Re-focus the Scope and Depth of ACRS Reviews | 11 |
| A. Problem Statement | 11 |
| B. Proposed Solutions..... | 14 |
| 1. Solution 1. Focus ACRS review on safety-significant issues and novel technology or approaches to regulatory issues.. .. | 14 |
| 2. Solution 2. Reduce the length of and improve timing of ACRS reviews, eliminate repeat reviews, and reduce time spent on NRC Staff preparation. | 17 |
| V. Recommendation 2: Improve ACRS Operations and Management..... | 20 |
| A. Problem Statement | 20 |
| B. Proposed Solutions..... | 21 |
| 1. Solution 1. Keep the number of ACRS members manageable, hire the best possible members, and ensure a diversity of viewpoints. | 21 |
| 2. Solution 2: Maintain a collegial atmosphere within the ACRS, and improve relations with the NRC Staff, applicants and licensees. | 23 |
| VI. Recommendation 3: Reduce the Cost of ACRS Reviews. | 25 |
| A. Problem Statement | 25 |
| B. Proposed Solution | 25 |
| 1. Solution: Reallocate costs associated with ACRS reviews..... | 25 |
| VII. Recommendation 4: Adjust Management of the ACRS. | 26 |
| A. Problem Statement | 26 |
| B. Proposed Solutions..... | 26 |
| 1. Solution 1: Increase Commission engagement with ACRS. | 26 |
| 2. Solution 2: Ensure the effectiveness of ACRS staff | 27 |
| VIII. Conclusion | 27 |

I. Executive Summary

The Nuclear Innovation Alliance’s (“NIA’s”) previous report, *Promoting Efficient NRC Advanced Reactor Licensing Reviews to Enable Rapid Decarbonization*,¹ suggested that “the Commission should systematically evaluate the [Advisory Committee on Reactor Safeguards] ACRS review process and how this can be appropriately aligned with the expectations that Congress set out for the Commission under [Nuclear Energy Innovation and Modernization Act (“NEIMA”)].”² In light of this suggestion, NIA undertook its own extensive review of the ACRS to determine how it should better align with Congressional expectations under NEIMA without diminishing the significant role the ACRS has in the review and resolution of key technical issues associated with nuclear power plant regulation. Based on this review, the authors produced four main recommendations accompanied by specific proposed solutions. These recommendations broadly align with ACRS’ own suggestions for the self-transformation presented to the Commission in 2019.³ A brief description of each overarching recommendation and the takeaways from that recommendation are described briefly below.

1. **The first overarching recommendation is to “Re-focus the Scope and Depth of ACRS Reviews.”**

In accordance with this recommendation, the ACRS should:

- focus on safety-significant matters and assist the NRC in meeting its statutory mandate to determine “that there is reasonable assurance”⁴ “that the utilization or production of special nuclear material will be in accord with the common defense and security and will provide adequate protection to the health and safety of the public.”⁵ (pg. 14)
- increase training, focus the scope of reviews, and use an action plan to further prioritize matters needing review. (pg. 15)
- consolidate duplicative Full Committee and Subcommittee meetings. (pg. 18)
- provide dates in the schedule for placeholder meetings. (pg. 18)

The Commission should:

- direct the ACRS to focus on novel and safety-significant issues in its reviews, and potentially refer specific matters to the ACRS with novel technical issues prior to review. (pg. 15)

¹ Alex Gilbert, *Promoting Efficient NRC Advanced Reactor Licensing Reviews to Enable Rapid Decarbonization*, Nuclear Innovation Alliance (2021), available at <https://nuclearinnovationalliance.org/licensingdurationsforclimatemitigation>.

² *Id.* at 18.

³ See e.g., Letter from Peter C. Riccardella, Chairman of NRC Advisory Committee on Reactor Safeguards to Kristine Svinicki, NRC Chairman (Oct. 17, 2019), available at <https://www.nrc.gov/docs/ML1929/ML19290F956.pdf> (hereinafter “ACRS Transformation Letter”); ACRS, *Commission Meeting with the Advisory Committee on Reactor Safeguard (ACRS)* (Dec. 6, 2019), available at <https://www.nrc.gov/reading-rm/doc-collections/commission/slides/2019/20191206/staff-20191206.pdf>.

⁴ AEA at § 185(b).

⁵ AEA at § 182(a).

- establish timelines and milestones for ACRS reviews. (pg. 16)
- have OGC available to assist the ACRS in understanding the agency's statutory mandate. (pg. 16)
- communicate topics of interest to the NRC Staff in advance of meetings. (pg. 17)
- establish a hard deadline for the NRC Staff to provide documents in advance of the meetings and allow the meeting date to slip if the NRC Staff fails to meet its deadline. (pg. 17)
- exercise greater discipline on itself to limit the demands it places on the Staff to what is essential to ensuring adequate protection. (pg. 17)

The NRC Staff should:

- improve its preparation for engagements with the ACRS to better optimize the review of topics. (pg. 16)
- review its own practices in engaging with the ACRS, identify best practices that lead to efficient and effective ACRS reviews, and promote those best practices. (pg. 16)
- provide the ACRS with documents sufficiently in advance of ACRS meetings to allow for a fulsome review. (pg. 20)
- communicate the portions of the review that have the greatest potential safety significance. (pg. 20)
- engender a culture where the NRC Staff can feel empowered to raise concerns that the Committee is raising issues that are not safety significant. (pg. 20)

Finally, Congress should:

- revise the ACRS' statutory mandate in the Atomic Energy Act to emphasize that the ACRS should review only novel and safety-significant issues, and remove the requirement that the ACRS review all construction permit and operating license and renewal applications. (pg. 16)

2. The second overarching recommendation is to "Improve ACRS Operations and Management."

In accordance with that recommendation, the ACRS should:

- keep itself to approximately ten members. (pg. 21)
- diversify the background of ACRS members (drawing from former industry members, academics, and former national lab personnel or consultants). (pg. 22)
- relax experience requirements in certain areas of new state-of-the-art technology (e.g. artificial intelligence). (pg. 22)
- adhere to term limits. (pg. 22)
- not allow a single member to dominate the conversation for a particular subject area. (pg. 24)

The Commission should:

- implement the above suggestions for the ACRS to the extent that the ACRS cannot do so. (pg. 23)
- hire a consultant with expertise in organizational effectiveness to evaluate the manner in which ACRS members engage with the NRC Staff and licensees and suggest options for training and best practices on public and peer engagement. (pg. 25)
- incorporate components that screen for individuals who are independent yet collaborative and collegial when selecting ACRS members. (pg. 24)

The Executive Director for Operations in coordination with the ACRS should:

- not allow the ACRS to criticize, badger, or undermine individuals who are unable to answer ACRS questions on the spot. (pg. 24)
- request that ACRS members be able to set forth a brief explanation for why they are asking a question and tie it back to regulation (i.e., what is the member trying to understand and what is the safety concern). (pg. 24)

The ACRS Chairman should:

- ensure that debate among ACRS members is constructive, collegial, and within the ambit of its statutory purpose. (pg. 24)
- ensure that the views of individual ACRS members do not unduly chill or influence the views of the NRC Staff. (pg. 24)
- provide and maintain a safe space for respectful disagreement. (pg. 24)

3. The third overarching recommendation is “Reduce the Cost of ACRS Reviews.”

In accordance with that recommendation, Congress should:

- amend the Atomic Energy Act to provide that all costs associated with ACRS reviews, including the cost of ACRS time be excluded from the fee recovery requirement. (pg. 25)
- amend the Atomic Energy Act to provide that all NRC Staff time used to prepare for ACRS meetings should not be billed to licensees and should also be excluded from fee recovery. (pg. 25)

4. The fourth overarching recommendation is to “Adjust Management of the ACRS.”

In accordance with that recommendation, the Commission should:

- be more involved in the screening and selection of individual candidates who possess the knowledge, skills, and abilities necessary to address keys topics before the NRC. (pg. 26)
- be more involved in selecting or identifying the ACRS Chair and engage with the ACRS Chair on a regular basis. (pg. 26)
- provide the ACRS information on topics requiring ACRS review, particularly those that are novel or have significant safety implications. (pg. 26)

- discuss budgeting and prioritization with the ACRS. (pg. 27)
- set much of the agenda for the semi-annual meetings with the ACRS. (pg. 27)
- revamp the way that it interacts with the ACRS in meetings by eliminating meetings solely focused on repeating written material in paper filings. (pg. 27)
- ensure the ACRS Executive Director position is always filled by a seasoned executive who has technical credibility and sufficient weight and standing within the Commission to push back against the NRC Executive Director of Operations as well as the ACRS Chairman and members, and who has the experience needed to garner respect, as well as the savvy needed to deal with various disparate personalities. (pg. 27)
- perform a budget review of the ACRS staffing needs to ensure the Executive Director's organization is appropriately staffed to ensure it can meet the anticipated bow-wave of new reactor reviews. (pg. 27)

The authors' hope is that these recommendations (or some semblance thereof) will be implemented to position ACRS and NRC to successfully enable safe deployment of advanced nuclear energy.