

ADVANCE Act Section 205(c): Study on Regulatory Frameworks for Mass-Manufactured Fusion Machines

NRC Public Meeting
March 5, 2025

Agenda

- Meeting Logistics
- Introductions
- NRC Presentation
- Public Comments
- Closing Remarks



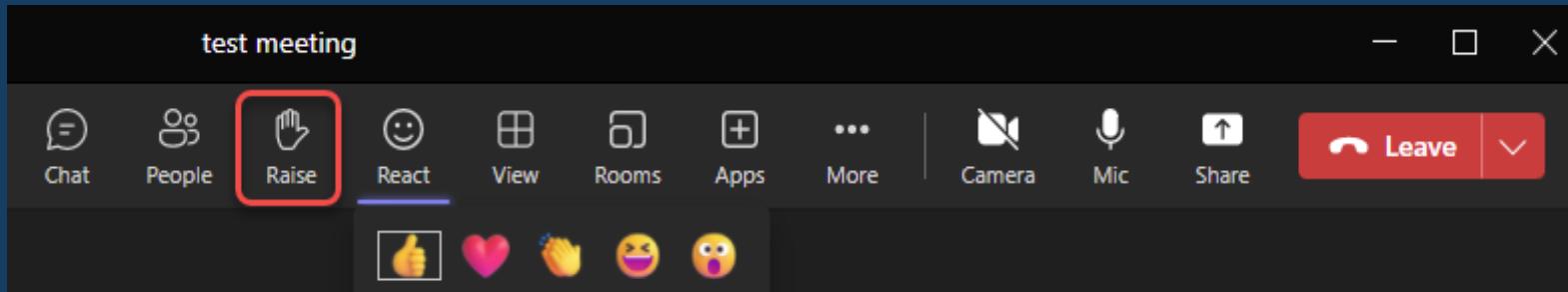


Meeting Logistics

- Participants are in listen-only mode until the designated comment session.
- This meeting will be transcribed.
- No regulatory decisions will be made at today's meeting.
- This meeting was publicly noticed on February 21, 2025.

To Participate Today

1) Use the “Raise Hand” button to indicate your desire to make a statement.



2) Wait for facilitator to acknowledge your turn to speak.

3) Unmute yourself and provide comment.



Note: The chat feature will be disabled during this meeting.



Introductions and Opening Remarks

Mike King, Special Assistant for ADVANCE Act

ADVANCE Act at NRC

- The NRC efforts on Section 205(c) are part of the NRC's overall implementation of the ADVANCE Act.
- The ADVANCE Act requires the NRC to take a number of actions, while maintaining the NRC's core mission to protect public health and safety.
- The NRC has established a public website (<https://www.nrc.gov/aboutnrc/governinglaws/advanceact.html>) to inform and engage external stakeholders during implementation of the ADVANCE Act.

How to Follow Our Progress



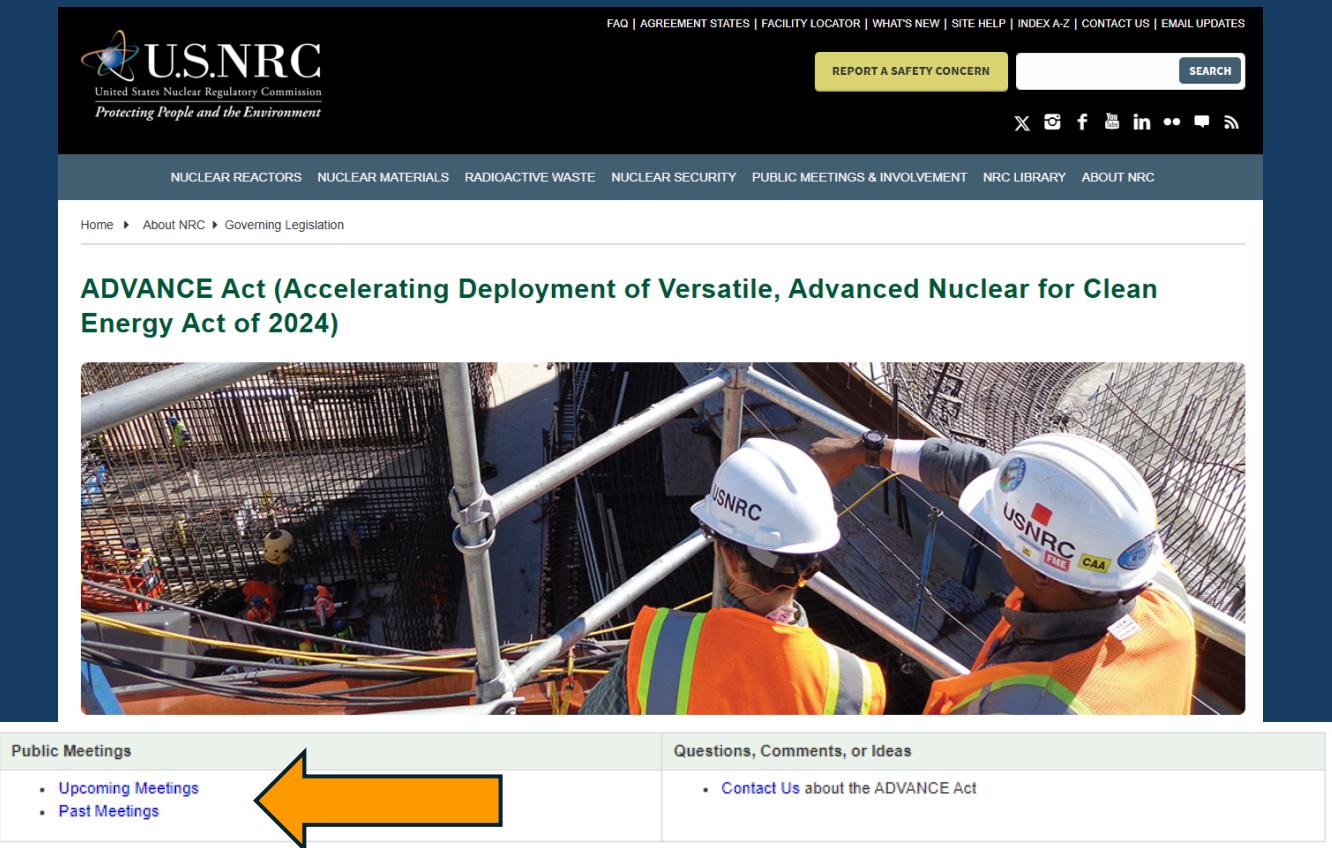
Follow NRC's ADVANCE
Act implementation with
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For Upcoming and Past Meetings



For NRC's public meeting
information on ADVANCE Act



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ADVANCE Act (Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024)



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- Upcoming Meetings
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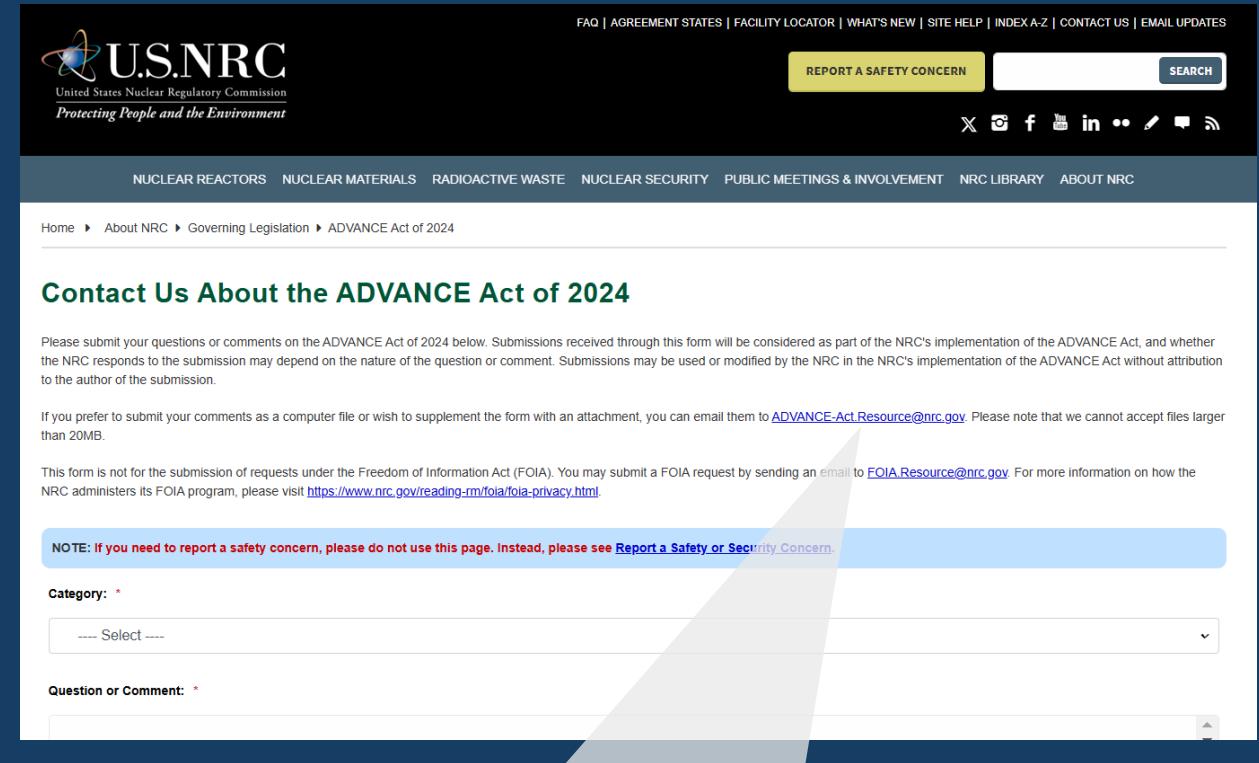
Questions, Comments, or Ideas

- Contact Us about the ADVANCE Act

How to Ask Questions and Submit Ideas



Contact us with ADVANCE Act questions, comments, and ideas



The screenshot shows the U.S.NRC website with a dark blue header. The header includes the U.S.NRC logo, a search bar, and social media links. Below the header is a navigation bar with links to Nuclear Reactors, Nuclear Materials, Radioactive Waste, Nuclear Security, Public Meetings & Involvement, NRC Library, and About NRC. The main content area has a white background and a dark blue sidebar. The sidebar contains a note about reporting safety concerns and a dropdown menu for selecting a category. The main content area has a heading 'Contact Us About the ADVANCE Act of 2024' and text explaining how to submit questions or comments. It also mentions the Freedom of Information Act (FOIA) and provides an email address for FOIA requests: FOIA_Resource@nrc.gov.

ADVANCE-Act.Resource@nrc.gov



NRC Presentation

Ed Harvey, Senior Health Physicist
Office of Nuclear Material Safety & Safeguards
U.S. Nuclear Regulatory Commission

Scope of Meeting

- The NRC is gathering comments and feedback on its implementation of Section 205(c) of the ADVANCE Act.
- The scope of this meeting is limited to the NRC's study on licensing frameworks for mass-manufactured fusion machines.

ADVANCE Act Section 205(c) Requirements

- Perform a study on performance-based, design-specific licensing frameworks for mass-manufactured fusion machines.
- Study to be performed in consultation with Agreement States and private fusion sector.
- Evaluate the design, manufacturing, and operations certification process for aircraft used by the Federal Aviation Administration as a potential model.

ADVANCE Act Section 205(c) Requirements

- Develop an estimated timeline for the NRC to issue consolidated guidance or regulations for licensing mass-manufactured fusion machines, considering:
 - 1) The results of the Section 205(c) study; and
 - 2) The anticipated need for such guidance and regulations
- Submit a report to Congress by July 9, 2025

ADVANCE Act Section 205(c) Efforts to Date

- Staff conducted reviews of existing NRC standardized review processes to evaluate their applicability to the licensing of mass-manufactured fusion machines, including certification processes for:
 - Sealed sources and devices under 10 CFR Part 32
 - Transportation packages under 10 CFR Part 71
 - Independent spent fuel containers under 10 CFR Part 72

ADVANCE Act Section 205(c) Efforts to Date

- Staff is also coordinating with other Federal and State regulatory agencies to leverage insights on external certification processes used for complex devices under their cognizance and authority. Specific examples include:
 - The Federal Aviation Administration's design, manufacturing, and operations certification of aircraft
 - The Food and Drug Administration's review of radiation therapy medical devices
 - The Department of Transportation's regulation of safety-related components for vehicles
 - Agreement State licensing of fusion machines



Topics Under Consideration

- Timeline for integration of fusion-generated energy to reach the U.S. power grid.
- Milestones and accomplishments that could be used to track progress of fusion machine development.
- Public concerns with fusion machines operated in the public domain.
- Scale of mass-manufacturing.
- Expectations of fusion machine manufacturers.
- Criteria for standardized fusion machine design certification.
- Supply-chain considerations.

Future Work/Milestones

- Government-to-Government meeting with the Agreement States (March 2025)
- Draft report into internal concurrence process (April 2025)
- Report due to Congress (July 2025)



#ADVANCENRC



Thank You!

Contacts

Ed Harvey, Senior Health Physicist

edward.harvey@nrc.gov

Duncan White, Senior Health Physicist

duncan.white@nrc.gov

Allyce Bolger, Intergovernmental Liaison Program Manager

allyce.bolger@nrc.gov