



US Nuclear Regulatory Commission (NRC)

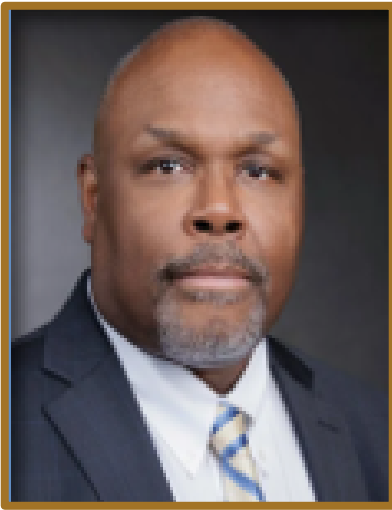
FY26 ARTIFICIAL INTELLIGENCE STRATEGIC PLAN

Per Executive Order 14179

“Removing Barriers To American Leadership In Artificial Intelligence”

Prepared And Issued By Scott Flanders, NRC CIO And CAIO

A LETTER FROM THE CHIEF AI OFFICER



I am pleased to present the **Artificial Intelligence (AI) Strategy for the U.S. Nuclear Regulatory Commission (NRC)**. This strategy is designed to enable continuous evaluation and improvement of the agency's AI operating model to ensure that the application of artificial intelligence capabilities leverages the right data, technical infrastructure, governance, workforce, and literacy. This strategy also positions the agency to leverage modern technologies in carrying out its mission to "protect public health and safety and advance the nation's common defense and security by enabling the safe and secure use and deployment of civilian nuclear energy technologies and radioactive materials through efficient and reliable licensing, oversight, and regulation for the benefit of society and the environment."

The NRC's AI Strategy provides a common vision and a set of strategic goals that set the foundation for collaboration across the enterprise in enhancing the efficiency and effectiveness of agency processes through the application of artificial intelligence capabilities. This collaboration enables the NRC to strategically leverage its resources to enable responsible and ethical use of AI in carrying out its mission. Technological advancements made in this area provide new opportunities for the agency to expedite access to insights from historical and new information in a fashion that can be used to streamline workflows and create efficiencies at an enterprise level.

As the NRC's Chief AI Officer, I am committed to engaging my NRC mission, mission support, and corporate support counterparts in identifying and capitalizing on opportunities to use AI to achieve desired strategic outcomes. The NRC AI Strategy will provide a common framework for consistently improving the agency's ability to seize upon these opportunities in a comprehensive and collaborative fashion. As such, the NRC AI Strategy will describe how the agency plans to incorporate its workforce, its processes, its technology, and its stakeholders in the continued advancement of the agency mission through the effective use of modern technology.

A handwritten signature in black ink that reads "Scott Flanders". The signature is fluid and cursive.

Scott Flanders
Chief AI Officer
Chief Information Officer

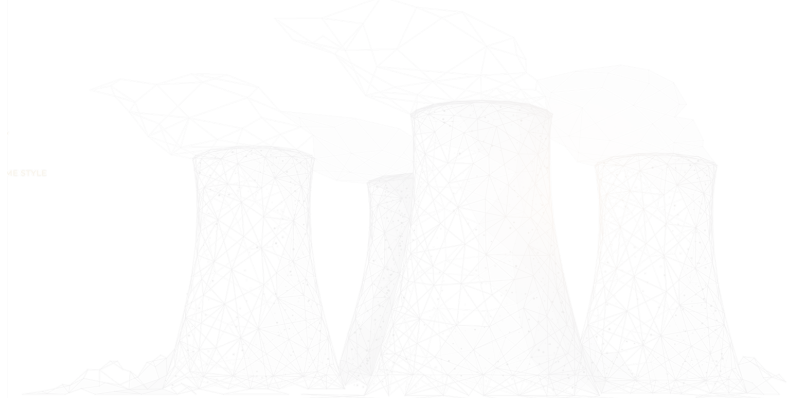
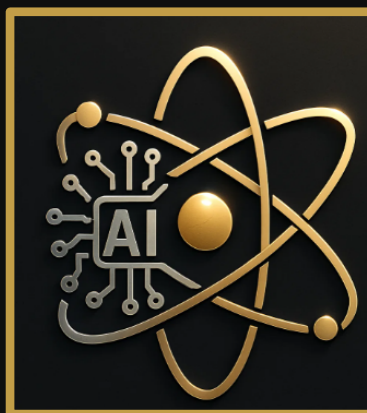




TABLE OF CONTENTS

Introduction & Vision	Page 4
Strategic Goals & Objectives	Page 5
AI Use Cases	Page 6
Maturity Goals	Page 7
Next Steps	Page 11



The **U.S. Nuclear Regulatory Commission (NRC)** is committed to responsibly leveraging artificial intelligence (AI) to enhance its regulatory mission: to protect public health and safety and advance the nation’s common defense and security. This AI Strategic Plan establishes a comprehensive approach to adopting, governing, and scaling AI capabilities, ensuring that technological advancements directly support efficient, risk-informed, and reliable regulatory outcomes.

This plan articulates a clear vision for AI’s role at the NRC, sets forth strategic goals and aligned objectives, describes the agency’s current and future states of AI maturity, and details the activities and key performance indicators (KPIs) that will guide progress over the coming years.

VISION

To responsibly leverage artificial intelligence in support of the NRC’s mission, empowering staff to efficiently make risk-informed decisions, drive regulatory innovation, and protect public health, safety, and the environment. AI directly supports the NRC’s mission by:

Enhancing Decision Making

Providing timely, data-driven insights to help staff make more informed, risk-informed regulatory decisions and respond to emerging challenges.

Strengthening Regulatory Oversight

Identifying patterns, trends, and potential issues, enabling staff to proactively address safety, security, and compliance risks.

Increasing Efficiency

Automating routine and complex tasks such as document review, data analysis, and project management, freeing staff to focus on higher-value oversight, inspection, and research activities.

Fostering Innovation

Empowering staff with modern tools and continuous learning to stay ahead of technological change and evolving regulatory needs.

Supporting Public Confidence

Improving accuracy, transparency, and responsiveness to strengthen the NRC’s credibility and public trust in its regulatory processes.

1 Enhance NRC Staff Productivity and Operational Efficiency

- *Objective 1.1:* Accelerate AI adoption through prioritized, mission-aligned use cases.
 - *Objective 1.2:* Ensure robust infrastructure, high-quality data, strong cybersecurity, and a skilled workforce underpin all AI activities.
-

2 Empower NRC Staff for AI Integration

- *Objective 2.1:* Foster a workforce ready to adopt and integrate AI tools that enhance productivity and streamline operations.
 - *Objective 2.2:* Provide training, resources, and support to ensure staff can confidently and responsibly apply AI in daily workflows and decision-making.
-

3 Build a Sustainable AI Ecosystem

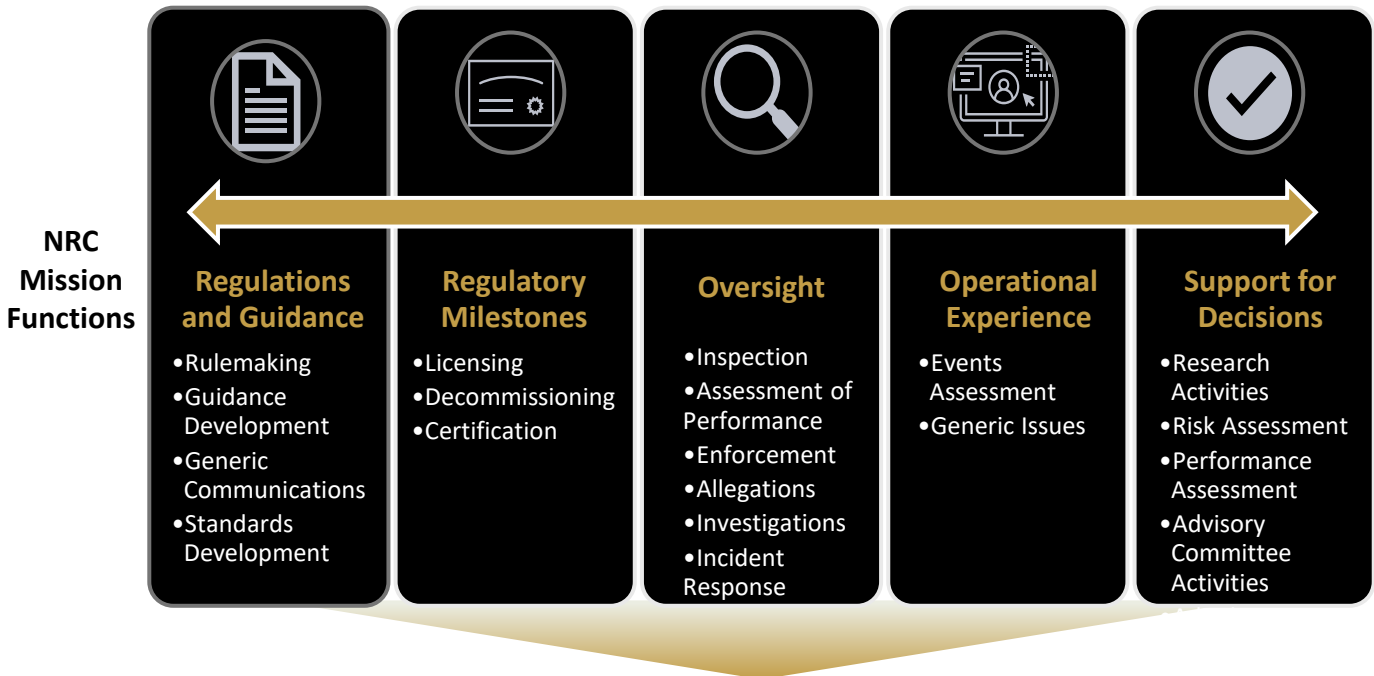
- *Objective 3.1:* Ensure robust infrastructure, high-quality data, strong cybersecurity, and a skilled workforce underpin all AI activities.
- *Objective 3.2:* Establish long-term workforce development strategies that align AI skill-building with evolving organizational needs and technology trends.

AI in Action: Use Cases and Pilots

The NRC has identified a set of high-impact AI use cases that are either actively being implemented or under development to meet the evolving needs of the agency's mission. These use cases reflect the agency's commitment to advancing the safe, effective, and responsible use of AI across regulatory and operational platforms.

By proactively exploring and supporting these applications, the NRC is positioning itself to leverage AI technologies that enhance safety, improve efficiency, and enable innovation within a robust regulatory framework.

Regulation in Action: Where AI Adds Value



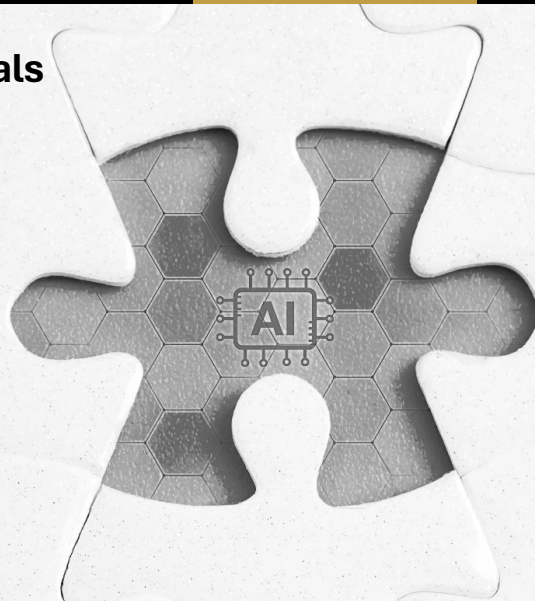
AI Use Cases

Generative AI	Increasing Productivity	Leveraging Frontier Large Language Models
• Review Power Upgrades applications, License Renewal • Advanced Reactors Nth of a Kind reviews, Fuel Management, Rulemaking support, Environmental Reviews • Inspection preparation.	• Summarizing transcripts from meetings to create action items, • Generating first draft documents, • Reviewing emails to prioritize work.	• International Trip Report Summaries • Office of Congressional Affairs summaries from hearings, creation of Question and Answers.

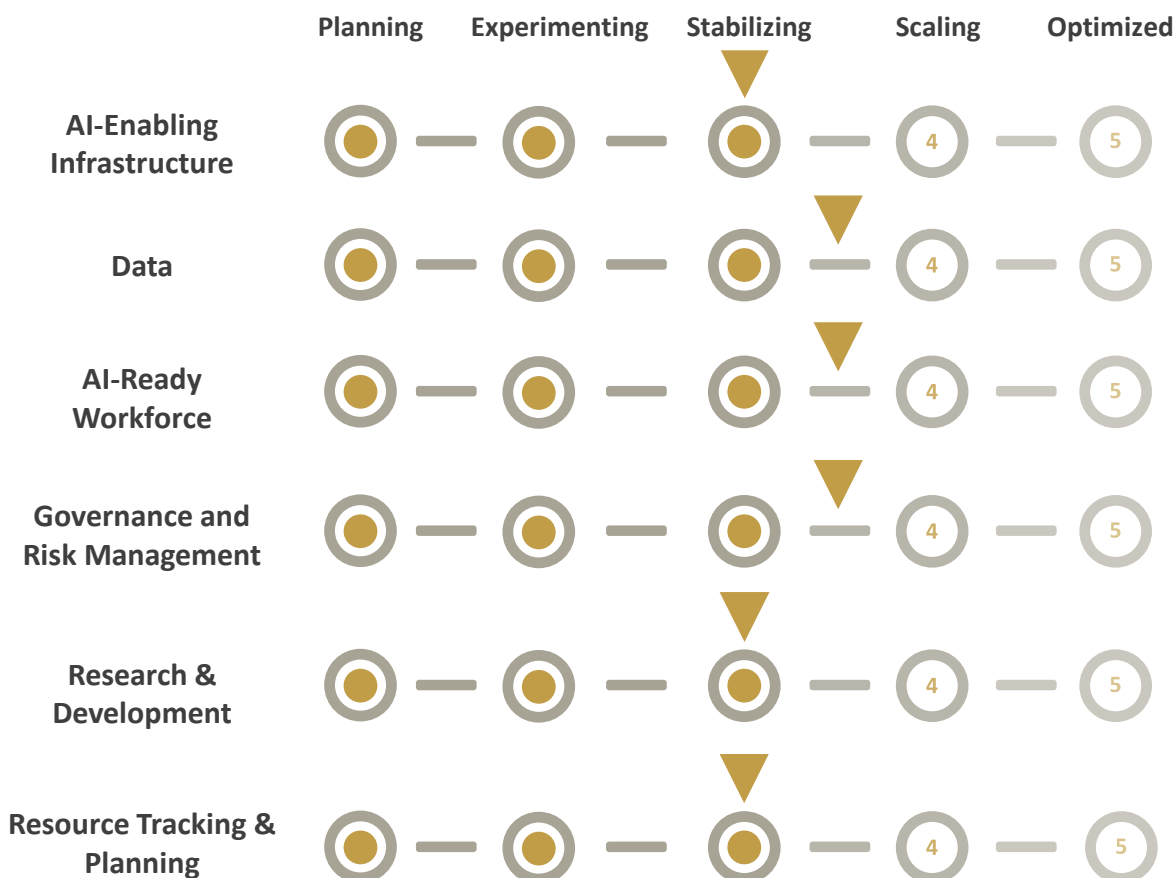
Current and Future AI Maturity Goals

The NRC is committed to building enterprise-wide capacity for responsible and effective AI adoption. This includes strengthening infrastructure, improving data readiness, developing a skilled workforce, and implementing robust governance and risk management practices.

The following subsections describe the current state and future plans across six key maturity areas.



State of NRC AI Maturity



The GSA Centers of Excellence (CoE) supported NRC's AI goals by aligning the right expertise at the right time to deliver sustainable, human-centered outcomes. Through a structured project plan, the CoE managed timelines, risks, and financials while delivering a maturity assessment and future-state roadmap. Focus areas include AI opportunity identification, governance and ethics, workforce upskilling, ecosystem development, and performance-enhancing capabilities.

To achieve these goals and objectives, the NRC must advance from its current foundational state to a mature, enterprise-wide AI ecosystem. The following sections describe the baseline, aspirational future state, and the activities that will drive progress.

4.1 Current State

- **AI-Enabling Infrastructure:** Foundational environments for AI development and testing exist, but scaling and integration are ongoing.
- **Data:** The NRC leverages quality, traceable datasets (e.g., ADAMS, EDW) but seeks greater centralization and traceability.
- **AI-Ready Workforce:** Multi-tiered learning, initial talent pipelines, and broad efforts to promote AI literacy are underway.
- **Governance and Risk Management:** Developing policies and procedures; initial risk management, training, and monitoring are in place.
- **Research and Development:** Pilots for AI solutions in productivity and knowledge management are active to inform

prioritization of use cases for implementation, though dedicated R&D funding is not established.

- **Resource Tracking and Planning:** AI investments are tracked by OCIO; a formalized, agency-wide framework is in development.

4.2 Future State

- **AI-Enabling Infrastructure:** Enhanced, scalable, cloud-based AI infrastructure supporting continuous monitoring and deployment.
- **Data:** Centralized data catalog; robust data quality, explainability, and interagency collaboration.
- **AI-Ready Workforce:** Expanded talent pipelines, personalized and advanced learning, leadership opportunities, and institutionalized AI literacy.
- **Governance and Risk Management:** Comprehensive AI Governance Framework, expanded risk assessments, strong cross-functional coordination, and continuous improvement.
- **Research and Development:** Broad, formalized pilot programs for prioritization of use cases for implementation; established innovation pathways; responsible AI principles embedded.
- **Resource Tracking and Planning:** Centralized AI resource tracking, integrated capital planning, standardized evaluation criteria, and proactive monitoring

Activities Mapped to Maturity and Objectives

To move from the current to the desired future state and achieve the stated goals and objectives, the NRC will execute the following key activities. Each activity is aligned to the relevant maturity area and objectives.

Action	Key Activities	Goal / Objective Alignment	Future State Maturity
Identify and Prioritize AI Use Cases	- Transparently review and approve new AI use cases based on mission relevance and risk. - Maintain and update an AI use case inventory. - Focus implementation on high-value opportunities.	Goal 1 / Objective 1.1	Research and Development, Governance and Risk Management
Deploy and Integrate AI Tools	- Pilot and scale tools for staff productivity, document review, inspection planning, and legislative research. - Develop custom AI solutions for specialized functions such as advanced reactor reviews and inspection cross-qualification. - Automate repeatable documentation tasks and enhance knowledge management.	Goal 1 / Objectives 1.1, 1.2 Goal 3 / Objective 3.1	AI-Enabling Infrastructure, Research and Development
Enhance AI Governance	- Expand NRC AI Governance Framework with clear roles, responsibilities, and oversight. - Refine AI Governance Board prioritization guidelines - Integrate risk management and compliance using the NIST AI Risk Management Framework and ensure alignment with Federal/NRC standards. - Regularly review and update governance policies to address emerging technologies and risks.	Goal 3 / Objective 3.1	Governance and Risk Management

Activities Mapped to Maturity and Objectives (Continued)

Action	Key Activities	Goal / Objective Alignment	Future State Maturity
Enhance IT Infrastructure for AI	- Modernize and scale computational resources and storage for AI workloads. - Integrate AI tools with NRC's legacy and modern IT systems. - Implement scalable cloud and hybrid environments. - Develop robust DevOps pipelines for AI development and deployment.	Goal 1 / Objective 1.2 Goal 3 / Objective 3.1	AI-Enabling Infrastructure
Strengthen Data Readiness	- Establish rigorous data validation and verification protocols. - Continuously monitor data quality and automate alerts for anomalies. - Enforce metadata, annotation, and labeling standards. - Assign data stewards, conduct bias/fairness reviews, and maintain a centralized data repository. - Curate high value data sets.	Goal 1 / Objective 1.2 Goal 3 / Objective 3.1	Data
Fortify IT Cybersecurity for AI	- Integrate AI systems into NRC's cybersecurity program. - Apply AI-specific threat modeling and penetration testing. - Ensure end-to-end data encryption, access controls, and monitoring. - Provide AI-specific cybersecurity training for staff.	Goal 1 / Objective 1.2 Goal 3 / Objective 3.1	AI-Enabling Infrastructure, Governance and Risk Management
Accelerate AI Adoption and Training	- Deliver foundational and advanced AI training for staff. - Offer hands-on workshops and support resources for AI tool adoption. - Foster a culture of innovation, continuous learning, and knowledge sharing.	Goal 2 / Objective 2.1 Goal 3 / Objective 3.2	AI-Ready Workforce

Key Goals and Metrics for Success

To ensure accountability and demonstrate progress, key performance indicators (KPIs) will be established for each strategic goal. These measures will provide clear benchmarks for tracking advancement, enable timely adjustments through ongoing governance, and ensure transparency in communicating outcomes to both internal and external stakeholders. Regular review of KPIs will help maintain alignment with the strategic vision and reinforce the NRC's commitment to responsible and effective AI adoption.



The NRC's AI Strategic Plan is a living document. As the agency advances in AI maturity, lessons learned and technological developments will inform updates to objectives, activities, and KPIs. This approach ensures that the NRC not only keeps pace with technological change but continues to fulfill its regulatory mission with the highest standards of independence, openness, efficiency, clarity, and reliability.

