UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 18, 2025

MEMORANDUM TO: Michael F. King
Acting Executive Director for Operations

FROM: Andrea L. Kock, Acting Director */RA/*
Office of Nuclear Material Safety and Safeguards

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Office of Nuclear Reactor Regulation

SUBJECT: NRC LICENSING EFFICIENCY INITIATIVES UPDATE

The U.S. Nuclear Regulatory Commission (NRC) Office of Nuclear Material Safety and Safeguards (NMSS) and the Office of Nuclear Reactor Regulation (NRR) developed this report to update the Acting Executive Director for Operations on the status of the NRC's implementation of licensing efficiency efforts in response to Section 505, "Nuclear Licensing Efficiency," of the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024 (ADVANCE Act).

On May 23, 2025, President Trump signed Executive Order (EO) 14300, "Ordering the Reform of the Nuclear Regulatory Commission," directing the NRC to take additional actions to reform the NRC. Section 5 of EO 14300 directs the NRC to revise its regulations and guidance documents to facilitate nuclear technology deployment. As part of these efforts, Section 5(a) directs the NRC to undertake a review and wholesale revision of its regulations and guidance documents and to establish fixed deadlines of no more than 12 or 18 months for its evaluation and approval of licenses, license amendments, license renewals, certificates of compliance, power uprates, license transfers, and any other activity requested by a licensee or potential licensee, as directed under the Nuclear Energy Innovation and Modernization Act (NEIMA). Section 5(a) also notes that "these are maximum time periods" and directs the NRC to "adopt shorter deadlines tailored to particular reactor types or licensing pathways as appropriate."

The licensing efficiencies developed pursuant to Section 505 of the ADVANCE Act are an interim step towards full implementation of Section 5(a) of EO 14300, as the NRC staff anticipates the agency will realize further efficiencies when the rulemaking efforts related to EO 14300 are completed.

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The NRC is streamlining licensing reviews by implementing specific near-term changes tailored to business lines to facilitate the increased deployment of new nuclear technologies and the expansion of nuclear energy capacity while ensuring public health and safety. With public and industry engagement, the agency is taking action to accelerate the efficiency, predictability, and timeliness of licensing reviews, which include the following actions:

- Implementing updated NEIMA milestones, consistent with EO 14300 direction. The new milestones reflect, on average, an approximate 47 percent decrease from previous NEIMA generic milestone schedules. For example, the NRC (1) updated the Edwin I. Hatch Nuclear Plant subsequent license renewal review schedule to meet the 12-month milestone, (2) set an 18-month review schedule for the Long Mott Generating Station application, (3) accelerated the review for the Kemmerer Power Station application to a 19-month schedule, and (4) established a 9-month review schedule for a Framatome fuel facility amendment to increase enrichment to 6.5 percent.

- Developing leading and lagging indicators as enhanced project management tools consistent with the NRC's Agency Project Management Initiative. These data-driven indicators increase accountability and result in front-loading reviews by developing draft safety evaluations (SEs) early in the review process and applying at least a 15 percent reduction in review duration and resource estimates, which the NRC is publishing in its acceptance reviews.

- Establishing expectations and accountability for the desired behaviors, such as those expressed in the new guidance, "Driving Regulatory Decisions Through More Effective Communications." The staff applied the communication approaches described in this guidance document and had early success when reviewing a new transportation package (i.e., the NAC "Volunteer") used to ship tritium-producing absorber rods. The staff's communication approaches (e.g., clarifying regulatory requirements and suggesting a different approach to be used to meet the requirements) led to NRC approval of the package in under 12 months.

- Leveraging artificial intelligence (AI) tools to enhance productivity and workflow efficiency. For example, the NRC is piloting the use of the agency's internal-use generative AI tool to gain efficiencies in reviewing a new enrichment facility application, and the staff is leveraging the agency's Microsoft Copilot Chat tool to assist with licensing reviews, such as researching precedents and comparing documents.

- Promptly sharing and implementing best practices across licensing business lines. For example, the business lines adopted acceptance review best practices from each other and developed preapplication engagement methods and guidance, such as updating NRC public websites to improve applicants' understanding of NRC requirements and enable higher quality submittals. Business lines also shared the best practice of requests for confirmatory information as a speedier and less resource-intensive alternative to requests for additional information.

- Developing techniques and guidance to improve the effectiveness and timeliness of data analysis, preapplication engagements, SE development, risk-informed decision-making, and significant licensing actions such as new reactor licensing, license renewals, reactor restart activities, power uprates, and issuance of certificates of compliance. One of the techniques under development is a risk-informed approach

for scoping licensing review resources. When modeling this graded approach, the agency significantly reduced initial estimates for two licensing actions, saving a total of 500 hours (i.e., 320 hours on one application and 180 hours on the other application).

The enclosure to this memorandum focuses on agency actions taken to address licensing efficiency pursuant to EO 14300 and Section 505 of the ADVANCE Act. The NRC staff is coordinating implementation of these initiatives with staff involved with other sections and provisions of the ADVANCE Act related to topics such as environmental reviews, fusion licensing, brownfield site facilities, microreactors, combined licenses, manufacturing and construction, and advanced nuclear fuel. The NRC staff will also develop guidance for conducting a periodic assessment to measure the health of the agency's licensing processes by March 31, 2026.

If you have questions or need additional information, please contact us or have your staff contact Shana Helton, Director of the Division of Fuel Management in NMSS, or Jamie Pelton, Acting Director of the Division of Operating Reactor Licensing in NRR.

Enclosure:
NRC Licensing Efficiency Initiatives Update

NRC Licensing Efficiency Initiatives Update

Enclosure

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1.0 EXECUTIVE SUMMARY

This report describes the status of the U.S. Nuclear Regulatory Commission's (NRC's, agency's) implementation of the provisions of Section 505, "Nuclear Licensing Efficiency," of Title V, "Improving Commission Efficiency," of the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024 (ADVANCE Act). On May 23, 2025, President Trump signed Executive Order (EO) 14300, "Ordering the Reform of the Nuclear Regulatory Commission,"[1] directing the NRC to take additional actions to reform the NRC. Section 5 of EO 14300 directs the NRC to revise its regulations and guidance documents to facilitate nuclear technology deployment. The licensing efficiencies developed pursuant to Section 505 of the ADVANCE Act are an interim step towards full implementation of Section 5(a) of EO 14300, as the staff anticipates the agency will realize further efficiencies when the rulemaking efforts related to EO 14300 are completed.

The agency is taking actions and piloting initiatives to improve licensing efficiency, predictability, and timeliness that focus resources on areas that matter the most to safety and security, such as the following:

- Implementing updated Nuclear Energy Innovation and Modernization Act (NEIMA) milestones, consistent with EO 14300 direction. The new milestones reflect, on average, an approximate 47 percent decrease from previous NEIMA generic milestone schedules. For example, the NRC (1) updated the Edwin I. Hatch Nuclear Plant subsequent license renewal review schedule to meet the 12-month milestone, (2) set an 18-month review schedule for the Long Mott Generating Station application, (3) accelerated the review for the Kemmerer Power Station application to a 19-month schedule, and (4) established a 9-month review schedule for a Framatome fuel facility amendment to increase enrichment to 6.5 percent.

- Developing leading and lagging indicators as enhanced project management tools, consistent with the NRC's Agency Project Management Initiative.[2] These data-driven indicators increase accountability and result in front-loading reviews by developing draft safety evaluations (SEs) early in the review process and applying at least a 15 percent reduction in review duration and resource estimates, which the NRC is publishing in its acceptance reviews.

- Establishing expectations and accountability for the desired behaviors, such as those expressed in the new guidance, "Driving Regulatory Decisions Through More Effective Communications."[3] The staff applied the communications approaches described in this guidance document and had early success when reviewing a new transportation package (i.e., the NAC "Volunteer"[4]) used to ship tritium-producing absorber rods. The staff's communication approaches (e.g., clarifying regulatory requirements and suggesting a different approach to be used to meet the requirements) led to NRC approval of the package in under 12 months.

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1 *Federal Register* Notice, 90 FR 22587, "Ordering the Reform of the Nuclear Regulatory Commission," May 29, 2025.
2 https://www.nrc.gov/about-nrc/governing-laws/advance-act/pm-initiative.html.
3 NRC Office of Executive Director for Operations (OEDO) Procedure-0235, "Driving Regulatory Decisions Through More Effective Communications," July 2, 2025 (Agencywide Documents Access and Management System Accession No. ML25167A039).
4 NAC International requested NRC certification of its Volunteer Transport Packaging System.

- Leveraging artificial intelligence (AI) tools to enhance productivity and workflow efficiency. For example, the NRC is piloting the use of the agency's internal-use generative AI tool to gain efficiencies in reviewing a new enrichment facility application, and the staff is leveraging the agency's Microsoft Copilot Chat tool to assist with licensing reviews, such as researching precedents and comparing documents.

- Promptly sharing and implementing best practices across licensing business lines. For example, the business lines adopted acceptance review best practices from each other and developed preapplication engagement methods and guidance, such as updating NRC public websites to improve applicants' understanding of NRC requirements and enable higher quality submittals. Business lines also shared the best practice of requests for confirmatory information as a speedier and less resource-intensive alternative to requests for additional information.

- Developing techniques and guidance to improve the effectiveness and timeliness of data analysis, preapplication engagements, SE development, risk-informed decision-making, and significant licensing actions such as new reactor licensing, license renewals, reactor restart activities, power uprates, and issuance of certificates of compliance. One of the techniques under development is a risk-informed approach for scoping licensing review resources. When modeling this graded approach, the agency significantly reduced initial estimates for two licensing actions, saving 500 hours (i.e., 320 hours on one application and 180 hours on the other application).

These initiatives were informed by feedback from internal and external stakeholders, including the public. The NRC is increasing its use of data analytics to monitor the effectiveness of these initiatives, licensing performance, and real-time progress of licensing reviews, and to more quickly identify potential challenges and needed changes to techniques and guidance.

Some stakeholder feedback identified potential changes to NRC requirements, and those ideas have been shared with the staff involved with the EO 14300 rulemaking activities. For the licensing efficiencies discussed in this report, the staff has not identified any additional policy changes needing Commission direction. Additional efficiencies may be realized through an ongoing evaluation of the NRC's regulatory framework and rulemakings. The staff will engage the Commission at the appropriate time if it identifies additional areas needing Commission direction.

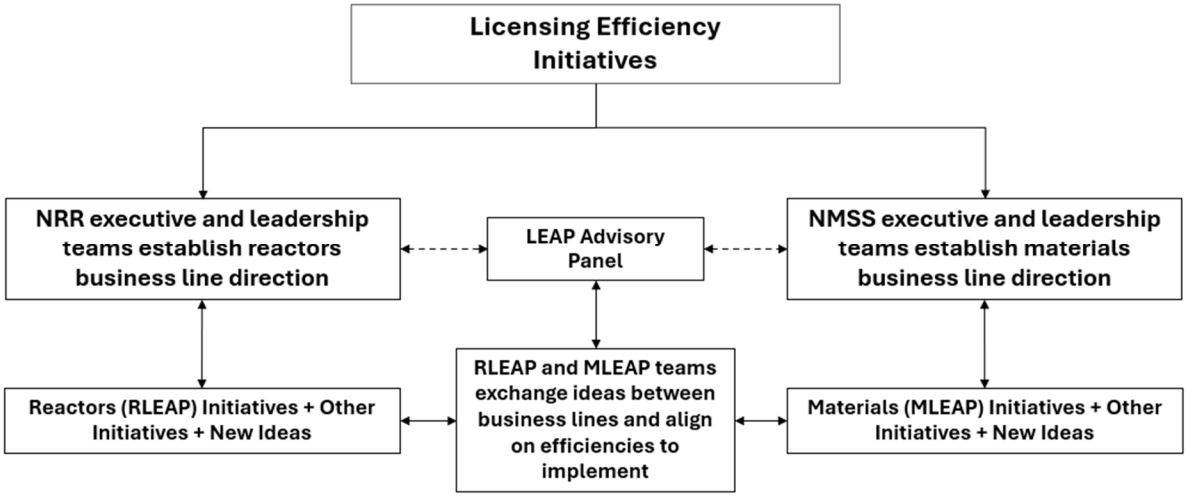
2.0 APPROACH

Section 505 of the ADVANCE Act directed the NRC to establish, maintain, and periodically assess techniques and guidance to support efficient, predictable, and timely reviews of licensing applications. The NRC prioritized cross-office attention on improving licensing efficiency in its materials and reactors licensing business lines to implement Section 505 of the ADVANCE Act by developing and implementing approaches and schedules to streamline licensing reviews.

The agency developed the structured approach illustrated in Figure 1, below, to address the provisions of Section 505 of the ADVANCE Act. Office of Nuclear Material Safety and Safeguards (NMSS) and Office of Nuclear Reactor Regulation (NRR) executives created a licensing efficiencies and processes (LEAP) panel consisting of agency leadership to establish direction for and oversight of licensing efficiency initiatives. The LEAP panel also ensured consistency with NRR and NMSS licensing efficiency initiatives as well as with the agency's efforts in response to other sections of the ADVANCE Act. NRR and NMSS also created the

reactors licensing efficiencies and processes (RLEAP) team and the materials licensing efficiencies and processes (MLEAP) team, both of which consisted of NRC staff from various business lines. These teams implemented efficiency initiatives, evaluated feedback, and coordinated to share best practices and develop guidance to drive efficiencies across both licensing offices.

Figure 1 Licensing Efficiency Approach



3.0 LICENSING EFFICIENCY SUCCESSES AND INITIATIVES

As summarized in Section 1.0 above and described in more detail in this section, the NRC has demonstrated gains in licensing efficiency using data analytics, performance measures and metrics, and initiatives informed through external engagement, as evidenced by the decrease in licensing review durations and hours. These gains are being driven by the licensing efficiency, predictability, and timeliness objectives of cost reduction, production improvement, accountability and proficiency, data-driven decision-making, risk-informed decision-making, and regulatory stability. The agency is assessing these efficiencies and enabling accountability with both leading and lagging performance indicators.

Consistent with the NRC's Principles of Good Regulation and ADVANCE Act provisions, the NRC staff has identified and implemented changes that optimize the agency's resources and approaches which continuously identify and address future needs. These changes and approaches address the ADVANCE Act provision to develop techniques and guidance for licensing efficiency, predictability, and timeliness. The NRC is focused on both near-term changes for immediate results, and sustainable changes to ensure that the agency's licensing efficiency efforts continue and become part of the agency's culture. The NRC is utilizing both quantitative and qualitative measures, as well as stakeholder feedback, to identify how and where to drive improvement.

3.1 Data-Driven Efficiencies

The NRC has been enhancing licensing schedules and tools for many years to continuously improve the timeliness, rigor, and fidelity of resource estimates in licensing reviews, and continues to drive licensing efficiency using data to address the ADVANCE Act and EO 14300.

Licensing data is collected through several existing agency programs, such as the Reactor Program System and Web Based Licensing, and are monitored through dashboards. The agency has established processes for monitoring and assessing this data. The NRC uses metrics established through EO 14300, NEIMA, the Fiscal Responsibility Act of 2023, the Congressional Budget Justification (CBJ) process, and Commission direction to assess overall licensing project performance based on the NRC's ability to meet schedule and resource metrics. To assess performance, the agency conducted a baseline assessment of the NRC's licensing efficiency using available data analytics on review duration and resources.

For the Operating Reactors Business Line, before fiscal year (FY) 2024, the NRC had a 1-year schedule metric for most licensing actions. Based on data analytics that showed actual performance history, in FY 2024, the agency switched to an estimated completion schedule metric to reflect more realistic review durations and resources. After 1 year of implementing the estimated completion schedule metric, the agency reduced its review duration by 18 percent and hours by 6 percent. Table 1 shows the improvements in review duration and hours from 2023 to present based on the new metric for some categories of operating reactor licensing actions. The data also showed that review schedule and resource estimates still had conservatisms built into them. Therefore, NRR recently implemented the expectation to further drive efficiency by requiring the NRC staff to review licensing performance history for similar licensing actions and implement a goal of reducing review durations and hours estimates for most licensing actions by 15 percent from past similar licensing action performance.

Table 1 Examples of Licensing Performance Improvement from 2023 to 2025

Type of Licensing Action[5]	Duration Reduction from 2023 to 2025	Hours Reduction from 2023 to 2025
License amendments using the Consolidated Line Item Improvement Process	9%	11%
License amendments adopting Technical Specification Task Force Travelers (TSTF), excluding risk-informed technical specification surveillance frequencies and completion times travelers	18%	52%
License amendments (non-TSTF)	15%	18%
Code reliefs (i.e., requests regarding Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a, "Codes and standards")	8%	11%

Each of the four Materials Business Lines (i.e., Fuel Facilities, Decommissioning and Low-Level Waste, Nuclear Material Users (NMU), and Spent Fuel Storage and Transportation) have likewise seen encouraging progress with several licensing improvements. Each business line reviewed historical data to develop more realistic schedule and resource estimates. For those licensing actions that have historically been completed more quickly than the schedules specified in EO 14300, NMSS is implementing additional schedule reductions (i.e., 15 percent less time and resources than past reviews). Additionally, senior management has established licensing efficiencies expectations to improve efficiency, predictability, and timeliness, and to

[5] NRC Presentation slides for the public workshop held on May 22, 2025 (ML25141A107).

adopt process improvements immediately.[6] NMSS has seen encouraging progress. For example:

- Fuel Facilities has piloted an enhanced preapplication process involving time-limited reviews of draft licensing chapters, which resulted in substantial savings (i.e., greater than 50 percent compared to typical review times) to the estimated schedule and cost.

- Decommissioning and Low-Level Waste is now applying the audit process more broadly across the review process resulting in a more engaged and communicative approach. This shift has not only shortened review timelines by several months but has also significantly improved submittal quality and reduced the volume of additional information requests.

- NMU enhanced the medical uses licensee toolkit website to address emerging medical technologies, including information that NRC staff will use to make licensing determinations. The staff estimates saving approximately 1 month in the review schedule (approximately 8 percent in savings).

- Spent Fuel Storage and Transportation approved a new transport package design significantly ahead of schedule (i.e., in under 1 year), which was largely possible because of open exchanges that modeled the behaviors in OEDO Procedure-0235.

NMSS's Environmental Center of Expertise (ECOE) realized improvements that benefitted reactor and materials business lines, consistent with the ADVANCE Act Section 506 report to Congress,[7] which discusses the agency's efforts to facilitate efficient, timely, and predictable environmental reviews. The ECOE has streamlined its consultation initiation process and increased preapplication and outreach meetings with Tribal governments interested in the NRC's regulatory activities. These actions have strengthened working relationships among the NRC, Tribal governments, and applicants, thus resulting in earlier resolution of project concerns. For example, for the Clinch River environmental review conducted for the exemption related to pre-construction activities, the NRC staff built upon the relationships forged with Tribal governments during previous environmental reviews in the same area, which likely contributed to the fact that no major concerns, challenges, or delays were raised during the Tribal consultation supporting the publication of the environmental assessment (EA) nearly 3 months (approximately 25 percent) ahead of schedule.

The NRC staff has also proposed amending NRC's categorical exclusion regulations by adding new actions and modifying others to provide greater flexibility. Using a risk-informed approach, the NRC staff evaluates whether it would be beneficial to begin a required environmental review with an EA, rather than an environmental impact statement (EIS) as early as possible to understand whether a finding of no significant impact is likely. For example, if a finding of no significant impact is likely and the regulations require preparation of an EIS, the staff has sought an exemption from the regulations to prepare an EA. To streamline the Endangered Species Act, Section 7 consultation, the NRC staff is using the option of designating a non-Federal representative (e.g., license applicant), as appropriate and consistent with the regulations of the

[6] J. Lubinski, NRC, memorandum, "Licensing Efficiency Expectations," May 28, 2025 (ML25143A040).

[7] NRC Report to U.S. Senate Committee on Environment and Public Works and the U.S. House of Representatives Committee on Energy and Commerce, "Modernization of Nuclear Reactor Environmental Reviews," January 6, 2025 (ML24290A159).

National Marine Fisheries Service and the U.S. Fish and Wildlife Service, to carry out certain Endangered Species Act, Section 7 consultation activities.

3.2 Performance Metrics and Measures

EO 14300 established backstops for licensing reviews; specifically, 18 months for new and advanced reactor applications, and 12 months for license renewal applications. NEIMA has additional requirements for licensing review timeliness. For more routine actions that have historically shorter review timelines, the NRC is challenging itself to complete those actions on shorter schedules. The agency revised the NEIMA generic milestone schedules for licensing actions to align with EO 14300 and subsequently published them on the NRC's public website.[8] The schedules now support 18-month reviews for all new applications, 12-month reviews for license renewal applications, and 12-month or shorter reviews for most license amendments. The agency is updating internal guidance, practices, and expectations to hold itself accountable to these schedules and is requiring staff to develop review schedules that are as streamlined as possible. For example, the NRC updated the Edwin I. Hatch Nuclear Plant subsequent license renewal review schedule to meet the 12-month milestone, set an 18-month review schedule for the Long Mott Generating Station application, and accelerated the review for the Kemmerer Power Station application to a 19-month schedule. Additional changes will be made after the agency completes rulemaking efforts related to EO 14300.

Common Licensing Metrics

As part of the NRC staff's response to the ADVANCE Act, the staff looked across business lines to establish review milestones that are common among multiple reactor and materials business lines. The number and type of milestones to track vary by licensing project and fall into the two types of indicators (i.e., leading performance indicators and lagging performance indicators). The goal of establishing common licensing metrics is to ensure consistency in project management of a wide variety of licensing actions across multiple reactor and materials business lines. Flexibility is key as different licensing actions may or may not require certain steps in the licensing process (e.g., environmental reviews may or may not be required), and the level of effort and complexity varies between different types of licensing reviews. Put simply: small reviews that involve few or no novel or complex issues may only involve issuance of an NRC form with limited technical review needed; medium-sized reviews may involve an acceptance review, an EA, and an SE; and large reviews, such as those associated with new facilities that involve truly novel or noteworthy issues, may require mandatory hearings, Advisory Committee on Reactor Safeguards (ACRS) reviews, and EISs. The number and type of milestones that need to be tracked will therefore vary by licensing project.

To promptly address potential challenges and issues during the review process and to minimize delays and costs, the NRC staff has developed leading and lagging performance indicators and is currently piloting their use. These indicators will aid the staff in assessing, in real-time, licensing performance and trends to identify potential challenges for resolution and to validate the level of efficiencies gained. This licensing performance assessment approach enhances existing metrics and helps the agency focus on individual project performance, consistent with the NRC's Agency Project Management Initiative.

[8] https://www.nrc.gov/about-nrc/generic-schedules.html.

Leading Indicators

The leading indicators are used to monitor the progress of individual licensing reviews. Their primary purpose is to provide early warning signs when a review may be experiencing schedule pressures. By identifying potential delays early, NRC staff and management can take timely corrective actions to keep the overall project on track in terms of both schedule and cost. These leading indicators will be carefully designed so that, when met, they signal that the project is on course to achieve all established milestones. In doing so, they support the NRC's broader lagging indicators, which assess performance after project completion.

Collectively, data gathered through use of these leading indicators may be used as internal metrics that track organizational and individual performance to highlight broader areas for management attention. The metrics below recognize that there are a variety of factors impacting review progress (e.g., applicant performance or unforeseen technical, policy, or regulatory challenges) and that the agency is in the process of fully implementing the EO 14300 direction.

In assessing the existing historical data, the NRC staff found that for several types of licensing actions, the agency has not had the tools in place to consistently capture the type of licensing data needed to inform the leading indicators discussed below. The NRC staff anticipates that with new information technology tools and dashboards, the data will help inform areas where further process improvements are needed. The NRC's modernized information technology abilities have greatly improved tracking, trending, and visualizing data, which gives staff confidence that we will be able to use data to make real-time decisions and adjustments. Additionally, the data collected during the first year of implementation will help the staff adjust the indicators to be more realistic and, potentially, more challenging.

The indicators and metrics below assume that no "tolling," or pauses in time, occur.[9] However, the NRC staff is further evaluating the concept of tolling, as described in EO 14300, to recognize that schedules and resources may be impacted because of the applicant's performance. As that concept is further defined and informed by stakeholder engagement, the staff will update guidance for the leading and lagging indicators accordingly. For each of the indicators below, the leading indicator is individually tracked for adherence and management attention where needed. These indicators are also collectively tracked for organizational performance (e.g., 80 percent of actions within specified limits).

1. Acceptance Review metric: 80 percent of licensing acceptance reviews are completed within the timeframe established in business line-specific licensing instructions (e.g., 30 or 60 days)

2. Acceptance Letter metric (This metric enables success in meeting the first lagging indicator below and is applicable to the licensing actions tracked by NEIMA milestone

[9] Section 5(a) of EO 14300 states that the NRC shall "Establish fixed deadlines for its evaluation and approval of licenses, license amendments, license renewals, certificates of compliance, power uprates, license transfers, and any other activity requested by a licensee or potential licensee ... The regulations should not provide for *tolling* [emphasis added] those deadlines except in instances of applicant failure, and must allow a reasonably diligent applicant to navigate the licensing process successfully in the time allotted."

schedules.[10, 11] The licensing branch chief is responsible for validating that schedules are set appropriately.):

a. For all licensing actions, review schedules are less than 12 months for amendments and less than 18 months for new applications in accordance with EO 14300; and

b. For 80 percent of those licensing actions with data indicating schedules shorter than those in EO 14300, review schedules are at least 15 percent shorter and use 15 percent fewer resources than past average performance

3. Draft SEs with open items: for 90 percent of applicable licensing reviews, draft SEs with open items are completed within 50 percent of the overall schedule and resources[12]

4. For 90 percent of reviews involving an EA or EIS, draft EAs or EISs are completed within 70 percent of the overall environmental schedule and resources

5. For all other milestones tracked as common licensing metrics, 80 percent of milestones established are completed within 10 percent of the estimated schedule and resources

Lagging Indicators

The lagging indicators are efficiency metrics that measure the timeliness and cost of the review and may inform lessons learned on individual projects, licensing program assessments, as well as other indicators such as CBJ and NEIMA metrics. Some milestones (e.g., acceptance review results) will also be useful in determining the quality and effectiveness of NRC engagement with applicants and will facilitate tracking and accountability during the preapplication phase of the licensing review.

These lagging indicators assess licensing performance after project completion, and will be used to aid in assessing the overall health of the agency's licensing processes. Unlike leading indicators, these indicators are not used to adjust or course-correct an individual project. Instead, they may be used to help diagnose programmatic issues and identify trends in the licensing process that merit further improvement. The lagging indicators include the following:

1. For 90 percent of licensing actions tracked in accordance with leading indicator 2.b, overall cost and schedule should be at least 10 percent less than new NEIMA milestone or historical average, whichever is shorter.

2. The Agency's Annual Performance Plan measures as they relate to the licensing process.

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[10] This is not applicable to Nuclear Materials Users licensing activities as these generally do not include SEs (except changes in control) and have shorter review spans of 90–180 days.

[11] This metric is not applicable to licensing reviews that take 40 or less hours to complete or operating reactor licensing actions, such as emergency and exigent license amendment requests, that are excluded from acceptance reviews per agency licensing procedures.

[12] This metric is only applicable for licensing work that needs a draft SE. Some licensing actions are completed very quickly and do not have an interim step of developing a draft SE. For example, licensing for Nuclear Materials Users is very streamlined, does not require issuance of an SE, and is not comparable to SEs for other business lines. Also, NMU has two cumulative timeliness metrics reported as CBJ metrics. NMU does not have NEIMA milestone schedules, as materials licensing actions are not resource intensive and do not have SEs.

Project Monitoring

As the agency pilots the leading and lagging indicators, the NRC staff is developing dashboard tools to keep licensing reviews on track. Tables 2 and 3 below illustrate how the staff is visualizing data in the leading indicator dashboard and metrics that can be used to assess licensing performance.

Table 2 Leading Indicators Dashboard Concept

Application	Acceptance Review	Draft SE with Open Items	Draft EA/EIS	Other Milestones …
Application A				
Application B			N/A	
Application C				

Table 3 Sample of Leading Indicators and Metrics

Indicator Key	Acceptance Review	Acceptance Letter	Draft SE with Open Items	Draft EA/EIS
Green	<30 days	< NEIMA or 15% less time/resources than historical data	<35% of overall schedule/effort	<50% of overall schedule/effort
Yellow	30–60 days	N/A	35–50% of overall schedule/effort	50–70% of overall schedule/effort
Red	>60 days	>NEIMA or 15% less time/resources than historical	>50% overall schedule/effort	>70% of overall schedule/effort

3.3 Best Practices Among Business Lines

The agency created the MLEAP and RLEAP teams for its materials and reactor licensing business lines, respectively. These teams coordinate and promptly share and implement best practices and tools from the agency's licensing business lines and from the work done for

various sections of the ADVANCE Act. Examples of best licensing practices and tools include, but are not limited to, the following:

- issuing expectations from agency leadership to its staff regarding improving licensing efficiency[13, 14]

- issuing guidance (OEDO Procedure-0235) on driving regulatory decisions through more effective communications, which assists the staff in providing guidance and feedback while avoiding consulting communications

- piloting a secure internal AI tool within NRC's Microsoft 365 tenant to enhance productivity and workflow efficiency with various licensing tasks, such as drafting and streamlining text, generating plans and outlines, and summarizing information

- developing preapplication engagement methods and guidance, such as public websites that improve applicants' understanding of NRC requirements (These preapplication engagement methods will enable higher quality submittals and better alignment on the scope and processes used by the NRC during the review of applications.)

- establishing staff accountability measures and data stewards in the licensing offices to assist with licensing data collection, integrity, and validation

- sharing experience with increased use of audits and requests for confirmation of information to reduce more resource-intensive requests for additional information

3.4 Reactor Licensing Business Lines Efficiencies

The NRC's Principles of Good Regulation have guided the agency in being a responsible, credible regulator. These principles focus the agency on ensuring safety and security while appropriately balancing the interests of the NRC's stakeholders, including the public, licensees, and applicants. In adhering to these principles, the agency has used data analytics to monitor licensing performance and has held public meetings and workshops with external stakeholders to discuss licensing processes and to identify best practices. These activities have resulted in a set of initiatives to improve efficiency, including formation of the RLEAP team, enhancing risk-informed decision-making, and revising or creating techniques and guidance for various licensing processes. Notable initiatives include the following:

- *Focusing Reviews on Credible, Realistic Risks*. The agency is enhancing its licensing guidance to optimize review efficiency by expanding risk-informed decision-making techniques, focusing on the most safety-significant aspects of a requested licensing action and tailoring the resources of a review to be commensurate with safety significance. The enhancements include a graded-approach review process for operating reactor licensing action reviews that tailors the scope of technical reviews based on the degree to which applications propose changes to design basis, how regulations are met, complexity, risk significance or safety margins, precedents, or NRC-approved methodologies. The graded approach applies to license amendment requests, exemptions, and relief requests for the operating reactors. However, this effort does not include the power uprate or license renewal applications, as other approaches

[13] A. Veil, NRC, memorandum, "Expectations for Licensing Efficiencies Identified During May 29, 2024, Licensing Workshop," January 21, 2025 (ML24278A002).

[14] J. Lubinski, NRC, memorandum, "Licensing Efficiency Expectations," May 28, 2025 (ML25143A040).

to streamline those reviews are underway, as described below. When modeling this graded approach on applications from Southern Nuclear and Dominion Energy Virginia, the agency significantly reduced initial estimates for the two licensing actions, saving a total of 500 hours (i.e., 320 hours on one application and 180 hours on the other application). This draft, iterative process is scheduled for initial implementation in fall 2025 that will be refined over time using lessons learned and best practices.

- *Reactor Restart Activities*. The NRC has focused on developing an efficient approach for reauthorizing safe power operations of decommissioned reactors to expedite the production and operation of nuclear energy to provide affordable, reliable, safe, and secure energy to the American people. To do so, the agency created a project management and oversight structure in the Palisades Restart Panel for reviewing restart regulatory activities, including working groups, guidance, dashboards, and public outreach. As a result of this initiative, on July 24, 2025, the NRC approved the licensing actions needed to allow the Palisades Nuclear Plant to return to operational status. The lessons learned from the Palisades restart project will be carried into the potential restarts of the Crane Clean Energy Center and Duane Arnold Energy Center.

- *Power Uprates*. The NRC is expecting to receive numerous power uprate applications through 2032, based on responses from industry to an NRC request for schedule information.[15] Therefore, the agency created the power uprate review readiness initiative to improve review efficiency, ensure review resources are commensurate with applications' safety and risk significance, and support licensee schedules for requests that provide reasonable assurance of public health and safety. The agency is also limiting power uprate reviews by the ACRS to any issues that are truly novel or noteworthy to further reduce review schedules.[16]

- *Advanced Reactor Reviews and Approvals*. The agency has completed several first-of-a-kind advanced reactor construction permit application reviews ahead of schedule and under budget. Since 2023, four construction permits and one standard design approval have been issued and three additional construction permit applications are currently under review. The agency has made significant progress in developing licensing infrastructure to enhance the effectiveness and efficiency of its regulatory reviews, such as conducting rulemaking for emergency preparedness requirements; preparing guidance on applications, site suitability, and preapplication engagements; and streamlining and optimizing reviews. Licensing streamlining efforts include enhanced preapplication engagement, increased use of audits and requests for confirmatory information to reduce requests for additional information, early engagement with the U.S. Department of Energy and the ACRS, use of dedicated core review teams, focus on safety-significant items, rapid lessons learned application, and use of improved workload management processes to proactively identify review challenges.

- *New Reactor Reviews*. The NRC is developing guidance for a graded approach to site characterization reviews. The guidance will provide regulatory clarity and consistency on how to implement site characterization commensurate with design-specific

[15] NRC Regulatory Issue Summary 2025-02, "Planned Power Uprate-Related Licensing Submittals for All Power Reactor Licensees," February 7, 2025 (ML25007A001).

[16] M. Bailey, NRC, memorandum to J. Pelton, NRC, "Advisory Committee on Reactor Safeguards Power Uprate Reviews," July 11, 2025 (ML25177B284).

considerations such as power output and radiological risk, consistent with the ADVANCE Act and EO 14300.

- *License Renewals*. The NRC is building on the experience and efficiencies gained since 2023 in responding to Commission direction on license renewal and subsequent license renewal review expectations to issue timely decisions on renewal applications within 1 year and to continue reducing the hours expended on reviews. The agency is working with industry to formulate and prepare multiple options to streamline future application submittals and reviews depending on applicants' needs. This builds upon existing industry collaboration.

3.5 Materials Licensing Business Lines Efficiencies

The NRC examined the current regulatory processes under each of the four NMSS materials licensing business lines (i.e., Fuel Facilities, Decommissioning and Low-Level Waste, NMU, and Spent Fuel Storage and Transportation), and identified over 100 opportunities for improvements that focus on process, document quality, communication, and culture. The agency employed qualitative and quantitative measures to identify, evaluate, and prioritize efficiencies. Notable recommendations for improvement include the following:

- *Leverage past precedent licensing reviews* (e.g., leveraging licensing decisions made in previously-approved license applications in technical areas that have not changed) for fuel facilities, resulting in potential cost savings of approximately 30 percent in staff hours and 25–50 percent in schedule savings compared to the typical fuel facilities review timeframes. The agency is piloting the use of AI to assist with acceptance reviews that will further aid in expediting the review schedule.

- *Develop an external-facing, modernized licensing portal for nuclear materials licensees* and applicants, resulting in potential estimated resource savings of 1,400 staff hours, once fully developed, and strengthening the use of the Web-Based Licensing system in the National Materials Program.

- *Implement* parallel 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste," certificate of compliance rulemaking and safety reviews, resulting in 4 weeks of schedule savings compared to the current established review and approval process.

- *Apply a graded approach to decommissioning funding plan (DFPs) reviews* for independent spent fuel storage installations to focus environmental reviews under the National Environmental Policy Act of 1969, as amended (NEPA), commensurate with the significance of the changes in the updated DFPs, resulting in up to 50 percent resource savings compared to preparation of NEPA reviews for all updated DFPs.

4.0 STAKEHOLDER FEEDBACK

With public and industry engagement, the NRC has initiated efforts to accelerate the efficiency, predictability, and timeliness of licensing reviews in response to the ADVANCE Act and

EO 14300. The agency hosted various public meetings and workshops to discuss licensing efficiency initiatives and activities, including:

- a public meeting on licensing efficiency approaches and framework on January 23, 2025[17]
- a public meeting on licensing efficiency initiatives on March 24, 2025[18]
- public workshops on licensing efficiency initiatives on May 14, 20, and 22, 2025[19, 20, 21]

The agency considered feedback from industry and the public (e.g., the Nuclear Energy Institute (NEI), the Breakthrough Institute, the Nuclear Innovation Alliance, and the Decommissioning Plant Coalition) that was provided through correspondence, public meetings, and a web-based portal for ADVANCE Act feedback. The agency also considered feedback from the NRC staff. The NRC received extensive written feedback primarily from NEI[22, 23] and the Decommissioning Plant Coalition.[24] Industry's feedback included the following recommendations: shorten reviews of licensing actions; optimize preapplication engagements, risk-informed decision-making, and requests for confirmation of information; streamline SE development (e.g., through increased use of AI and risk-informed decision-making); maximize communications during the review process; improve scheduling techniques and review approaches for new and advanced reactors; and increase the use of precedents, metrics, and transparency for fuel cycle facility licensing. Some feedback from the public was similar to that offered by the industry.

Industry feedback has significantly informed the NRC's initiatives. For example, the agency has enacted a 15 percent reduction from historical performance in review duration and hours (among other leading indicators), developed preapplication engagement job guides for staff and Web-Based guidance for applicants, developed a graded approach to tailor reviews commensurate with their risk significance, enhanced guidance for developing draft SEs with open items early in the review process, and created guidance encouraging proactive and effective communications.

The agency is actively coordinating with the NEI to develop high-value, curated data sets designed to accelerate the effectiveness of AI applications that may assist in the licensing process. The agency and the NEI are also jointly identifying priority data sets that will drive meaningful progress in AI innovation and regulatory analysis within the NRC. The agency plans

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17 H. Gonzalez, NRC, memorandum to J. Pelton, NRC, "Summary of January 23, 2025, Information Public Meeting About NRC's Implementation of Section 505 of The ADVANCE Act of 2024 (EPID G-2024-AGN-0033)," March 3, 2025 (ML25043A103).

18 H. Gonzalez, NRC, memorandum to J. Pelton, NRC, "Summary of March 24, 2025, Information Public Meeting About U.S. Nuclear Regulatory Commission's Implementation of Section 505 of The ADVANCE Act of 2024 (EPID G-2024-AGN-0033)," April 7, 2025 (ML25085A385).

19 J. Rowley, NRC, memorandum to S. Helton, NRC, "Summary of May 14, 2025, Fuel Facility Stakeholder Public Meeting," June 17, 2025 (ML25162A244).

20 NRC Meeting Notice, "The U.S. Nuclear Regulatory Commission Staff Will Discuss Storage and Transportation Licensing Efficiency Considerations with the Nuclear Industry and the Public," April 15, 2025 (ML25107A283).

21 H. Gonzalez, NRC, memorandum to J. Pelton, NRC, "Summary of May 22, 2025, Comment-Gathering Public Meeting About U.S. Nuclear Regulatory Commission's Implementation of Section 505 of The ADVANCE Act of 2024 (EPID G-2024-AGN-0033)," June 6, 2025 (ML25153A016).

22 A. Mauer, NEI, letter to M. King, NRC, "NEI Input on Improvements to Licensing and Oversight Programs," October 28, 2024 (ML24302A311).

23 D. True, NEI, letter to M. Gavrilas, NRC, "Nuclear Energy Institute (NEI) Input on Recent Executive Orders," February 10, 2025 (ML25058A144).

24 W. Norton, Decommissioning Plant Coalition, letter to J. Lubinski, NRC, dated February 25, 2025 (ML25062A116).

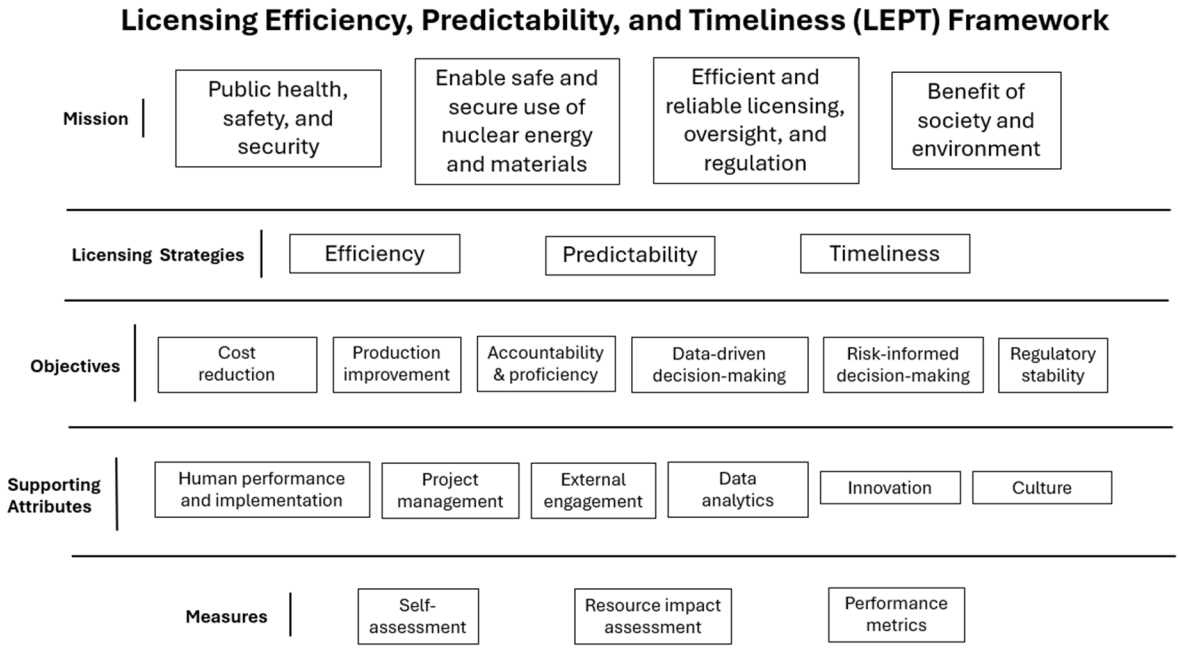
to use AI to support the NRC's mission by increasing individual staff productivity and improving operational efficiency. The agency recently rolled out an internal AI tool and is testing additional use cases for AI in the licensing process. For example, NMSS is currently piloting the use of the tool on a new enrichment facility application. The agency also launched an AI-powered cognitive search technology in January 2025 to create an enhanced search engine for the NRC's document repository, which significantly streamlined search processes.

The agency also received feedback from NRC staff. The staff is evaluating what feedback should be implemented in the near, intermediate, and long term. Feedback related to rule changes is being considered under the EO 14300 rulemaking effort. The NRC's early focus has been on initiatives that would have a near-term positive return on investment, but the agency is also exploring more ideas and feedback on the initiatives already in progress. The agency plans to use the LEAP teams as drivers for sharing lessons learned and receiving feedback on how to improve efficiency.

5.0 PERIODIC ASSESSMENT OF TECHNIQUES AND GUIDANCE

Section 505 of the ADVANCE Act provides for periodically assessing techniques and guidance developed to improve licensing efficiency. In addition to using measures and metrics (i.e., leading and lagging indicators) to identify areas for improvement and return on investment, as discussed in Section 3.2, the agency developed the licensing efficiency, predictability, and timeliness (LEPT) framework to foster sustainable cultural change and guide future activities and measures to increase efficiency by using common terminology and objectives. The LEPT framework defines the terms efficiency, predictability, and timeliness in the context of nuclear licensing and provides a structured approach to implement, measure, and monitor these strategies. The LEPT framework facilitates the continual development and assessment of LEPT. Figure 2 shows the licensing strategies, objectives, attributes, and measures of LEPT with respect to the agency's mission statement.

Figure 2 The LEPT Framework



The LEPT framework can be used to: develop or modify licensing initiatives, techniques, and guidance; evaluate feedback; and assess the effectiveness of licensing efficiency initiatives, techniques, and guidance. The NRC developed criteria for consideration when evaluating current initiatives and whether to pursue a new efficiency effort or enhance existing processes. These criteria include consideration of the following questions:

- Does/Did the initiative address any of the LEPT objectives?
- Has the NRC staff considered stakeholder input and feedback?
- Does/Did the initiative promote knowledge transfer or management?
- Does/Did the initiative support process reliability, consistency, clarity, and transparency?
- Does/Did the initiative support stakeholder confidence in the NRC?
- Does/Did the initiative reduce resources, hours, and/or contract dollars or shorten review schedules?
- What are the costs (in terms of hours, contract dollars, and duration) and impacts (e.g., workload impacts and reputational risk) of implementing or not implementing the initiative?

The agency is also tracking data to inform a periodic assessment of licensing performance, such as monitoring the level of preapplication engagement, the length of time and resources needed for effective acceptance reviews, and whether using audits and simplified requests for confirmation of information instead of more formal requests for additional information results in

schedule and resource savings compared to historical performance. The agency will also consider feedback from its regulated entities. The NRC staff will develop guidance for conducting a periodic assessment to measure the health of the agency's licensing processes by March 31, 2026.

6.0 SUMMARY

Section 505 of the ADVANCE Act directs the NRC to optimize licensing processes and ensure that the licensing process for nuclear reactors is efficient, timely, and predictable. The agency is committed to meeting the mandate of the ADVANCE Act to be efficient, timely, and predictable in its licensing reviews and is using data-driven, risk-informed decision-making to reach this goal, while also maintaining its safety and security mission. The NRC is updating project management techniques and guidance to improve production, enhance accountability, ensure regulatory stability, and reduce costs.

The NRC staff anticipates the agency will realize further licensing efficiencies with continued implementation of the ADVANCE Act and EO 14300.

SUBJECT: NRC LICENSING EFFICIENCY INITIATIVES UPDATE DATED AUGUST 18, 2025

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