

Industry Power Uprate Task Force

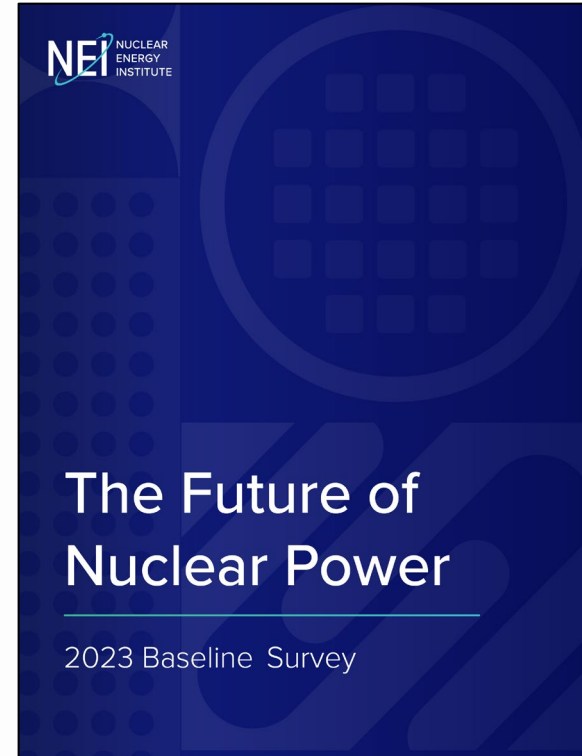
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Director



NEI Survey: Power Uprates

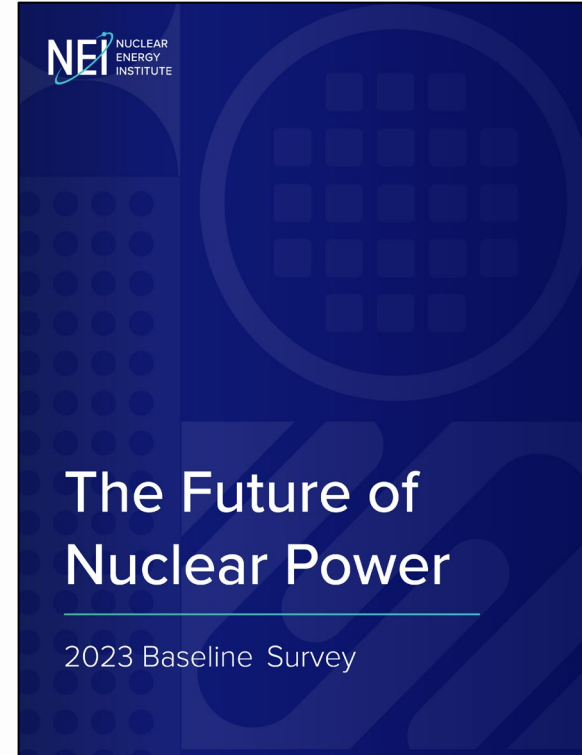
- Key takeaways:
 - **>55% of sites** have a level of interest/planning for one or more power uprates with a combined capacity **increase of 2.5 GWe**
 - Nearly **33%** of planned uprates are **EPUs**, **~50%** are SPUs, and remainder are MURs
- Interests in uprates are high due in part to the IRA tax credits and projected electricity demand signals, but is ultimately about the underlying plant specific business case



NEI Survey: Enabling Changes



- Key takeaways:
 - **>55%** of sites have interest/planning for one or more enabling changes (ATF/LEU+, Extended Fuel Cycles, and/or Risk-Informed LOCA)
 - **~75%** of PWRs interested in extended cycles
- Interests are also high for these enabling technologies as they are complimentary to uprates and enabling them in some cases.
- Interests in bundling of licensing actions

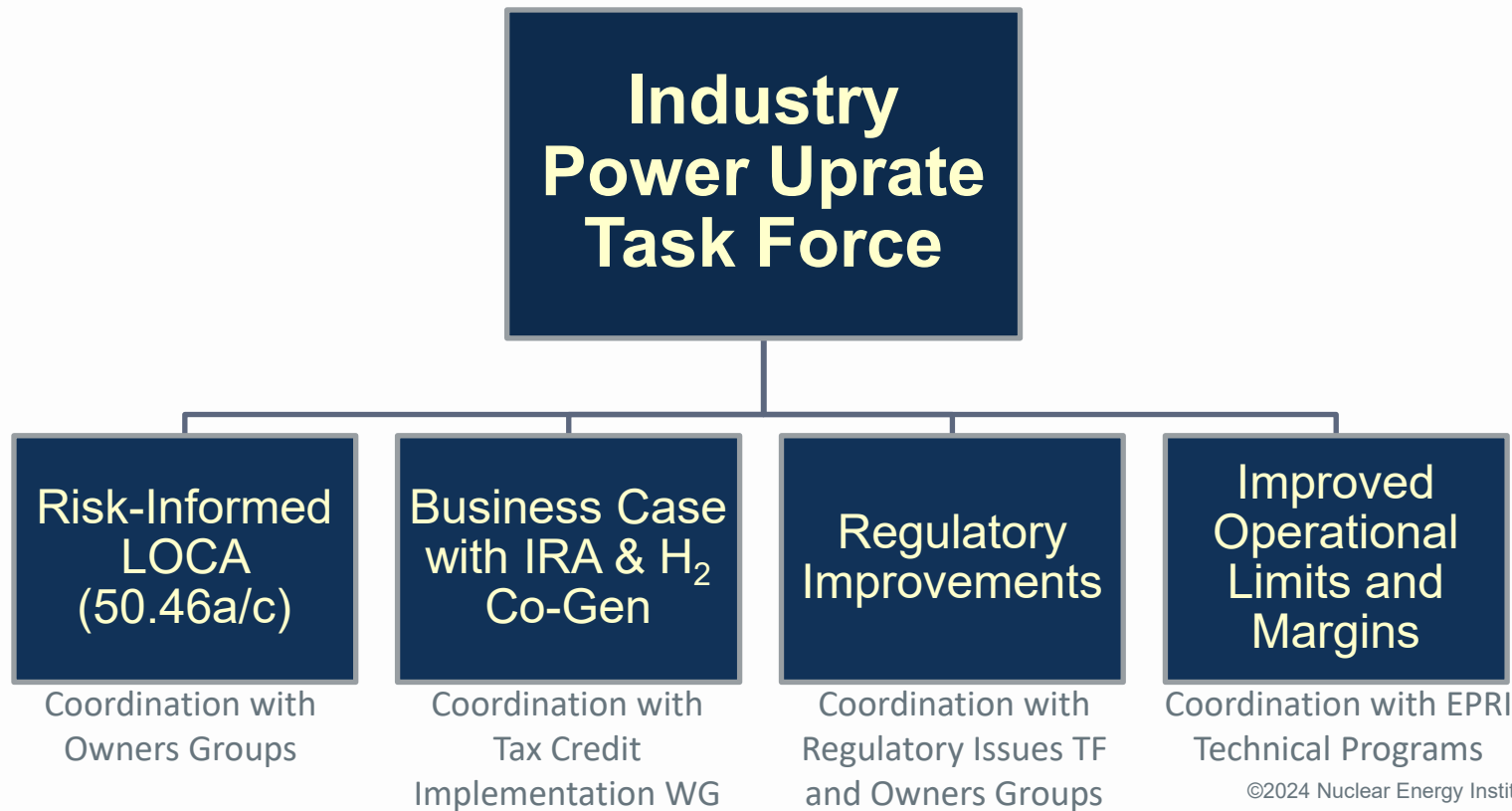


NEI Power Uprate Task Force



Mission: Provide Strategic Guidance to the Industry Power Uprate Activities

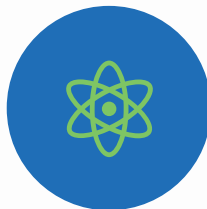
NEI Task Force Structure



Cost Effective Approach for Additional Carbon Free Generation

Congressional Direction - IRA Tax Credits

Implementing Tax Guidance Required



ZERO-EMISSION
NUCLEAR POWER PTC
(\$45U)

In Effect: 2024



CLEAN ELECTRICITY
PTC AND ITC
(\$45Y & \$48E)

In Effect: 2025



CLEAN HYDROGEN
PTC
(\$45V)

In Effect: 2023

Supporting Guidance



PREVAILING-
WAGE
REQUIREMENT



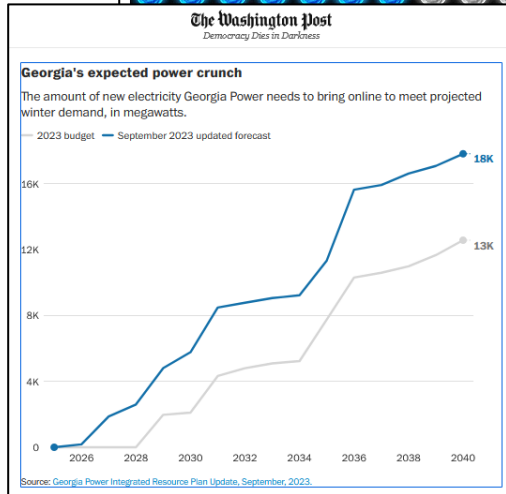
DIRECT PAYMENTS
AND CREDIT
TRANSFERABILITY
(\$§6417 & 6418)

OTHER REQUIREMENTS AND BONUSES:
APPRENTICESHIP: § 45Y/ § 48E, § 45V
ENERGY COMMUNITIES: § 45Y/ § 48E
DOMESTIC CONTENT: § 45Y/ § 448E

Increased Demand Signals

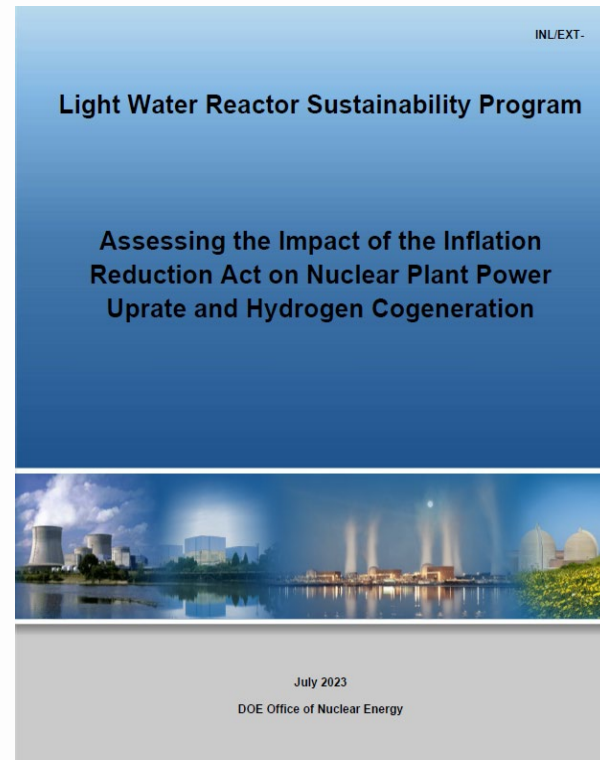


AI is poised to drive 160% increase in data center power demand



Additional Cost-effective C-free Generation

- Objective: Assess value of the IRA tax credits with uprates scenarios and H₂ co-generation
- Deliverables completed on schedule:
 - Published report with the business cases
 - Business case model available
- Industry-wide interest and support:
 - NEI provided latest IRA updates with IRS guidance
 - Multiple utilities and OGs reviewed the report
- Cost-effective approach for additional carbon free base load generation



Regulatory: Licensing Efficiency

NEI Examination of NRC Performance

- NRC has approved over 170 power uprates
- NEI examined public records covering NRC review duration and costs for uprates
- Data showed review durations, review hours, and costs increased significantly over time

Review Type	Review Duration	Review Hours	Review Costs
MUR	>2X	>2X	5X
SPU	Stable	~3X	~3X
EPU	~2X	~3X	~7X

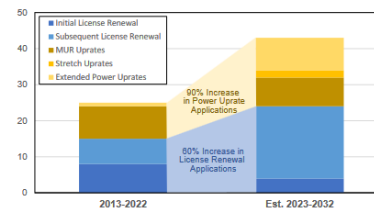
Examination of NRC Review Performance

Introduction

Nuclear carbon-free energy is essential to a clean, reliable and affordable energy system. Nuclear generation, both existing and new, is critical to the U.S. energy security and decarbonizing not only the electric sector but the entire economy. Through Federal policy and State action, demand for and advancements in nuclear technology in the U.S. has grown exponentially in the last five years. The passage of the Infrastructure Investment and Jobs Act in 2021 and the Inflation Reduction Act in 2022 has put in place policies that create an inflection point for the future of nuclear power in the U.S.

NEI recently conducted a [survey of member companies](#) to obtain a better sense of the impact these federal actions are having on industry activities underway or in planning, including extending the life of the current fleet of reactors and growing the U.S. fleet. This survey showed that greater than 50% of sites surveyed have plans to increase the power of their reactors, and the cumulative total of these uprates could provide over 26GWe of additional carbon-free nuclear energy in the coming decade. Compared to the past 10 years, these license amendment requests would result in a 90% increase in power uprate applications over the next 10 years compared. In addition, greater than 90% of survey respondents anticipate applying for approval to extend their operating licenses.

Anticipated License Applications to NRC



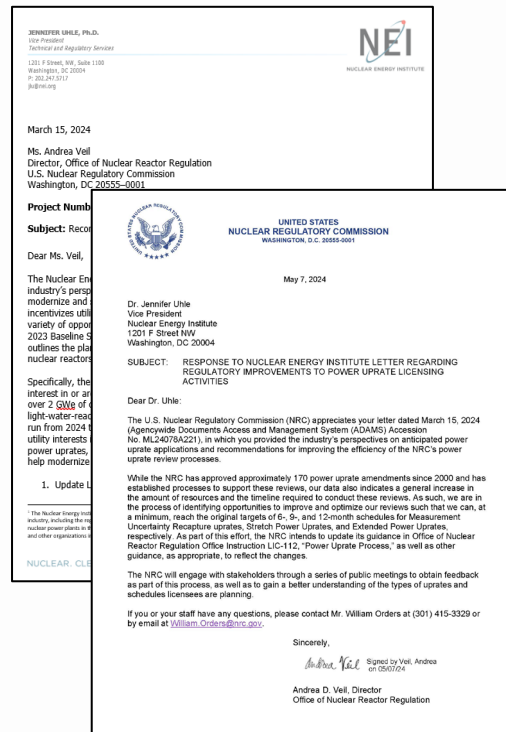
The survey also showed nearly two-thirds of respondent utilities are interested in deploying new nuclear plants, equating to approximately 100 GWe of additional carbon-free nuclear power.

With this anticipated rapid expansion of licensing activities, it is critical that the NRC licensing processes be efficient. Too often, however, the NRC diverts its time and attention into activities that have a negligible effect on safety. As a result, NRC's review processes are ponderous, prolonged and

PUR Regulatory Improvements



- Industry recommendations for more efficient reviews
- Update LIC-112, “Power Uprate Process,” Rev. 2:
 - MUR: 9 ► 6 m, SPU: 12 ► 9 m, and EPU: 18 ► 12 m
- MUR Process Improvements
- Improved Regulatory Predictability and Stability
- Combined Sequential Licensing Actions
- Updated LAR Guidance and Templates
- NRC response letter:
 - Intends to update LIC-112 and other guidance
 - Stakeholder engagement



PUR Regulatory Improvements

- NRC PUR Project Plan limited in scope and details
- Update to LIC-112 and associated guidance prior to first EPU
- Further considerations for sequential and combined licensing actions:
 - Industry considering developing a white paper to provide additional details
- Industry supports NRC's efforts on the Graded Approach / Risk Assessment Working Group, but more discussion needed on specifics
- For RG 1.183 R2, depth of content during multiple workshops provided exponential return of investments for both NRC and industry
- PWROG/BWROG standardized methodologies with pilot plants
- Meeting NRC review timeliness goals reduces PUR enterprise risks

Questions

