U.S. DEPARTMENT of ENERGY | Federal Energy Management Program

Advanced Nuclear Energy – Commercial Viability and Case Studies

T04-S02, August 5th, 2025

FEMP Summer CAMP (Courses Aligned with Mission Priorities)

Steve Kiser

Sr. Vice President, Energy Sector

WSP

Agenda

- Session Learning Outcomes
- Introductions and Session Overview
- Moderated Q&A
- Open Discussion Q&A

Session Learning Outcomes

1. Identify the range of advanced nuclear technologies, including micro-reactors and small modular reactors, and their current maturity levels
2. Recognize the strategic importance of advanced nuclear energy for powering federal critical missions and infrastructure
3. Identify the regulatory and execution pathways necessary for scaling new nuclear technologies
4. Evaluate siting criteria and suitability analyses for deploying advanced nuclear systems

Todd Flowers

Director – Power Generation Business Development

Dominion Energy

Dominion Energy

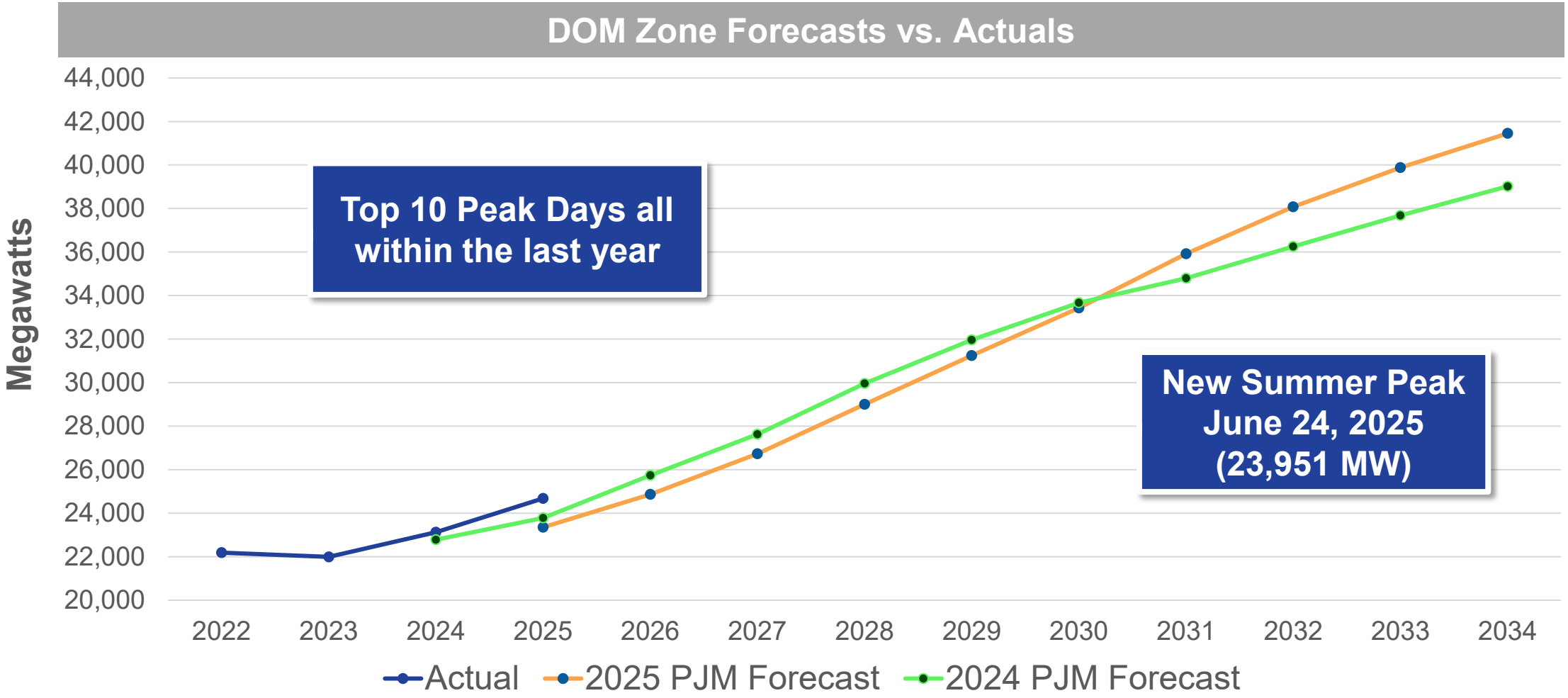
Our mission is to provide the reliable, affordable, and increasingly clean energy that powers our customers every day.

- Headquartered in Richmond, Virginia
- More than 4.5 million customers in 13 states

Power Generation

- Develop new energy projects
- Pursue Emerging Generation Technologies

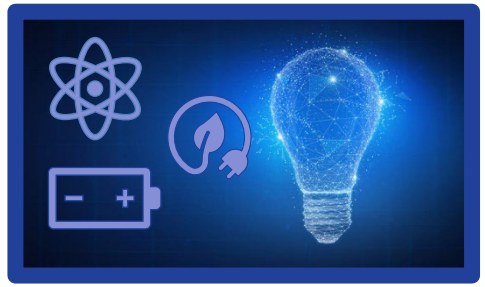
Load Growth and Demand



Power Generation Business Development

Renewables

Energy storage



Emerging Power Generation Technologies

Natural Gas

Nuclear

Benefits of Siting SMRs at DoD Installations

- On-site generation increases energy reliability and resilience for the installation
- Typically connects to an electric transmission substation that also supplies the installation
- No funding needed from the DoD; utility investments go into general electric rates
- On-site generation creates potential islanding benefits during critical events
- Hardens the electric transmission infrastructure from network upgrade improvements
- In-Kind-Consideration (IKC) projects can further strengthen electric infrastructure

SMR Development Milestones

Signing of SB 454

- Allows cost recovery of early development activities
- Filed Rider SMR on November 1, 2024, Virginia utility commission decision pending

Issuance of SMR Technology RFP

- Issued to leading SMR developers in July 2024

Selection of the North Anna site

- Co-located with existing nuclear
- Existing environmental and site studies completed
- Ideal and existing point of interconnection to the grid
- NRC-Approved Early Site Permit (ESP)

Dominion Energy and Amazon MOU

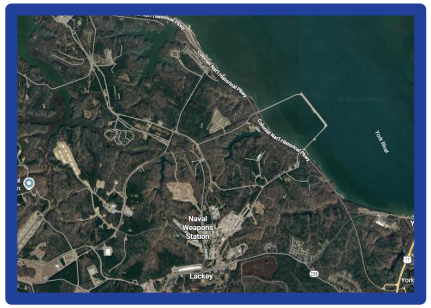
- Explores business structures to deploy SMRs in Virginia

SB 434 Bill Signing

SMR Development Milestones

Dominion Energy and Naval Weapons Station Yorktown MOA

- Signed on June 6, 2025
- Marks a significant collaboration aimed at enhancing energy resilience and reliability
- Will explore new power sources at the installation:
  - Energy storage
  - Solar, including rooftop solar
  - Natural gas power generation
  - Advanced nuclear, including SMRs



Ms. Corey Chance

Technical Director, Installation Energy Policy & Programs

Office of the Deputy Assistant Secretary of the Air Force (SAF/IEE)

DAF Advanced Nuclear Energy Summary

BLUF: Department of the Air Force (DAF) is exploring advanced nuclear energy capabilities to support mission-critical infrastructure.

BACKGROUND: The DAF utilizes a technology-agnostic approach for tailoring resilience solutions to meet the specific mission needs of each installation. DAF is exploring advanced nuclear energy solutions through various pilot efforts in support of mission assurance. **Best practices and lessons learned from these pilot efforts will inform DAF siting criteria for scaling future advanced nuclear energy technology solutions, which can be leveraged for DoD, industry, and beyond.**

LATEST ACTION:

- NEW Executive Orders
- Issuance of Notice of Intent to Award (NOITA) to Oklo Inc.
- Advanced Nuclear Power for Installations (ANPI)
- Ongoing documentation of lessons learned and best practices to inform future scaling

Why Advanced Nuclear Energy?

- Nuclear energy technologies, such as small modular reactors (SMRs) and microreactors have the potential to provide operational benefits and energy resilience to DAF installations.
  - Advanced reactors are smaller than conventional nuclear reactors, particularly microreactors.
  - Microreactors have a small footprint, typically produce between 1-50 megawatts (MW) of electricity, and are not defined by their fuel type. SMRs range from 50-300MW.

The combination of these innovations presents potential benefits for safety, operational and deployment flexibility, and scalability.

Recent Executive Orders

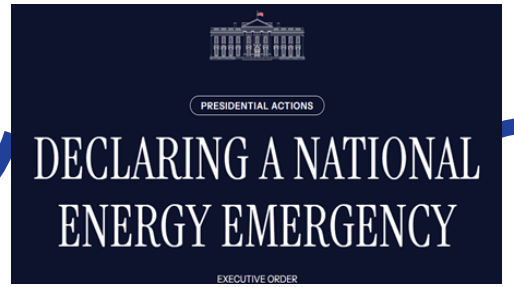
Jan 20, 2025

EO 14153: Unleashing Alaska's Extraordinary Resource Potential

Jan 20, 2025

EO 14154: Unleashing American Energy

Jan 20, 2025



EO 14156: Declaring A National Energy Emergency

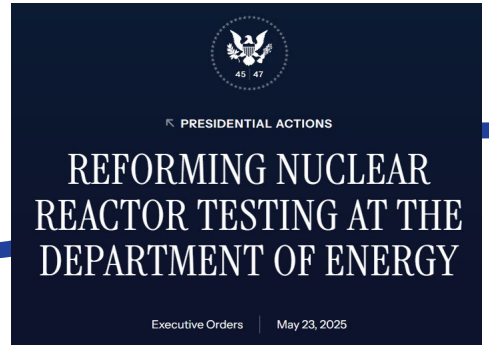
Feb 14, 2025

EO 14213: Establishing the National Energy Dominance Council

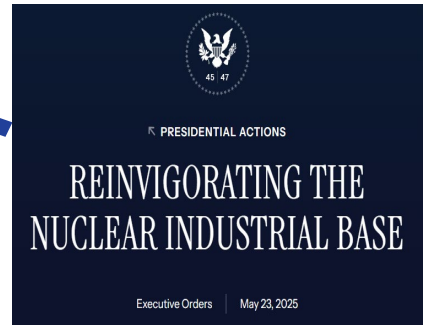
May 23, 2025

EO 14299: Deploying Advanced Nuclear Reactor Technologies for National Security

EO 14300: Ordering the Reform of the NRC



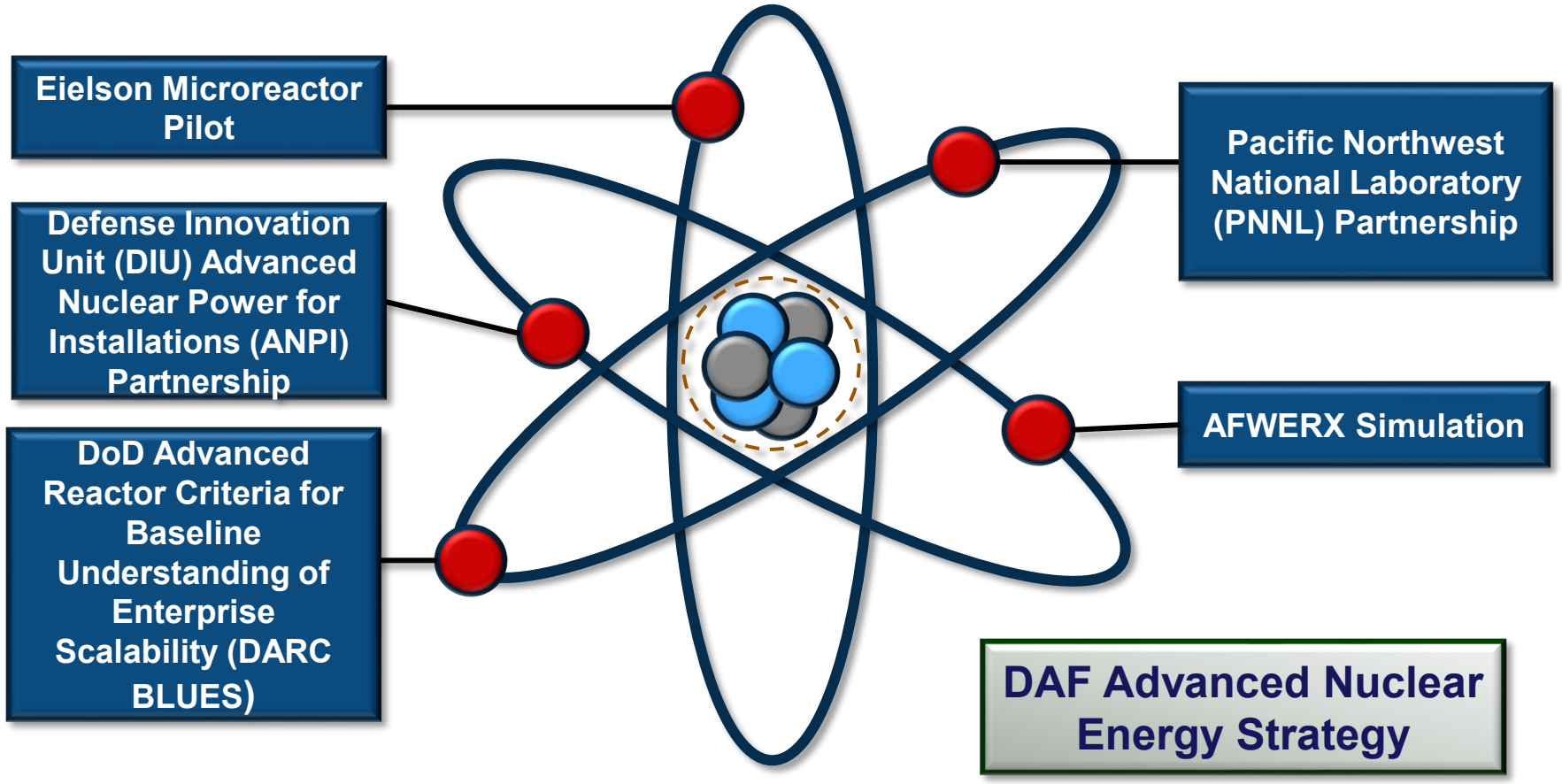
EO 14301: Reforming Nuclear Reactor Testing at the DOE



EO 14302: Reinvigorating the Nuclear Industrial Base

DAF Advanced Nuclear Energy Efforts

BLUF: DAF is exploring advanced nuclear energy capabilities to support its mission-critical infrastructure through several ongoing efforts.



Criteria Evaluation: Data and Needs Informed Siting

Primary focus for siting is mission need for energy resilience, with a thorough, data-informed analysis of alternatives to meet regulatory requirements and ensure alignment between vendor capabilities and site-specific requirements.

Criteria for Consideration

Benefits

- Site Power Needs; Average Annual/Peak
- Energy Availability for Critical Missions
- Integrability with Existing Infrastructure
- Back-up Power Needs
- Community Benefits
- Mission Criticality
- Improvements to Mission Assurance Posture
- Favorable Economics
- Technology Evaluation
- Installation Willingness

Risks/Challenges

- Natural, Physical, and Security Hazards
- Current Power Generation
- Emergency Response & Preparedness
- Land Availability and/or Quality for Placement
- Policy & Regulatory Considerations
- Political, Community Relations, Utility Engagement
- Transportation Infrastructure
- Transmission/Distribution Infrastructure
- Interference With Important Missions On-Site
- Resource Availability

Contact Information

Any questions, comments, or concerns:

Ms. Corey Chance, SAF/IEE
(corey.chance.2@us.af.mil)

Ms. Judith Willis, SAF/IEE
(judith.willis@us.af.mil)

Microreactor Website

(https://www.eielson.af.mil/microreactor/)

Microreactor Org Box

(SAF.IEE.MicroreactorPilot@us.af.mil)

Questions?

U.S. DEPARTMENT of ENERGY | Federal Energy Management Program

FEMP Summer Workshops

This Training Is Accredited

How to obtain your CEUs:

1. Log in to https://edu.wbdg.org/ using your WBDG credentials
   - The assessment and evaluation will be made available to attendees at 8:00am ET on Monday, August 11th
   - The assessment and evaluation will close on September 22nd
2. In the list of trainings you attended, click on the Visit link by the course you wish to complete
   - If the course you're looking for is not listed, click on My Account in the top right menu
   - If you still can't find your course, contact the WBDG support team to check your eligibility
3. Complete the assessment with a score of 80% or above
4. Upon passing the assessment, click the Post-Evaluation Survey button
5. Complete and submit the evaluation
6. Click Download Your Certificate to generate your certificate of completion, which can be downloaded for your records

Questions or issues? Contact WBDG Support at wbdg@nibs.org.

What's an IACET CEU?

A continuing education unit (CEU) from the International Association for Continuing Education and Training (IACET) equals 10 hours of learning in an approved program for licensed or certified professionals.

Thank You

U.S. DEPARTMENT of ENERGY | Federal Energy Management Program

FEMP Summer CAMP (Courses Aligned with Mission Priorities)

Connect With FEMP!

Stay connected with FEMP by subscribing to newsletters, following along on LinkedIn, and submitting questions to the Technical Assistance Portal.

Ask Questions

Visit FEMP's Technical Assistance Portal.

Subscribe

Receive periodic emails to stay informed.

Find Trainings

Explore the FEMP Training Catalog to find live and on-demand trainings and events.

Follow FEMP

Follow FEMP on LinkedIn for of-the-moment news.