# ECA BULLETIN

## Nuclear Development Forum: Building Capacity & Opportunity

Energy Communities Alliance

May 2023

# WELCOME

On behalf of the Energy Communities Alliance, welcome to the **ECA Nuclear Development Forum: Building Capacity and Opportunity**. This Forum is the second in a series we are hosting as part of ECA's New Nuclear Initiative to define the role of local governments and the partnerships necessary to develop priorities, policies, educational resources, and outreach on new nuclear development.

We are thrilled to host this meeting in Paducah, Kentucky. Paducah was specially chosen for this Forum given the multiple Department of Energy offices that have opportunities to move missions forward, the existing infrastructure in the community, and the strong interest in introducing new nuclear capacity as part of an all-of-the-above energy strategy.

We are looking forward to an engaging and informative meeting with all of you.

Sincerely,
The ECA Executive Board

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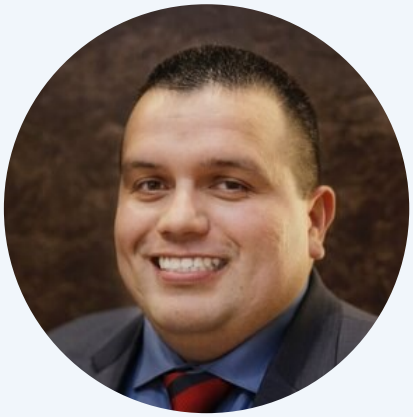

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*Thank you to the Department of Energy's Office of Nuclear Energy for its support of the ECA Bulletin through cooperative agreement DE-NE0009328.*

# IN THIS ISSUE

**COMMERCIALIZING ADVANCED NUCLEAR REACTORS EXPLAINED IN FIVE CHARTS**……..……..page 5

**4 KEY UPDATES TO THE U.S. DEPARTMENT OF ENERGY CONSENT-BASED SITING PROCESS**……page 8

**AGENDA**……..……..page 10

**ECA CALLS ON DOE LEADERSHIP AND CONGRESS TO PRIORITIZE AND RE-ENERGIZE DISPOSAL SOLUTIONS FOR RADIOACTIVE WASTE**……...page 14

**U.S. SHOULD BEGIN LAYING THE FOUNDATION FOR NEW AND ADVANCED NUCLEAR REACTORS, SAYS NEW REPORT**……...page 15

**PRESIDENT'S FY24 BUDGET PROPOSES $52 BILLION FOR DOE, INCREASES TO EM BUDGET AND COMMUNITY CAPACITY BUILDING FUNDING**……..page 16

**ECA AWARDS GRANTS FOR LOCAL GOVERNMENT EDUCATION AND OUT-REACH**……..……page 18

**RISK MANAGEMENT IN ENVIRONMENTAL CLEANUP** ……...page 20

**NEW GLOBAL PARTNERSHIP OF MUNICIPALITIES WITH NUCLEAR FACILITIES**……..….page 23

# Commercializing Advanced Nuclear Reactors Explained in Five Charts

The U.S. Department of Energy (DOE) recently released three reports on how to commercialize key clean energy technologies, including pathways for deploying advanced nuclear reactor systems.

The Pathways to Commercial Liftoff: Advanced Nuclear report found that the U.S. will need between 550-770 GW of additional clean, firm power to complement the deployment of variable renewables in order reach net-zero by 2050.

There are only a few options for clean, firm power and nuclear energy is a proven asset that can deliver this at scale. Based on various models, the report estimates that advanced nuclear could provide about 200 GW of additional capacity by 2050.

The five charts below explain the why and how to make that happen.

## Nuclear Power is Key Asset

Advanced nuclear offers a unique value proposition for a decarbonized grid as communities transition away from fossil fuels. As you can see in the chart below, nuclear energy checks virtually every box. It generates clean electricity, provides firm power to complement variable renewable energy sources, uses land efficiently, and does not need a lot of transmission buildout.

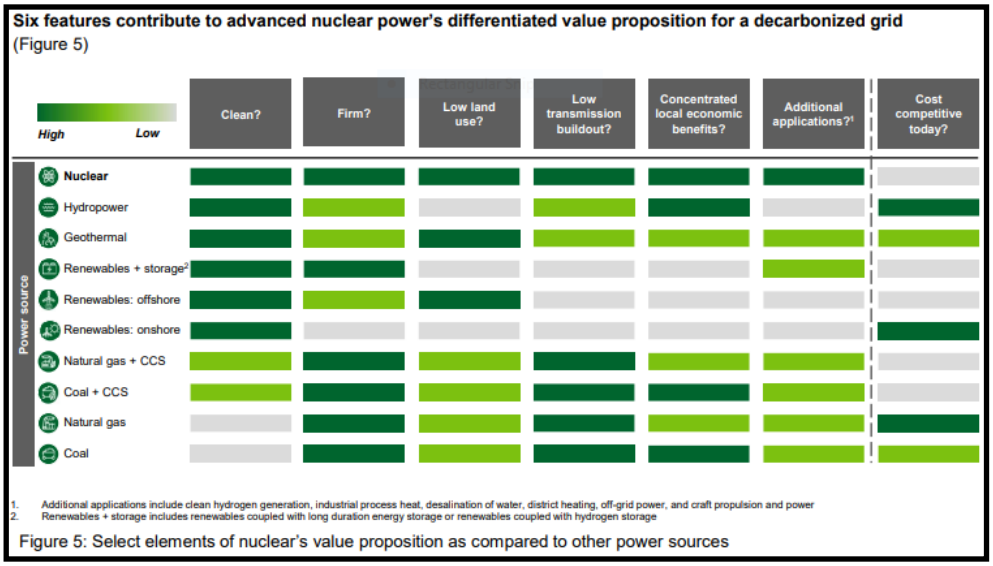


Figure 5: Select elements of nuclear's value proposition as compared to other power sources

Advanced reactors can also be used for additional applications, such as clean hydrogen production or water desalination, to help meet the needs of any community.

## Advanced Nuclear Provides Economic Benefits and High-Quality Jobs

Nuclear power can also help create higher paying jobs throughout the clean energy transition.

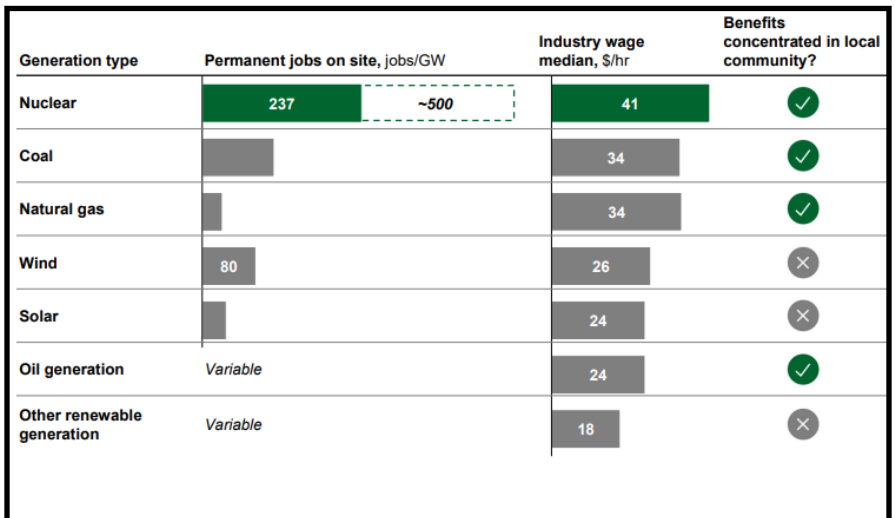


Figure 9: Electric power generation job and wage comparison; note the 237 jobs is an estimate for an SMR; ~500 represents the current operating fleet of large reactors[xiii]

According to the report, small modular reactors are estimated to provide nearly 240 permanent jobs per gigawatt, while traditional large-scale reactors currently employ around 500 per GW.

The chart above also highlights that these jobs tend to have higher industry wages compared to other generation sources.

A 2022 DOE study found that nearly 400 existing and retired coal power plant sites are suitable to host an advanced nuclear power plant. This coal-to-nuclear transition could increase nuclear capacity in the U.S. and provide well-paying jobs and economic benefits to communities that previously hosted coal power plants.

## New Nuclear Deployment Is Needed Now

The report finds that waiting until the mid-2030s to deploy advanced reactors at scale could threaten U.S. decarbonization goals and/or lead to significant overbuild of the supply chain.

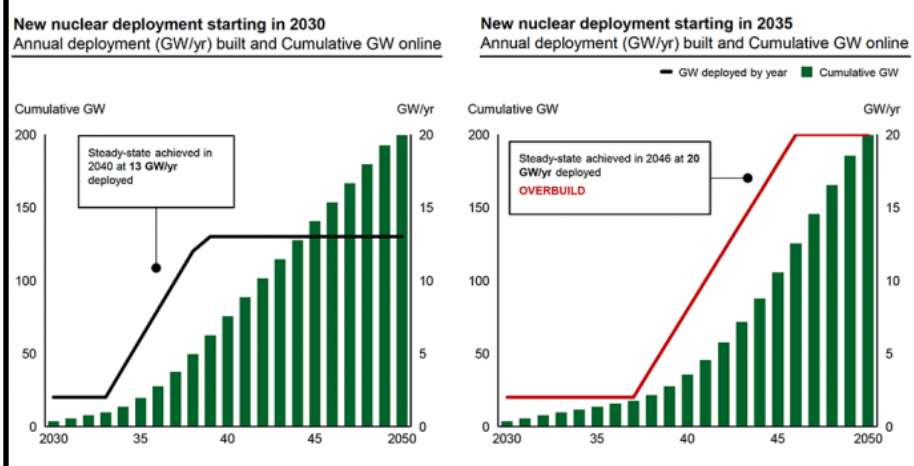
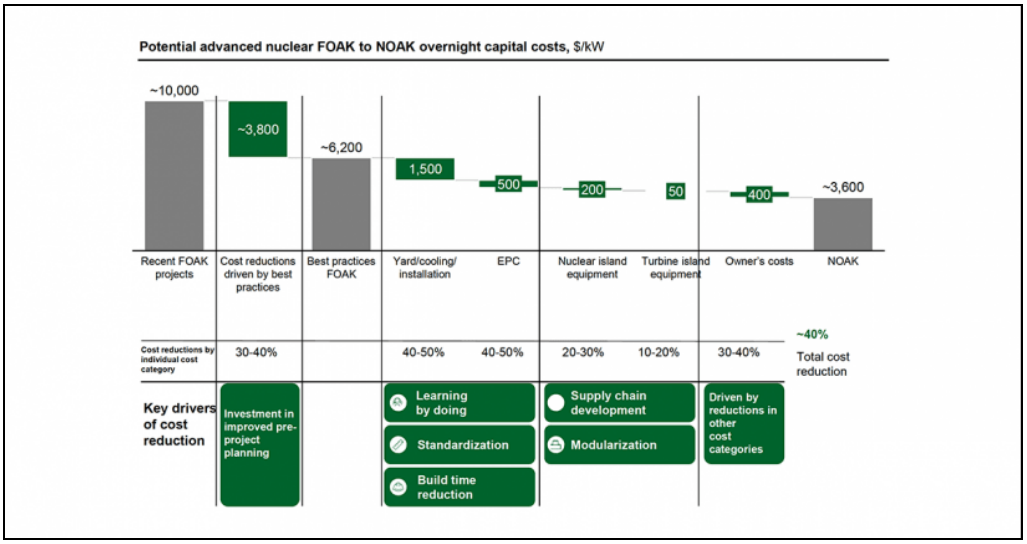



Figure 1: New nuclear build-out scenarios and implications for industrial base capacity requirements

The report explains that if new nuclear deployment starts by 2030 and annual deployment increases to 13 gigawatts (GW) by 2040, the U.S. could deploy an additional 200 GW by 2050.

As the chart shows, a five-year delay in scaling the industrial base could lead to a 50% increase in capital required to achieve the same amount of capacity.

## New Projects Will Be Different from Recent Over-Budget Builds




According to the report, overnight capital costs of a first-of-a-kind (FOAK) advanced nuclear power plant are expected to range from ~$6,000 -$10,000 per kilowatt.

Repeat deployments, known as Nth-of-a-kind (NOAK), are expected to help reduce overnight capital costs by 40%.

The chart below highlights the key cost drivers in this reduction through improvements to project planning, standardization, build time reduction, modularization, and supply chain development.

## The Path to Commercial Scale Deployment

According to the report, full-scale advanced nuclear deployment will occur in three overlapping phases.

Committed orderbooks of 5-10 deployments of at least one reactor design are needed to encourage commercial scale deployment in the U.S. These deployments will help suppliers make capital investment decisions and prove overnight capital cost reductions.

Project delivery for FOAK projects will also need to be reasonably on-time and on-budget in order to generate steady demand for NOAK projects.

Industrialization of advanced nuclear power would require the workforce, fuel and component supply chains, and licensing to be scaled up. This phase will need to occur once commercial momentum is gained and new projects are being deployed.

As seen in the next chart, the U.S. is currently in the technology demonstration phase and needs to rapidly accelerate to the committed orderbook phase.

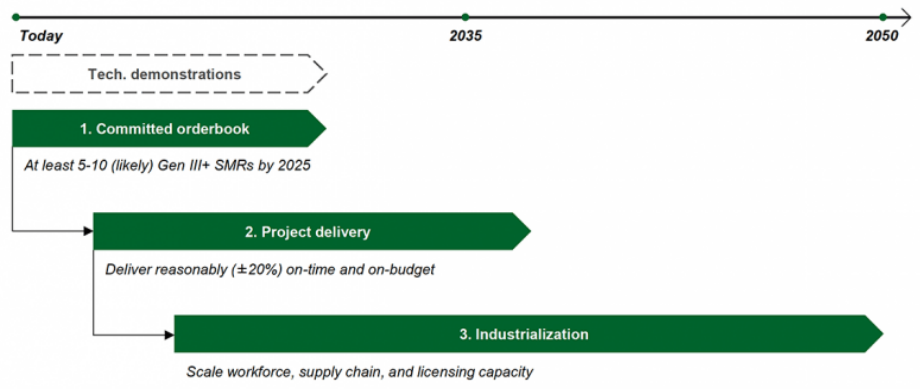



Figure 2: Path to the scale-up of the advanced nuclear industry to meet 2050 decarbonization targets

**Next Steps**

Advanced nuclear has the potential to strengthen energy security, reliability, and affordability in the United States while also creating new economic opportunities for all Americans. The report recommends industry, investors, government, and stakeholders work together to ensure advanced nuclear is successfully scaled commercially before it is too late to reach our country's decarbonization goals.

*The Pathways to Commercial Liftoff: Advanced Nuclear report was a joint effort between the Office of Clean Energy Demonstrations, Office of Technology Transitions, and the Loan Programs Office with technical support provided by the Office of Nuclear Energy.*

*This story was originally published by the DOE Office of Nuclear Energy.*

# 4 Key Updates to the U.S. Department of Energy Consent-Based Siting Process

The U.S. Department of Energy (DOE) released a revised version of its consent-based siting process.

DOE will use the process as a guide to site one or more federal consolidated interim storage facilities for the nation's spent nuclear fuel that will reduce the number of locations where spent nuclear fuel is stored in the future and ultimately ease the burden on U.S. taxpayers.

The new version builds upon DOE's 2017 draft and includes recent public input and older public comments from the original document. It also features expert reports and lessons learned from global nuclear waste management practices over the last six years.

While both versions focus on a consent-based approach to siting spent nuclear fuel facilities, there are four key updates.

Here's what's new.

**1. Current focus is on federal consolidated interim storage facilities**

**New:** DOE is focusing on siting one or more federal consolidated interim storage facilities for commercial spent nuclear fuel as a near-term action.

**Old:** Considered applying a consent-based siting process to different types of nuclear waste management facilities at the same time.

**Explanation:** The focus on interim storage follows congressional direction to allow for the removal of spent nuclear fuel from reactor sites across the United States and promote new job opportunities in host communities.

DOE will apply lessons learned from this consent-based siting approach to future siting efforts for consolidated interim storage capacity, a permanent disposal pathway, and the transportation infrastructure needed to move spent nuclear fuel and high-level radioactive waste.

DOE will also continue supporting research and development activities for future per-

manent disposal options.

**2. A greater emphasis on equity and environmental justice**

New: Additional steps were taken to ensure the fair treatment and meaningful involvement of ALL communities to prevent any targeting of underserved and vulnerable communities moving forward.

**Old:** Embedded fewer considerations of equity and environmental justice in phases of the process.

**Explanation:** The 2017 draft included criteria related to equity and environmental justice, but DOE strengthened these elements in response to recent public feedback.

Public input also emphasized the importance of intergenerational equity considerations on activities that will occur over long periods of time, such as the management of spent nuclear fuel.

**3. Increase host communities' role in developing site-specific assessment criteria**

**New:** Interested communities will have an opportunity to be involved in developing additional site- specific criteria early in the process to ensure that hosting a facility aligns with their goals and interests.

**Old:** DOE developed initial siting considerations and screening criteria.

**Explanation:** This builds on the overarching approach to a better community-driven process. Individual communities can now assess impacts on local economic development, labor market, transportation and public safety infrastructure, etc. before deciding to host a facility.

**4. Expand consideration of funding opportunities to support community participation**

**New:** The document outlines the potential use of funding opportunities and other resources in each phase of the siting process, including the implementation phase to support community involvement and collaboration in key activities.

**Old:** Resources were limited to possible funding opportunities in one phase of the process.

**Explanation:** Additional funding opportunities are intended to support community involvement and collaboration throughout the entire process and are subject to the Annual Budget and appropriations.

DOE plans to issue $26 million in awards in 2023 to provide resources for communities interested in learning more about consent-based siting, the management of spent nuclear fuel, and interim storage facility siting considerations.

The awards will not represent a commitment to host spent nuclear fuel.

**NEXT STEPS**

The consent-based siting process, by nature, is flexible and adaptive to be able to respond to a community's needs and preferences. The process document will continue to be revised as DOE learns more from communities, Tribes, States, local governments, and stakeholders.

DOE plans to provide additional opportunities for public dialogue and engagement through its current funding opportunity, upcoming informational webinars, and other activities.

**For more news stories directly to your inbox, subscribe to the ECA Bulletin!**

The ECA Bulletin is a monthly newsletter that provides updates on the DOE complex, including federal legislation, and changes in administration policy. The Bulletin includes information on all DOE programs affecting communities, best practices by local governments, and highlights communities working together on DOE related issues. To subscribe to the ECA Bulletin, send an e-mail to bulletin@energyca.org or scan the QR code above.

ECA FORUM | Building Capacity and Opportunity

# May 17-19, 2023

## Paducah-McCracken Co. Convention & Expo Center

## Paducah, Kentucky

| Wednesday, May 17 | |
|---|---|
| 8:00 am – 1:00pm | **Tour of Paducah Site**<br>**This session is optional. Additional registration is required.** |
| 3:30 pm – 5:00 pm | **Nuclear 101**<br>**This session is optional**<br>Who should attend: *Anyone interested in understanding the basics, opportunities, and challenges of nuclear projects.*<br>**Dr. Patrick White, Nuclear Innovation Alliance**<br>**Kristy Hartman, Nuclear Energy Institute**<br>**Kati Austgen, Nuclear Energy Institute** |
| 5:00 pm – 7:00 pm | **WELCOME RECEPTION FROM PADUCAH-MCCRACKEN COUNTY COMMUNITY**<br>***Lead sponsors: Four Rivers Nuclear Partnership and Swift & Staley***<br>***Supporting sponsors: Mid-America Conversion Services, ARS Aleut Remediation, and Big Rivers Electric Corporation***<br>***Others: City of Paducah, McCracken Co. Fiscal Court, Paducah Area Chamber of Commerce, Greater Paducah Economic Development, and Paducah Area Community Reuse Organization*** |

| Thursday, May 18 | |
|---|---|
| 7:15 am – 8:15 am | **BREAKFAST** |
| 8:15 am – 8:30 am | **Welcome from the Kentucky Delegation**<br>**Governor Andy Beshear**<br>**Secretary Rebecca Goodman, Kentucky Energy & Environment Cabinet**<br>**State Senator Danny Carroll**<br>**Judge Executive Craig Clymer, McCracken County**<br>**Mayor George P. Bray, City of Paducah** |
| 8:30 am – 9:15 am | **Office of Nuclear Energy at Work: What We've Done and Where We're Going**<br>**Dr. Kathryn Huff, Assistant Secretary, Office of Nuclear Energy, Department of Energy** |

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|---|---|
| 9:15 am – 9:30 am | **Update on Nuclear Development in Idaho**<br>**Dr. Rebecca Casper, Mayor, City of Idaho Falls, Idaho**<br>**Mike Squires, Government Affairs Director, Utah Associated Municipal Power Systems**<br>**John Revier, Director, External Engagement and Communications, Idaho National Laboratory** |
| 9:30 am –10:30 am | **Panel Discussion: Adding Nuclear to the Mix**<br>Interest in adding nuclear generation as part of an all-of-the-above energy strategy is on the rise for baseload power, industrial applications, desalination, and hydrogen production. A recent DOE study identified 157 retired coal plant sites in the US as candidates for a coal-to-nuclear transition, and states nationwide are considering SMRs. This session will provide a better understanding of realistic timelines, what potential host communities should consider, and how to proceed.<br>**Moderator: Christine King, Director, Gateway for Accelerated Innovation in Nuclear**<br>• **Craig Piercy, CEO and Executive Director, American Nuclear Society**<br>• **Kenya Stump, Executive Director, Kentucky Energy and Environment Cabinet**<br>• **Kirt Marlow, Executive Director, Idaho Advanced Energy Coalition**<br>• **Kathleen Munroe, Kathleen Munroe Sr. Principal Project Origination Consultant, Salt River Project**<br>• **Kristan Uhlenbrock, Director, Institute of Science and Policy, Denver Museum of Science and Policy** |
| 10:30 am – 10:45am | **BREAK** |
| 10:45 am –11:00 am | **Update on Nuclear Development in Portsmouth, OH**<br>**Kevin Shoemaker, In-House Counsel, Southern Ohio Diversification Initiative** |
| 11:00 am – 12:00pm | **CASE STUDY: Paducah, Kentucky**<br>Paducah is a prime example of a community with nuclear history, existing infrastructure, DOE mission and interest in hosting new nuclear projects. This case study will focus on how leaders at the State and local level are working with utilities and developers to evaluate opportunities, identify needs and determine next steps.<br>• **Joel Bradburne, Manager, Portsmouth/Paducah Project Office**<br>• **Kenya Stump, Executive Director, Kentucky Office of Energy Policy**<br>• **Sandra Wilson, President, Paducah Area Chamber of Commerce**<br>• **Dr. Rodney Andrews, Director, Center for Applied Energy Research**<br>• **Cory Hicks, Director Of Business Services, Four Rivers Nuclear Partnership**<br>• **Bruce Wilcox, President/CEO, Greater Paducah Economic Development**<br>• **Eddie Jones, Commissioner, McCracken County/Chairman, Paducah Area Community Reuse Organization** |
| 12:00 pm – 1:00 pm | **LUNCH**<br>***Sponsored by Fluor***<br>**Dr. Kasia Kornecki, Program Officer, Board on Energy and Environmental Systems, The National Academies of Sciences, Engineering, and Medicine** |
| 1:00 pm – 2:00 pm | **Panel Discussion on Leveraging Existing Infrastructure: Land Use and Reuse**<br>This session will look at the opportunities for the federal government and states to facilitate land reuse for nuclear projects, for transitioning coal-to-nuclear, and the guiding laws, regulations and barriers that need to be addressed. The discussion will consider lessons learned from local leaders around DOE cleanup sites and considerations of environmental justice.<br>**Moderator: Seth Kirshenberg, Executive Director, Energy Communities Alliance**<br>• **Jeff Avery, Principal Deputy Assistant Secretary, Office of Environmental Management, Department of Energy**<br>• **Jessica Lovering, Co-founder/Executive Director, Good Energy Collective**<br>• **David Campbell, Executive Vice President, Energy*Solutions*** |

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| 2:00 pm – 3:00 pm | **Roundtable with Developers: What Will it Take to Develop a Nuclear Ecosystem?**<br>This facilitated roundtable discussion with advanced nuclear technology developers aims to identify a checklist for states and communities considering advanced nuclear projects – what do you need from workforce, to manufacturing, from siting to investment?<br>**Moderator: Sanjay Mukhi, Collaboration Manager, National Reactor Innovation Center**<br>• **Jackie Siebens, Director, Policy and External Affairs, Oklo Inc**<br>• **Robin A. Rickman, Vice President Business Development, Terrestrial Energy**<br>• **Agata Leszkiewicz, Manager Programs and Partnerships, Westinghouse Electric Company**<br>• **Ryan Dean, Manager, Internal & External Communications, NuScale Power** |
| 3:00 pm – 3:15 pm | **BREAK** |
| 3:15 pm – 4:15 pm | **Roundtable with Utilities: Keys to Building the Nuclear Power Market**<br>This facilitated discussion will hear from utilities considering nuclear as part of integrated resource plans what is necessary to invest in advanced nuclear and how potential host communities and states can better engage to build the market for electrons.<br>**Moderator: Stephen Comello, Senior Vice President of Strategic Initiatives, Energy Futures Initiative Foundation**<br>• **Nathan Berry, Chief Operating Officer, Big Rivers Electric Corporation**<br>• **Mike Squires, Government Affairs Director, Utah Associated Municipal Systems**<br>• **Aron Patrick, Director, Research and Development, PPL Corporation**<br>• **James Wells, Vice President, New Nuclear Generation, Duke Energy**<br>• **Scott Hunnewell, Vice President, New Nuclear Program, Tennessee Valley Authority** |
| 4:15 pm – 4:30 pm | **Introduction to ECA's Municipal Partners in Canada and Europe: Working Together on Advanced Nuclear Development Abroad**<br>**Introduction: Brent Gerry, Mayor/CEO, City of West Richland, WA; Chair, Energy Communities Alliance**<br>• **Stefan Mayer, International Atomic Energy Agency (IAEA)**<br>• **Adrian Foster, Chair, Canadian Association of Nuclear Host Communities (CANHC)**<br>• **Pia Almström, Group of European Municipalities with Nuclear Facilities (GMF)** |
| 5:00 pm – 7:00 pm | **NETWORKING RECEPTION**<br>100 Kentucky Ave, Paducah, KY 42003<br>***Sponsored by Good Energy Collective*** |

| **Friday, May 19** | |
|---|---|
| 7:15 am – 8:30 am | **BREAKFAST** |
| 8:30 am – 8:45am | **Update on Nuclear Development in Oak Ridge, Tennessee**<br>**Chuck Hope, Councilman, Oak Ridge, Tennessee** |

| | |
|---|---|
| 8:45 am – 9:30am | **Panel Discussion on Changing Perceptions of Nuclear**<br>Public perceptions of nuclear power are changing as concerns about climate change and energy security grow, but there must be transparency on issues such as safety, cost, environmental justice, and waste management. This discussion will consider how to communicate the value and risk of nuclear in communication and engagement strategies and will include lessons learned from community leaders around existing federal and commercial nuclear facilities.<br>**Moderator: Todd Allen, Chair of Nuclear Engineering and Radiological Sciences, University of Michigan**<br>• **Richard Arnold, Nuclear Energy Tribal Working Group/Tribal Radioactive Materials Transportation Committee**<br>• **Dan Smith, Nuclear Matters**<br>• **Nancy Norton, President & CEO, Grundy Economic Development Council (Illinois)**<br>• **Diablo Canyon**<br>• **Manuel C. Camargo Jr., Principal Manager, Strategic Planning, Southern California Edison/SONGS Decommissioning** |
| 9:30 am – 10:00 am | **Nuclear Energy and Opportunities for Industrial Applications**<br>• **Christine King, Director, Gateway for Accelerated Innovation in Nuclear**<br>• **Dr. Matthew Hertel, I&C Engineering Manager & Design Lead, X-energy** |
| 10:00am –10:15 am | **BREAK** |
| 10:15 am – 10:30am | **Update on Nuclear Development in Richland, Washington**<br>**David Reeploeg, Executive Director, Hanford Communities/Vice President for Federal Programs, Tri-City Development Council** |
| 10:30 am – 11:45am | **DOE Roundtable: Identifying Resources and Navigating Opportunities**<br>This session will feature feedback and insight from DOE officials on what they heard during meeting discussions, and information on resources available through the Department's cross-cutting initiatives aimed at mitigating carbon emissions, supporting nuclear/clean energy development and addressing equity and environmental justice in energy planning.<br>**Moderator: Kara Colton, Director of Nuclear Policy, Energy Communities Alliance**<br>• **Dr. Bhima Sastri, Director, Energy Asset Transformation, Office of Fossil Energy and Carbon Management**<br>• **Kristen Ellis, Director, Regulatory, Intergovernmental, and Stakeholder Engagement, Office of Environmental Management**<br>• **Cheryl Moss Herman, Senior Policy Advisor, Office of Nuclear Energy**<br>• **Brian O'Donnchadha, Tribal Liaison, Office of Clean Energy Demonstrations** |
| 11:45am –12:00 pm | **Turning New Knowledge into Action Items**<br>Policymakers and community leaders will reflect on meeting discussion and with input from meeting participants, facilitators will develop a list of action items and next steps to collab rate and sustain momentum. |
| 12:00 pm – 1:30 pm | **Listening Lunch: The Community Perspective for Utilities and Developers**<br>This session will provide the opportunity to hear directly from communities about their perspectives on new nuclear development projects. |
| 1:30 pm | **ADJOURN** |

# ECA Calls on DOE Leadership and Congress to Prioritize and Re-Energize Disposal Solutions for Radioactive Waste

The Energy Communities Alliance (ECA), the organization of local communities near U.S. Department of Energy (DOE) national defense sites, is urging DOE to prioritize and take action to finalize disposal pathways for the radioactive waste under the Department's cleanup responsibility.

ECA recently released a new report, "***Disposal Drives Cleanup: Re-Energizing Momentum for Disposal Solutions for Radioactive Waste***," calling on DOE to launch the initiative to develop the actual waste disposition approaches. The Department could potentially save hundreds of billions of dollars in cleanup costs by using its available tools and implementing the report's recommendations.

"The simple truth is that DOE cannot safely and effectively complete its environmental cleanup obligations without clear and achievable waste disposal pathways and locations for ALL of the waste under DOE's responsibility," the report states.

The Department has made significant progress toward the cleanup mission and has demonstrated its ability to safely manage waste over multiple decades. Renewed focus and action are now needed to develop disposal solutions for some of DOE's most pressing waste types, including waste resulting from former spent nuclear fuel reprocessing activities; high-level waste and spent nuclear fuel and Greater-than-Class-C low-level waste. DOE also needs to take action to ensure sustained engagement and support for communities that could host disposal options. Without such disposal solutions, DOE faces continued delays in addressing one of its largest environmental hazards and financial costs, and in completing cleanup activities and impacted relationships with state, local and Tribal governments and engaged stakeholders.

"DOE's cleanup liability is one of the largest in the nation, and delay or lack of expediency could easily overwhelm available funding. It is DOE's responsibility to abide by its legal and moral obligations to achieve waste treatment and disposal safely and efficiently for long-term protection of the environment, workers, and public," the report states.

The report offers the following recommendations to develop more efficient and equitable approaches to address the waste management challenges DOE faces today:

1. **Prioritize Use of the High-Level Waste Interpretation**
2. **Support and Complete the Consent-Based Siting Process**
3. **Select a Disposal Site for GTCC Waste**
4. **Support WIPP and Develop and Issue Long-Term, Integrated Plans for Operations**
5. **Continue to Emphasize Regular, Meaningful Engagement with Communities**
6. **Provide Technical Assistance to Communities to Address Waste Issues**
7. **Re-evaluate the Practice of Incentivizing Contractors to Open a Waste Site in the Contracting Process Prior to Obtaining Community Support and Regulatory Approval**
8. **Maximize the Use of Public and Private Disposal Site Options**
9. **Create Tools to Show a Community the Impacts of Waste Decisions**

To read the full report, please visit www.energyca.org/publications.

# U.S. Should Begin Laying the Foundation for New and Advanced Nuclear Reactors, Says New Report

New and advanced types of nuclear reactors could play an important role in helping the U.S. meet its long-term climate goals, but a range of technical, regulatory, economic, and societal challenges must first be overcome, says a new report from the National Academies of Sciences, Engineering, and Medicine. Development, testing, and widespread deployment of these reactors could occur over several decades. The report makes recommendations for the U.S. Department of Energy, the Nuclear Regulatory Commission, other federal and state agencies, and private industry to lay the groundwork required for advanced reactors to become a viable part of the U.S. energy system.

Currently, the U.S. electricity system includes large light water reactors (LWRs) that produce electricity for commercial use. LWRs use water to cool the reactor and moderate the speed of the nuclear chain reactions taking place. Many advanced reactor concepts use conventional fuels, materials, and manufacturing methods, but some also employ a wide array of new coolants, designs, fuels, materials, and technologies. Among these are modular LWRs that are smaller, simpler, and rely mainly on passive safety features. Other examples include reactors that use liquid metal, molten salt, or high-temperature gas as coolants.

The U.S. electricity system is already undergoing massive shifts, but economy-wide decarbonization efforts will span decades, and electricity demand is projected to continually grow over that period. Advanced nuclear technologies likely will not be able to markedly contribute to electricity generation until the 2030s at the earliest, the report says, but there are opportunities for them to compete with other energy technologies in the long term. Innovative ideas for reactors, if fulfilled, may provide on-demand power generation to complement variable sources of energy, such as solar and wind energy, and help decarbonize challenging industrial sectors by providing high-temperature heat for chemical processes, such as hydrogen production.

Some advanced nuclear reactor concepts, due to their size or the way they are to be produced, offer new ways for nuclear power to be used, including:

Major portions or even the entirety of the reactor system could be produced in factories, potentially reducing project costs and uncertainties and increasing quality.

Existing power generation sites using fossil fuel (e.g., coal plants) could be repurposed for nuclear power generation.

Small reactors or microreactors could be transported to meet off-grid emergency needs.

Reactors could produce localized thermal energy for industrial applications that otherwise have hard-to-abate emissions because of high temperature requirements, such as cement, hydrogen, and steel production; for district heating (heat distributed through pipes to keep residences or businesses warm); or for desalination.

“Our report shows new and advanced nuclear reactors could play an important role as the U.S. works to decarbonize the economy,” said Richard A. Meserve, Senior Of Counsel for Covington & Burling LLP, former chair of the Nuclear Regulatory Commission, and chair of the committee that wrote the report. “But there are significant hurdles that must be overcome to enable advanced nuclear reactors to succeed and reach commercial and globally competitive viability — among them, economic challenges, technological challenges, regulatory changes, and societal acceptance. If we want the ability to pursue this option, the U.S. should address these barriers now.”

To read the full report, visit https://nap.nationalacademies.org/.

# President's FY24 Budget Proposes $52 Billion for DOE, Increases to EM Budget and Community Capacity Building

On March 9, the White House released President Biden's Fiscal Year 2024 budget request, which includes $52 billion for the Department of Energy, an increase from the $48 billion enacted for FY 2023.

The proposed budget reflects the Administration's priorities for spending. The Office of Budget and Management (OMB) noted the FY24 budget for DOE "invests in basic research and scientific infrastructure authorized in the CHIPS and Science Act; creates jobs building clean energy infrastructure; targets greenhouse gas (GHG) emission reductions across sectors; advances energy justice; and modernizes and ensures the safety and security of the nuclear weapons stockpile."

**DOE Office-by-Office Funding**

Further details about specific sites will be made available by DOE in its budget justification documents, which are expected to be published in the coming weeks. In the budget overview released today, there are several notable programs that would receive funding increases.

- *Office of Environmental Management (EM)*: $8.3 billion (increase from $8.2 billion
- *National Nuclear Security Administration (NNSA):* $23.8 billion (increase from $22.2 billion)
- *Office of Science*: $8.8 billion (increase from $8.1 billion)
- *Office of Legacy Management (LM)*: $196 million (increase from $190 million)
- *Office of Nuclear Energy (NE)*: $1.6 billion (decrease from $1.8 billion due to shifting projects to Office of Clean Energy Demonstrations)

*Environmental Management, Legacy Management, and Justice40 Initiative*

The budget includes "**$8.3 billion for DOE's Environmental Management program** to support the cleanup of communities used during the Manhattan Project and Cold War for nuclear weapons production. The Budget also provides **$196 million for the Office of Legacy Management** to ensure cleanup remedies at these sites remain protective of human health and the environment…The Administration would ensure that investments for the cleanup of legacy pollution support the Justice40 Initiative to benefit disadvantaged communities."

*Community Capacity Building Program*

In the FY23 appropriations, Congress provided $19 million for DOE to develop a Community Capacity Building Program to provide assistance to disadvantaged DOE communities. In the FY 2024 budget request, the White House is proposing "**$70 million for Community Capacity Building initiatives** in the Office of Environmental Management and the National Nuclear Security Administration (NNSA) for areas of persistent poverty around the Department's sites."

*Arms Control and Nonproliferation*

Regarding nuclear nonproliferation: "The Budget continues to enhance DOE's expertise, infrastructure, and capabilities needed to reduce nuclear risks and counter the global challenge of nuclear proliferation. As called for in the Administration's National Security Strategy, the Budget supports DOE's efforts to secure nuclear and radiological materials and prevent terrorists from acquiring them. The Budget also continues to strengthen the Nation's capability to respond to nuclear incidents at home and Department of Energy abroad. In addition, the Budget funds the development of more demanding verification technologies as part of an integrated approach to the future of arms control."

*New National Laboratory Proposed at HBCU, Tribal, or Minority Serving Institution*

The budget request proposes "**$35 million in the Office of Energy Efficiency and Renewable Energy** for the initial planning of and a new solicitation for a new laboratory at a Historically Black College and University, Tribal College or University, or Minority Serving Institution."

## Deep Dive into the EM Budget

Overall, the proposed EM budget is **$8.28 billion**, a $17 million increase above the FY 2023 enacted level. Of that amount, $7.07 billion would be allocated to defense environmental cleanup; $352 million for non-defense environmental cleanup; and $857 million for the Uranium Enrichment Decontamination and Decommissioning (UED&D) Fund.

While some sites have proposed budget increases, other sites would receive less cleanup funding than they did in FY23. EM explains these decreases in requested funding by noting that they are due to completion of certain projects, transition to closure activities, or reductions in costs at those sites.

For a breakdown of funding requests by site, please visit www.energyca.org/budget-tracker.

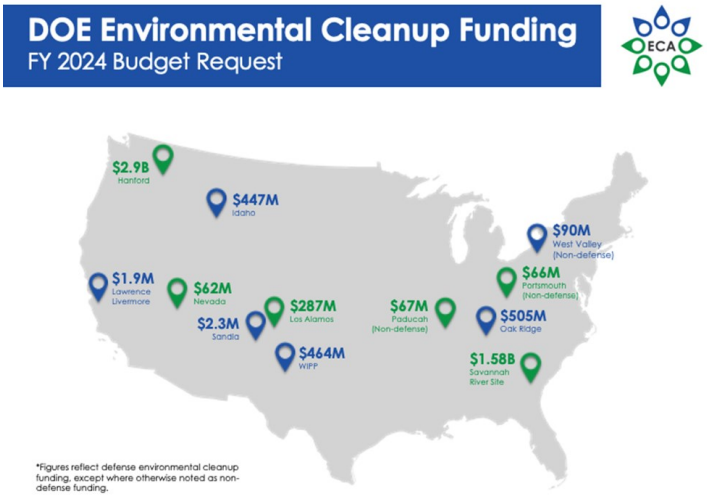
At **Hanford**, the budget request "is designed to reduce risk; maintain safe operations; perform Hanford site-wide services; support Direct Feed Low-Activity Waste commissioning and operations; and conduct critical site infrastructure projects."

In **Idaho**, the budget request supports continued "operation of the Integrated Waste Treatment Unit to begin treating the sodium-bearing tank waste" and beginning of construction for the Idaho Comprehensive Environmental Response, Compensation, and Liability Act Disposal Facility expansion.

At **Oak Ridge**, FY24 funding "supports the transition to cleanup of high-risk excess facilities at Oak Ridge National Laboratory and Y-12 National Security Complex, following successful Deactivation and Demolition activities at the East Tennessee Technology Park." The budget would also provide for continue shipping of waste to the Waste Isolation Pilot Plant (WIPP) and designing and constructing a second On-Site Waste Disposal Facility.

At **WIPP**, the budget request "supports disposal facility operations, regulatory and environmental compliance actions," repairing or replacing infrastructure, and modernizing underground equipment.

At **Los Alamos National Laboratory**, proposed funding would support continued activities such as the Southern External Boundary Consent Order Campaign and Chromium Plume Control Interim Measure. It would also provide for repackaging of waste that does not meet the WIPP acceptance criteria and continue demolition of deactivated NNSA excess facilities.




At **Portsmouth**, the budget request supports "continued construction of the second On-Site Waste Disposal Facility project", On-Site Waste Disposal Facility activities, and continued operation of the Depleted Uranium Hexafluoride Conversion Facility.

At **Paducah**, FY 2024 funding would "continue the segmentation and downsizing of the C-333 process building converters and bundle compaction." It would also continue disposition of R-114 refrigerant offsite to reduce site risk and complete Southwest Plume SWMU211-A groundwater remediation.

At **West Valley**, the budget would support "ongoing demolition of the Main Plant Process Building" and "waste processing, shipping, and disposal of newly generated waste."

## What's Happens Next?

Following the release of the budget, Energy Secretary Jennifer Granholm participated in hearings with the House Appropriations Committee (March 23) and Senate Energy & Natural Resources Committee (April 20). Additionally, Deputy Secretary David Turk discussed the budget justification in a hearing before the Senate Appropriations Committee on May 3, along with NNSA Administrator Jill Hruby in the same hearing.

The President's request marks the first step of the federal budget process. Congress will develop its own funding levels in the appropriations bills this spring, aiming to pass each bill before the end of the fiscal year, which occurs on September 30.

*Anderson County, Tennessee (above)*

*Idaho Falls, Idaho (below)*

# ECA Awards Grants for Local Government Education and Outreach

***FUNDS WILL BENEFIT LOCAL FRONTLINE COMMUNITIES AROUND DOE CLEANUP SITES***

*Historic photo of the Town of Ashford, New York*

The Energy Communities Alliance (ECA) recently awarded grants to three local governments – Anderson County, TN; the City of Idaho Falls, ID; and the Town of Ashford, NY – to increase education and outreach campaigns and local government participation in the Department of Energy's (DOE) environmental cleanup mission. Each grant recipient was awarded funding in the amount of $50,000.

A key part of ECA's organizational mission is to educate local governments on issues impacting the frontline communities at DOE sites, as well as to promote local government interaction on DOE's core missions and initiatives. It is essential that DOE decision-making reflects local government engagement, and enduring acceptance of these decisions requires informed and involved local government officials and local government entities.

In support of this goal, ECA developed the grant pilot program to increase education and local government and community participation in DOE's environmental cleanup efforts at sites where DOE's Office of Environmental Management (EM) has ongoing responsibilities, including defense and non-defense environmental cleanup sites.

Each of the three grant recipients submitted applications that met the requirements of the grant program, and that demonstrated clear goals and a plan for implementation of project activities, which aligned with the goal and purpose of project.

Anderson County will coordinate development and implementation of an enhanced education and outreach strategy and creation of long-term engagement mechanisms around environmental cleanup issues, including frontline stakeholder meetings, workshops, digital outreach, data collection and reporting, third party consultation, and collaboration on an economic development strategy.

The City of Idaho Falls will work with the Idaho Advanced Energy Consortium to create education materials and displays, building a forum to disseminate accurate information about environmental cleanup progress and technological breakthroughs and challenges.

The Town of Ashford will retain a consultant for technical assistance involved in the Probabilistic Performance Assessment that is being developed as part of the Supplemental EIS for the West Valley Demonstration Project and will provide the community with a better understanding of the application of federal and state environmental cleanup laws, standards, and goals for the site.

ECA would like to thank all applicants for their interest in this grant pilot program and to express our gratitude to the Selection Committee for their time and efforts.

# Guide to Successful Environmental Cleanup

An interactive guide for communities and governments to navigate nuclear waste cleanup

Energy Communities Alliance

## RISK MANGEMENT IN ENVIRONMENTAL CLEANUP

Of the many issues involved in environmental cleanup, none is more challenging or contentious than evaluating, addressing, and managing risk.

From a technical standpoint, remediating sites like U.S. Department of Energy (DOE) weapons facilities is highly complex, with varying risks to workers undertaking the job. Compounding the challenge is that the costs associated with one action versus another could differ by millions (or even hundreds of millions) of dollars, where increased costs may or may not sufficiently lower the projected risks to human health and the environment.

Addressing risk, however, is not simply a technical, data-driven analysis; how people in a site's community feel about the facts is just as important as the facts themselves in managing risk in cleanup projects.

For cleanups to garner the support of the local governments and other community members surrounding the site, the parties must agree on technical risks as well as perceptions of risk — e.g., will the community accept the given risk and can the risk that results from contamination being left at the facility support the future use?

As ECA reported in the Guide to Successful Environmental Cleanup:

*"Too often, risk is presented as a technical question, but rarely are issues resolved based solely on risk. Compounding the challenge is that the first thing a community is often presented with is risk, and it should not be. Federal facilities are not islands; they are connected to host and frontline communities, and in many cases are the economic foundations of those communities. For that reason, examining environmental cleanups too narrowly through the lens of risk can be limiting."*

## EDUCATION IS ESSENTIAL

In terms of education, many elected officials, community activists, economic development leaders and others at DOE sites are extremely conversant about site issues. Such expertise in technical, policy and economic transition issues does not arise overnight; it is the result of significant effort on behalf of DOE, regulators, and the cleanup contractor to educate the community about the issues that come together as part of the closure project.

There is no formula for how best to educate members of the community and local governments, but DOE and the regulators need to exert whatever time and effort it takes to educate the affected entities about the issues involved in site cleanups. Part of these ongoing educational discussions must include the recognition by DOE that perceptions of risks posed do not always align with technical risks.

## COMMUNICATION IS CRITICAL

A central commonality among a vast number of the disputes at DOE facilities over the past 30 years, particularly disputes resulting in congressional intervention, concerned differing notions of risk. At most cleanups, the most technically and politically difficult and divisive issues involved the differences between technical and scientific risk, the nature and source of the risk, and the type and extent of risk one is willing to assume.

As shown at these sites, for environmental cleanups to proceed the agency charged with cleaning up the site and the agencies regulating the cleanup must agree on numerous issues regarding risk — e.g., what risk level is achievable and politically acceptable, and what level of cleanup will ensure the agreed-to risk meets regulatory requirements.

Additionally, communicating technical risk and risk communication are not necessarily synonymous.

Trying to ferret out the root cause of the dispute at the Mound site in Ohio over the remedial goals for a landfill, for example, was a complex matter. The dispute concerned whether a hazardous waste landfill would negatively affect a private party's attempt to reindustrialize vast portions of the former weapons facility.

A DOE official familiar with the challenges at Mound commented at the time that part of the reason the parties became polarized stemmed from the challenges DOE faced in communicating risk. DOE posited that if it had done a better job of communicating the technical and scientific risks resulting from leaving the landfill in place, the parties may not have reached an impasse nor needed Congress to get involved.

DOE may have been correct. However, if in communicating risk DOE focused solely on the technical and scientific aspects of risk, then a central part of risk communication would have been missed.

Risk communication is difficult and cannot be reduced to formulas, rules or checklists. Yet, in order to develop appropriate communication mechanisms one has to understand the fundamentals of risk communication.

What do nuclear power plants, toxic waste dumps, and pesticide residues have in common? In all three cases, the risk is:

1. Coerced rather than voluntary (in home gardens where the risk is voluntary, pesticides are often overused);
2. Industrial rather than natural (natural deposits of heavy metals generate far less concern than the same materials in a Superfund site);
3. Dreaded rather than not dreaded (cancer, radiation, and waste are all powerful stigmata of dread);
4. Unknowable rather than knowable (the experts endlessly debate the risks and only experts can detect where it is);

5. Controlled by others rather than controlled by those at risk (think about the difference between driving a car and riding in an airplane);
6. In the hands of the untrustworthy rather than trustworthy sources (who believes what they are told by nuclear, waste and pesticide industries?); and
7. Managed in ways that are unresponsive rather than responsive (think about secrecy versus openness, courtesy versus discourtesy, compassion versus contempt).

In environmental cleanups, not all issues are known at the beginning. The process at DOE sites can be one of action and investigation at the same time, thus necessitating a degree of flexibility. Successful cleanups require consistent communication while integrating changes and improvements into the planning process.

DOE successfully worked with the communities around Rocky Flats, for example, to achieve cleanup that met the community's needs and vision. The Rocky Flats cleanup was marked by seven years of debate over soil cleanup levels that DOE and the regulators adopted but that the affected communities and their residents opposed. In both cases, the conceptual vision was largely shared, but the detailed cleanup levels and associated risks, which again in both cases necessitated long-term controls, were vigorously debated.

The successful end result – the Rocky Flats National Wildlife Refuge – was made possible in large part to continual, meaningful communication and engagement with the community to evaluate the risks at the site and to manage risks for its future use.

To read more about risk management in cleanup, check out the Guide to Successful Environmental Cleanup by visiting www.energyca.org/guide-to-successful-environmental-cleanup.

*Have a question you want answered in the Guide? Send your questions to ECA at bulletin@energyca.org!*

Energy Communities Alliance
Local concerns. National impact.

# New Global Partnership of Municipalities with Nuclear Facilities

Local communities want new nuclear development. Internationally, these communities know how to tout the abundant and reliable carbon-free energy source, including small modular reactors (SMRs) and microreactors, as a selling point to attract businesses and spur economic development. Similarly, leading businesses and the international governments are requiring their facilities to reduce their carbon output or become carbon free in the coming decades.

The Group of European Municipalities with Nuclear Facilities in Europe (GMF Europe), Energy Communities Alliance (ECA), and Canadian Association of Nuclear Host Communities (CANHC) have created the New Global Partnership of Municipalities with Nuclear Facilities to realize the untapped potential of working with similar municipal organizations across the globe.

As a coalition of international communities, we work to share information, educate each other, advocate for municipalities in nuclear, and collaborate to assist our communities and other communities hosting or interested in hosting nuclear facilities. Our goal is to provide municipalities around the globe with a voice and role in nuclear issues.

GMF Europe, ECA, and CANHC will continue our individual and joint advocacy for support for local host communities among regulators, current and future nuclear industry, and other members of the nuclear supply chain. We sincerely appreciate the support of the International Atomic Energy Agency for our global partnership.

gmf GROUP OF EUROPEAN MUNICIPALITIES WITH NUCLEAR FACILITIES

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CANHC
Canadian Association of Nuclear Host Communities

NATIONAL CLEANUP WORKSHOP

# 2023 National Cleanup Workshop

## Registration for the 2023 National Cleanup Workshop is Open

**Join us for the 9th annual National Cleanup Workshop in Arlington, VA**

Crystal Gateway Marriott
Arlington, VA
September 11-13, 2023

**Hear from senior DOE leaders, local government officials, and industry leaders about the future of DOE's Environmental Management program**

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**First look at who's speaking at the Workshop:**

**William "Ike" White** | Senior Advisor for Environmental Management, DOE-EM

**Jeffrey Avery** | Principal Deputy Assistant Secretary, DOE-EM

**Nicole Nelson-Jean** | Associate Principal Deputy Assistant Secretary for Field Operations, DOE-EM

**Randall Hendrickson** | Acting Associate Principal Deputy Assistant Secretary for Regulatory and Policy Affairs, DOE-EM

**Dae Chung** | Associate Principal Deputy Assistant Secretary for Corporate Services, DOE-EM

**Brent Gerry** | Mayor, City of West Richland, WA; Chair, ECA

**Rebecca Casper** | Mayor, City of Idaho Falls, ID; Vice-Chair, ECA

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**For more information, visit www.cleanupworkhop.com**