Commonwealth of Kentucky Nuclear Energy Development Authority Annual Report

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Executive Brief

The Kentucky Nuclear Energy Development Authority concludes its first full year of operations in 2025, establishing the organizational foundation necessary to support nuclear energy ecosystem development across the Commonwealth. The Authority convened its Advisory Board, adopted bylaws, and held four quarterly public meetings. Significantly, the Kentucky General Assembly passed Senate Bill 179, appropriating $10 million for nuclear energy development – $8 million for competitive grants supporting projects across the nuclear ecosystem and $2 million for laser and photonics workforce development at the University of Kentucky's Paducah campus. KNEDA announced its grant program Request for Proposals on October 1, 2025, with applications currently under evaluation.

Additionally, KNEDA has established a framework for awarding nuclear-ready community designations to counties demonstrating genuine readiness to host nuclear opportunities. The Authority has also incorporated findings from a comprehensive workforce study conducted by the U.S. Department of Energy Gateway for Accelerated Innovation in Nuclear program, identifying both Kentucky's advantages and gaps in workforce preparedness and education; recognizing the Commonwealth’s strong technical education and manufacturing expertise, and noting gaps in nuclear workforce specialization, nuclear engineering, health physics, and radiation safety programs that must be addressed to fully capitalize on nuclear energy opportunities.

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Introduction and Background

The Kentucky General Assembly created the Kentucky Nuclear Energy Development Authority via Senate Bill 198 during the 2024 Regular Session. The Authority is administratively attached to the University of Kentucky Center for Applied Energy Research, with Dr. Rodney Andrews, the Center's Director, serving as Chair of the advisory board.

KNEDA's mission is straightforward: support and facilitate the development of Kentucky's nuclear energy ecosystem in ways that enhance the economy, provide safe energy production, protect the environment, amplify community voices, increase energy education, and prepare the workforce of tomorrow. The General Assembly designed KNEDA to bridge the gap between nuclear energy's potential and Kentucky's economic development priorities, ensuring that communities across the Commonwealth can make informed decisions about participating in this growing industry.

The Authority's advisory board brings together 22 voting members representing state government, investor-owned utilities, electric cooperatives, the Tennessee Valley Authority, municipal utilities, nuclear remediation services, environmental interests, manufacturers, commerce, and local government leaders from energy communities. An additional eight non-voting members provide expertise from national nuclear organizations and the General Assembly. This diverse composition ensures that KNEDA considers multiple perspectives as it advances Kentucky's nuclear energy interests.

During its first year, the Authority held quarterly meetings in November 2024 and March, June, and September 2025, conducting all business in accordance with the Kentucky Open Meetings Act. The board adopted comprehensive bylaws on September 16, 2025, establishing governance procedures, committee structures, reporting requirements, and ethical standards.

Launching the Nuclear Development Grant Program

During the 2025 session, the Kentucky General Assembly augmented KNEDA's mission by passing Senate Bill 179, which created the Nuclear Energy Development Grant Program and appropriated $10 million for nuclear energy ecosystem development. Of this amount, $8 million funds competitive grants for nuclear energy-related projects across Kentucky, with individual projects eligible for up to $2 million in support. The remaining $2 million supports the development of a laser and photonics workforce program at the University of Kentucky's College of Engineering Paducah Campus, addressing anticipated workforce needs for potential nuclear fuel enrichment operations in western Kentucky.

The KNEDA Advisory Board has moved quickly to operationalize the grant program. The Authority formed a Grant Administration Subcommittee consisting of five voting members to oversee application review, develop evaluation criteria, and make award recommendations. The subcommittee developed Standard Operating Procedures detailing eligibility requirements, scoring methodology, and award processes. These procedures ensure objectivity, transparency, and alignment with statutory requirements while maintaining flexibility to support diverse projects across Kentucky's nuclear energy ecosystem.

The grant program supports consideration of proposals from across the nuclear energy ecosystem that fall within six broad categories of nuclear energy development: technology research and development, environmental remediation and legacy site redevelopment, energy infrastructure and deployment, workforce development and education, nuclear safety and regulatory research, and public engagement and community empowerment. This comprehensive scope reflects the General Assembly's recognition that building Kentucky's nuclear energy capacity requires simultaneous progress across multiple fronts.

KNEDA released a Grant Program Request for Proposals on October 1, 2025, inviting Kentucky organizations, communities, universities, research institutions, and businesses to submit applications by October 31, 2025. The RFP emphasized projects that drive job creation, catalyze private sector investment, support economically distressed

communities, promote public health and safety, and foster collaboration between research institutions, local communities, and industry partners. Per its SOP, the Authority will prioritize applications from nuclear-ready communities, underserved regions, and economically distressed areas, recognizing that nuclear energy development should provide broad-based economic benefits across the Commonwealth.

Grant applications are currently under evaluation. The Grant Administration Subcommittee is reviewing submissions in accordance with SOP criteria, including project impact on the nuclear energy ecosystem, economic benefits to Kentucky communities, community readiness for nuclear investment, and matching investment from applicants and partners.

Designating Nuclear-Ready Communities

Kentucky Revised Statute 164.2804 directs KNEDA to develop criteria for awarding nuclear-ready community designations to counties that demonstrate readiness to welcome nuclear energy-related development. This designation program recognizes that successful nuclear energy projects require more than suitable sites and regulatory approvals – they require informed, engaged communities that understand the opportunities and responsibilities associated with hosting nuclear facilities.

The KNEDA Advisory Board has established a three-part framework for nuclear-ready community designation. The framework components are as follows:

1. Communities must conduct at least two public educational meetings where residents learn about advanced nuclear energy technologies, the nuclear ecosystem, and the potential role of nuclear energy development in their community. These meetings ensure that community support is based on accurate information rather than misconceptions or incomplete understanding.
2. Communities must identify one or more sites that the Cabinet for Economic Development has recognized as suitable for nuclear energy-related projects. This requirement ensures that communities pursuing designation have realistic development prospects.

3. Communities must demonstrate formal local support through either adoption of resolutions by the county government and all cities within the county, or approval of a countywide ballot initiative declaring the community's readiness for nuclear energy-related projects. This requirement ensures that nuclear-ready designations reflect genuine community consensus.

The designation process is now operational. Communities interested in pursuing designation must submit a Notice of Intent at least 90 days before applying, allowing KNEDA to provide guidance and support throughout the application process. Applications are submitted to KNEDA's Executive Director (or to the Chair if that position remains unfilled), and the full advisory board evaluates applications and awards designations to qualifying communities. Counties receiving nuclear-ready designations receive priority consideration in KNEDA's grant program and enhanced visibility when nuclear energy companies evaluate potential Kentucky sites.

Workforce and Educational Needs

Department of Energy's Gateway for Accelerated Innovation in Nuclear (GAIN) has conducted a comprehensive study in coordination with the Kentucky Office of Energy Policy under the Energy and Environment Cabinet to identify workforce and educational needs for developing and supporting Kentucky's nuclear ecosystem. KNEDA has incorporated the findings of this study into its planning and strategic priorities.

The study identifies both strengths and opportunities in Kentucky's current nuclear energy workforce landscape. Kentucky currently possesses significant advantages, including robust technical education programs, deep manufacturing expertise, and a workforce culture that values skilled trades. The Commonwealth's existing energy sector workforce represents a ready talent pool with transferable skills applicable to nuclear facility operations.

However, the analysis also identified gaps that must be addressed to fully appreciate and capitalize on nuclear energy opportunities. Kentucky currently lacks sufficient capacity in

specialized nuclear engineering programs, health physics training, and radiation safety expertise. The state's community college system, while strong in many technical areas, has limited coursework specific to nuclear technologies. Additionally, public awareness of career pathways in the nuclear industry remains low, potentially limiting the pipeline of students pursuing relevant educational programs.

The study provides recommendations for addressing these workforce gaps through expanded educational programming, industry partnerships, and public awareness initiatives. Complete findings and recommendations are detailed in the accompanying Kentucky Nuclear Energy Development Authority Workforce Development Report, submitted with this annual report.

Public Engagement

During its first year, the Authority held quarterly meetings in November 2024, March 2025, June 2025, and September 2025, conducting all business in accordance with the Kentucky Open Meetings Act. The board adopted comprehensive bylaws on September 16, 2025, establishing governance procedures, committee structures, reporting requirements, and ethical standards.

Two of the Authority's four quarterly meetings were held in person to maximize educational value and increase member exposure to opportunities for strategic collaboration. In June, KNEDA met in Paducah, where board members toured the U.S. Department of Energy's Paducah Gaseous Diffusion Plant site. In September, the Authority convened at the Energy and Environment Cabinet and participated in the National Governors Association's nuclear energy program. These in-person meetings provided members with direct exposure to Kentucky's nuclear industry institutions and infrastructure and provided an opportunity for broader knowledge development on nuclear energy issues.

Per the requirements of Kentucky Revised Statute 164.2804, the Advisory Board solicited comment and received input on areas and issues of greatest import to the future development of a nuclear workforce, and related educational infrastructure, within the

Commonwealth. These public comments are incorporated in the *Commonwealth of Kentucky Nuclear Energy Development Authority Report on Workforce Development and Education to the Kentucky General Assembly*, and are included as an addendum to this report.

Executive Director Search

Kentucky Revised Statute 164.2807(6) directs the KNEDA Advisory Board to hire a director who possesses the skills and experience necessary to lead the authority, promote the safe and responsible development of nuclear energy, and achieve the authority's statutory purposes.

The Advisory Board has formed a Search Committee to identify and recommend qualified candidates to the full board. During 2025, the Authority conducted two rounds of candidate searches to fill this critical leadership position. While these searches generated substantial interest and produced candidate pools, the board has not yet made a final selection.

The Search Committee will reopen the executive director search in spring 2026. The Authority continues its work under the guidance of the Advisory Board and with administrative support from the University of Kentucky Center for Applied Energy Research.

Future Efforts

KNEDA's work in 2026 will expand in several key areas to fulfill statutory requirements and advance the Commonwealth's nuclear energy ecosystem development.

1. **Development of Community Engagement Best Practices Guide:** The Authority will produce a comprehensive guide for best practices in community engagement and education. This resource will assist communities in understanding advanced nuclear opportunities and will provide frameworks for transparent dialogue about nuclear energy projects.
2. **Biannual Economic Impact Analysis:** As required by KRS 164.2807(8)(c), KNEDA will create and update at least once every two years a nuclear energy economic impact

analysis for the Commonwealth. This analysis will assess the economic contributions, employment impacts, and broader fiscal effects of nuclear energy ecosystem development in Kentucky.

3. **Biannual Work Plan:** The Authority will introduce its comprehensive biannual work plan as required by statute.
4. **Grant Program Awards:** Grant applications submitted in response to the October 2025 Request for Proposals are under review, with final evaluation targeted for completion by December 1, 2025. The Authority anticipates announcing grant awards following negotiation and final award determinations, with a target start date of January 1, 2026, for funded projects. The full list of awards will be announced publicly following completion of the negotiation and awarding process.

Addendum - Stakeholder Engagement on Nuclear Development

As part of its statutory mission under KRS 164.2802, KNEDA has initiated a stakeholder-engagement process to identify real-world needs associated with nuclear development and deployment in Kentucky. In 2025, KNEDA distributed a letter requesting input on 'Needs and Suggestions for Advancing Nuclear Energy Development and Deployment in Kentucky' through its Advisory Board membership.

Purpose of the Stakeholder Engagement Letter

The letter seeks to collect targeted input from utilities, energy developers, academic institutions, workforce and labor organizations, local governments, and economic-development entities. Specifically, it requests feedback on:

1. Primary needs or challenges encountered in pursuing nuclear projects within Kentucky (e.g., regulatory, financing, supply-chain, or workforce constraints);
2. Suggestions for support – actions that KNEDA or the Commonwealth could take to most effectively enable nuclear development, such as policy initiatives, training partnerships, or community education efforts;
3. Suggestions for engagement – how KNEDA might engage in community education efforts, regional economic development projects, etc.; and
4. Opportunities for collaboration between stakeholders and KNEDA in areas such as technology demonstration, economic analysis, research coordination, or community engagement, or other.

Summary of Received Responses

As of November 2025, KNEDA has received responses from a diverse set of stakeholders, including local government officials, educational leaders, and private citizens with experience in nuclear technologies. These responses highlight enthusiasm for nuclear opportunities in Kentucky – particularly in Western Kentucky – and concerns about practical

barriers. Below is a synthesis of the key inputs, organized by the solicitation letter's focus areas; recurring themes noted, where appropriate.

Primary Needs or Challenges:

Workforce and Education: Multiple respondents emphasized the need for adaptable workforce training amid rapid industry changes. Representatives from industry noted public misconceptions about nuclear safety and the associated potential of those misconceptions to hinder local support. Respondents from regional community and technical colleges highlighted challenges in funding and structuring training programs that can quickly adapt to political, regulatory, and technological shifts; further identified challenges include upskilling in trades (from existing Kentucky industries) and addressing labor force misconceptions. County and city officials in Western Kentucky cited workforce-development limitations in rural areas – such as housing shortages from influxes of workers near sites like the Paducah DOE plant – and the need for early training pipelines to prepare local students for future opportunities.

Respondents further note that, beyond standard Bureau of Labor Statistics categories, the nuclear ecosystem requires highly specialized expertise, including:

- Health physics and medical monitoring professionals
- Environmental monitoring personnel (private and public sector)
- Environmental epidemiologists
- Risk assessors
- Public health administrators specializing in radioactive materials
- Emergency planners
- Trainers for EMT, fire departments, and emergency services in radiation response
- Laboratory chemists and physicists equipped to analyze mixed hazardous and radioactive media (soil, water, waste, air)
- Legal and environmental consultants for compliance with Atomic Energy Act, Cabinet for Health and Family Services, EPA, and Department for Environmental Protection requirements

- Law enforcement and homeland security professionals, including cybersecurity specialists

Current demand for these specialized roles already exists at sites within the Commonwealth, including the Paducah Gaseous Diffusion Plant and Maxey Flats, where ongoing environmental monitoring, health physics expertise, and emergency response capabilities are essential. Kentucky currently lacks bachelor-level degree programs in health physics; the commonwealth does not have programs listed by the Health Physics Society's academic directory. However, the Commonwealth's major academic medical centers – University of Kentucky and University of Louisville – do offer residency programs in related fields of medical physics. Developing comprehensive health physics educational capacity would require strategic partnerships between universities, medical institutions, and industry stakeholders to create programs aligned with the Nuclear Regulatory Commission and professional society standards.

Infrastructure and Regional Issues: Local officials stressed rural infrastructure gaps, including transportation, broadband, and housing, which limit competitiveness for large-scale projects. Utility respondents also pointed to workforce talent loss (labor market participants departing roles with current industrial employers to join new companies) without adequate training safeguards.

Broader Obstacles: Several respondents offered critical perspectives, listing systemic barriers such as lack of in-state experience with fission power plants, high financial costs, longevity commitments (10–15 years for design/licensing, 40–60 years operation, indefinite decommissioning), and population decline in rural areas straining local resources. They also warned of risks associated with spent nuclear fuel (SNF) repositories, which could undermine public support given Kentucky's history with nuclear waste (e.g., Maxey Flats and the Paducah UF6 tailings).

Suggestions for Support:

Workforce and Education Initiatives: Respondents recommended the pursuit of flexible training programming and the establishment of a dedicated nuclear training and innovation

facility in Western Kentucky as a hub connecting K-12 programs, community colleges, and universities. Local officials and educators advocated for introducing nuclear workforce training as early as middle and high school, funding pre-college and adult programs, and directing West Kentucky Workforce Board resources toward the nuclear ecosystem. Utility industry representatives suggested policies that encourage partnerships, such as allowing municipal utilities to form interlocal agreements across state lines (modeled on Ohio's American Municipal Power).

Recurring Themes: Policy reforms enabling partnerships, targeted funding for education and training, regional promotion – especially in Western Kentucky – and infrastructure upgrades.

Suggestions for Engagement:

Community Education and Development: Respondents generally proposed community initiatives to educate citizens on nuclear safety and economics, with the goal of increasing local buy-in, including shifting discussions from "nuclear energy" to a broader "nuclear ecosystem." Further suggestions centered on educational outreach and public information sessions describing employment opportunities, with KNEDA participating visibly in training classes and public forums. Local leaders encouraged planning assistance at the Paducah DOE site and partnering with DOE for recruitment initiatives.

Respondents further note that successful nuclear project development depends, in large part, on early community engagement and transparent information sharing. Host communities benefit from clear disclosure of project fundamentals: licensing requirements, materials handling procedures, environmental safeguards, and safety protocols. Making project information accessible through online repositories and local channels – including details on emissions monitoring, decommissioning planning, and how residents can engage with oversight processes – builds the informed public support essential for project success. Such a transparency framework further helps communities understand both the opportunities and responsibilities associated with hosting nuclear industry activities.

Opportunities for Collaboration:

Direct Partnerships: Respondents expressed interest in facilitating conversations with investor-owned utilities and proposed quarterly or biannual meetings with local elected officials and economic developers focused on Paducah DOE site planning. Educational institutions conveyed interest in joint curriculum development, coordinated K–12 and postsecondary engagement, and structured pathways that align training programs across the Commonwealth. Several suggested KNEDA participate in outreach and events to attract nuclear-adjacent industries and join existing coordination meetings with K–12 school districts, the Kentucky Community & Technical College System, the University of Kentucky, the University of Kentucky – Paducah Campus (of the Pigman College of Engineering), and Murray State University to align programs without duplication.