

TECHNOLOGY INNOVATION 2024-2025 RESEARCH PRIORITIES

The Technology Innovation 2024-2025 Research Priorities clarify BPA’s priorities for research development and demonstration activities in fiscal years 2024-2025. The Research Priorities support the goals and objectives outlined in the agency’s 2024-2028 Strategic Plan by aligning agency RD&D activities with achieving the strategic objectives.



The Technology Innovation Office works with subject matter experts and agency executives to establish agency Research Priorities every two years. The Research Priorities identify gaps in knowledge, practices or technology that, if reduced, deliver savings in cost, complexity, risk or time for work performed by BPA. By guiding the selection of individual projects, they ensure that projects to create efficiencies also align with business line and agency goals.

The goal of the Research Priorities development process is to prioritize RD&D that is most likely to advance agency objectives and reduce operational risks in line with staffing and budget constraints.

The Research Priorities are divided into three topic areas: Agency wide, for topics that provide RD&D benefits to organizations across BPA; Power, for topics that primarily benefit the Power Services organization; and, Transmission, for topics that primarily benefit BPA’s Transmission Services organization.

AGENCY WIDE TOPICS

Research area	Technology Innovation RD&D goal
<i>Regional decarbonization implications</i>	<ul style="list-style-type: none"> Improve modeling and forecasting tools, understand operation and maintenance impacts
<i>New generating resources, technology development and impacts</i>	<ul style="list-style-type: none"> Provide situational awareness and market readiness
<i>Safety</i>	<ul style="list-style-type: none"> Reduce injury from fatigue and heat, and prevent hearing loss
<i>Security</i>	<ul style="list-style-type: none"> Improve physical, cyber and electromagnetic/ geomagnetic security
<i>Internal analytics support</i>	<ul style="list-style-type: none"> Support asset management and understand use cases



POWER TOPICS

Research area	Technology Innovation RD&D goal
<i>Generation asset management</i>	<ul style="list-style-type: none"> • Improve reliability and reduce cost and associated risks
<i>Energy efficiency heat pumps</i>	<ul style="list-style-type: none"> • Increase available power resources
<i>Hydropower facility optimization</i>	<ul style="list-style-type: none"> • Improve performance and reduce outages
<i>Hydropower plant equipment</i>	<ul style="list-style-type: none"> • Reduce operations costs, extend plant life, increase reliability
<i>Hydropower reliability and life extension</i>	<ul style="list-style-type: none"> • Reduce operations costs by reducing maintenance outages

TRANSMISSION TOPICS

Research Area	Technology Innovation RD&D goal
<i>Transmission asset management</i>	<ul style="list-style-type: none"> • Improve reliability and reduce cost and associated risks
<i>Transmission line ratings</i>	<ul style="list-style-type: none"> • Improve reliability and capacity
<i>Terrestrial-based precision timing</i>	<ul style="list-style-type: none"> • Improve cybersecurity
<i>Transmission planning</i>	<ul style="list-style-type: none"> • Improve data analysis and planning, reduce risk, improve construction techniques
<i>Voltage stability</i>	<ul style="list-style-type: none"> • Improve reliability, and reduce cost and associated risks

Technology Innovation will utilize the Research Priorities to work with subject matter experts and managers across BPA to establish a list of potential technologies and projects to achieve each research area goal prior to project selection and implementation.



BPA RD&D AND TECHNOLOGY INNOVATION BACKGROUND

BPA's Technology Innovation Office serves as a hub of innovation and a centralized point for RD&D, performing centralized reporting and program management functions for all BPA RD&D activities. TI facilitates the development and implementation of technology-based solutions to strategic challenges by maximizing the benefits of internal expertise and external collaborations. BPA RD&D activities also gather fact-based knowledge for agency decision-making.

BPA RD&D PRINCIPLES

1. **Align to agency strategic objectives**
2. **Establish sponsorship within the agency**
3. **Maximize value-to-cost ratio by seeking partnerships and collaborations**
4. **Ensure a clear path to implementation or value delivery**
5. **Focus on implementation ready work**

RD&D PROJECT SELECTION AND NEXT STEPS

In September 2023, the Technology Innovation Office will publish an opportunity announcement on bpa.gov to request proposals for projects that align with our research priorities. The solicitation will seek technologies ready for testing and demonstration or early deployment. Please note: The Technology Innovation office does not perform primary research such as technology scouting and early development, nor does it implement technologies that are commercially available for the specific application.

In December 2023, Technology Innovation and agency subject matter experts will select projects that best align with our 2024-2028 strategic objectives and available resources. The team will then begin work with external partners and internal experts across BPA to manage projects that align with our Research Priorities.

For more information on BPA's Technology Innovation Office or the 2024-2025 Research Priorities, email TechnologyInnovation@bpa.gov.

