Ohio University (OU) Voinovich School of Leadership and Public Service

U.S. Department of Energy Office of Environmental Management Portsmouth/Paducah Project Office Financial Assistance Grant DE-EM0005270

Collaborative Efforts to Inform DOE EM Cleanup, End-State Configuration, and Accelerated Property Transfer at the PORTS facility in Pike County, Ohio

Site Repurposing Continuation and Ongoing Technical Assistance, Public Outreach, Education, and Engagement for Property Transfer and Future Use Federal Fiscal Year 2024 (FFY24)

Budget Period 2 (BP2) October 1, 2023-September 30, 2024

Combined Activities Report September 30, 2024

Stephanie Howe
Ohio University (OU) Voinovich School of Leadership and Public Service

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PORTSFUTURE
IMAGINING THE OPPORTUNITIES, GATHERING YOUR IDEAS
THE FACILITY AT PIKETON, OHIO

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Purpose and Approach

The Site Repurposing Continuation and Ongoing Technical Assistance, Public Outreach, Education, and Engagement for Property Transfer and Future Use activities serve the DOE EM cleanup mission in several ways. These activities expand data utilization with site stakeholders at PORTS and in the region to enhance information-based decision making when determining viable future-use options for the site and site assets. Information-based decisions will contribute to cost savings/cost avoidance by DOE EM as cleanup efforts continue. These activities contribute to informing the end-state configuration for the site and may expedite the transfer of real property for reindustrialization. Expediting property transfer supports DOE's efforts to reduce the EM footprint at PORTS. Throughout this report, the terms "property" and "property transfer" will refer to the transfer of real property (i.e., real estate) to the DOE-designated community reuse organization known as the Southern Ohio Diversification Initiative (SODI). Grant activities work in tandem with SODI to support the site reindustrialization efforts led by SODI.

The role of the Ohio University (OU) PORTSfuture Program in the site repurposing and ongoing outreach activities is to serve the public interest by acting as an independent, credentialed broker of data and other information, by convening, facilitating, and assisting collaborative partners and interested parties including government, business, and community entities in activities related to site reindustrialization efforts. PORTSfuture engages in information sharing and partnership building, by brokering relationships with private sector developers who are potential future tenants, and, along with collaborators, by employing data-driven decision processes to ensure efficacious planning for site future use endeavors. These efforts are responsive to the stated future use preferences of the public at large in the four-county region near the site identified during various DOE EM and Ohio University PORTSfuture Program public engagement efforts.

Site repurposing and ongoing outreach activities were conducted in the form of a collaborative effort among Ohio University (OU), DOE EM, the local community reuse organization known as the Southern Ohio Diversification Initiative (SODI), site contractors, and national experts. As the activities were carried out, progress updates and/or conversations were held with stakeholders such as the Site-Specific Advisory Board (SSAB), local, state, and federal elected officials, county, regional, and state-level

economic development professionals, private sector interests, national experts, community leaders, and the public.

The Ohio University PORTSfuture Program focuses activities in the areas of site readiness, Geographic Information Systems (GIS), data analysis, economic impact analysis, workforce analysis, industry engagement, and partnership building. PORTSfuture also dedicates resources to public engagement, training, outreach, and Science, Technology, Engineering, and Mathematics (STEM) engagement. Grant activities create public value and serve the public interest in one or more of the following ways including informing site cleanup and future use planning, providing opportunities for DOE EM to realize cost savings or cost avoidance during cleanup, facilitating the transfer of property to reduce the DOE EM footprint, leveraging public assets of the PORTS site and the region to create regional economic prosperity, and providing regional youth with STEM engagement opportunities related to the site and other emerging STEM-related occupations. Please see Appendix 1 to read about the background, history, and evolution of PORTSfuture grant activities.

PORTSfuture Summary of Leveraged Funds, Site Reindustrialization Highlights, and STEM Highlights for Budget Period 2

Leveraged funds

As stated previously, our work is conducted through partnerships, which enhances our effectiveness, value creation, and longevity. Whenever possible, PORTSfuture seeks to leverage additional dollars to expand the impact of our work.

During Budget Period 2, PORTSfuture leveraged non-DOE EM funding in approximately $166,783 in Ohio University funding and $23,397 in other grant funding to support PORTSfuture efforts.
PORTSfuture also wrote a $500,000 Congressionally Directed Spending Request for SODI, which was awarded to SODI in FFY24. PORTSfuture contributed to a proposal to the Just Transition Fund to successfully secure $50,000 for SODI to hire a proposal grant writer. PORTSfuture partnered with SODI and the United Steel Workers (USW) Local 689 to secure $2 million in U.S. Department of Energy's Office of Manufacturing and Energy Supply Chains funding for the United Steel Workers (USW) Local 689 to establish the Appalachian Clean Energy (ACE) Industrial Assessment Center (IAC) in Pike County, Ohio.

Total leveraged funding during Budget Period 2 is $2,740,180. Sources and amounts of leveraged funding include:

- Ohio University funding: Approximately $166,783. This includes Voinovich School State of Ohio Appalachian New Economy Partnership ($112,958), Voinovich School Research Incentive ($50,000), and Program to Aid Career Exploration (PACE) ($3,825)
- American Electric Power Foundation-$10,047
- Ohio STEM Learning Network-$2,500
- Sugar Bush Foundation-$2,353
- National Science Foundation-$2,250
- U.S. Environmental Protection Agency-$2,573
- Habitat for Ohio-$3,674

Funding secured for SODI and USW
- Congressionally Directed Spending-$500,000
- Just Transition Fund-$50,000
- U.S. Department of Energy's Office of Manufacturing and Energy Supply Chains-$2 million

Site reindustrialization highlights

Collaborative site repurposing efforts between PORTSfuture and SODI to launch an Integrated Energy System-Closed Loop Manufacturing complex have been branded as the "Ohio Valley Green Energy and Manufacturing (GEM)" initiative. Branding of the site reindustrialization efforts has enabled PORTSfuture, SODI, and our partners to differentiate the future opportunities of the site for private sector companies from the ongoing federal cleanup mission. Core GEM partners include PORTSfuture, SODI, Ohio organized labor steering committee, and private industry.

Significant strides in site reindustrialization occurred during Budget Period 2. The decarbonized hydrogen project known as Trillium H2Power (Trillium) raised the necessary capital from private equity investors to purchase an initial parcel of land from SODI. Trillium is currently in phase 1 of the DOE Loan Program Office loan guarantee application. SODI and the PORTSfuture Program continued to strengthen partnerships with Oklo Inc., a developer of advanced nuclear small modular reactors, and Hecate Energy, a developer of renewable energy battery storage. Oklo Inc. and Hecate Energy entered into land purchase option agreements with SODI during Budget Period 2, and PORTSfuture provides various assistance to these developers as requested.

PORTSfuture was instrumental in securing $2.5 million of federal funding for SODI and the United Steel Workers Local 689 for activities to support site reindustrialization and workforce readiness. Over 50 stakeholder engagement meetings were held to share information on site reindustrialization efforts, update on progress, seek information or input, and/or explore synergies and potential collaborations. PORTSfuture and SODI held two Meet the Developer Open Houses to highlight DOE EM cleanup and property transfer efforts, share SODI and PORTSfuture program progress, and showcase two of the three developers who were present to meet the public to discuss their planned projects. These events were attended by over 200 stakeholders including community members, legislators, environmental groups, business and industry, governmental representatives, reindustrialization partners, presenters, and others. PORTSfuture conducted two webinars focused on the advanced nuclear small modular reactor industry. These were held in partnership with the U.S. Department of Energy, Office of Nuclear Energy Gateway for Acceleration in Nuclear (GAIN) program and private industry with a total of 218 registrants. PORTSfuture was invited to provide six special presentations at conferences and special convenings and conducted a variety of technical assistance to outside entities on various topical areas.

Fourteen press releases and news stories were published by media outlets, and the PORTSfuture website had 27,268 visitors and 137,682 page views. The Ohio organized labor steering committee expanded its role in supporting site reindustrialization efforts in the areas of advocating for the project at the regional, state, and federal levels. Trillium signed a Memorandum of Understanding (MOU) committing to a Project Labor Agreement with the Tri-State Building and Construction Trades Council for construction of the Trillium Piketon facility. Trillium signed an MOU with the USW committing to voluntary recognition of USW Local 689 as the workforce to operate the Trillium Piketon facility, thus committing Trillium to employ union labor in the construction and operation of its project. PORTSfuture is supporting the establishment of Trillium's Community Benefits Plan as well. PORTSfuture remained active in a variety of regional, state, and national collaborations that are relevant to our work. PORTSfuture continued to provide a wide range of tools and technical assistance, too numerous to summarize here, in the areas of data analysis, economic impact analysis, workforce analysis, Geographic Information Systems, partnership building, and stakeholder engagement. Details on all site reindustrialization activities are described in this report.

STEM highlights

PORTSfuture STEM engagements described in this report yielded in-person contacts with over 1,594 youth in grades K-12 in the four-county area of Pike, Scioto, Ross, and Jackson counties to engage these youths in a variety of experiential STEM learning activities. Our Summer STEM Days Public Library Partnership included an innovation for demonstrating the Appalachian STEM Enrichment Academy (ASEA) created by PORTSfuture and other partners by purchasing and installing kiosks in the main branch libraries in Pike, Scioto, Ross, and Jackson counties. The kiosks include an ASEA promotional poster, and an iPad programmed to illustrate the ASEA online STEM resource that can be accessed by educators, parents, and caregivers for use in the classroom or at home, 24/7/365. The ASEA developed nine new lessons, and the ASEA website had 36,088 visits and 154,198 page views during Budget Period 2, further expanding our STEM engagement with youth, educators, parents, and caregivers. We continue to update the My Backyard Stream kits that are available at these library locations for families to borrow for use at home. Three STEM engagement events were held in partnership with the libraries to educate youth on aquatic biology, basic computer coding, and climate issues. PORTSfuture continued to support the Ohio University District Science days to aid teacher-mentors and students in Ross and Jackson counties with participating in this event. PORTSfuture also presented at the annual DOE Science Alliance extravaganza and continued our collaborations with DOE EM, Fluor-BWXT Portsmouth, the Jackson County Department of Job and Family Services, and regional schools on a variety of STEM engagement opportunities. Detailed descriptions of STEM events are described in this report.

Ohio University Student Involvement During Budget Period 2

During Budget Period 2, thirty-five Ohio University undergraduate, graduate, and honors tutorial students supported the work of the PORTSfuture Program. Students came from a wide variety of majors including Environmental Studies, Environmental Biology, Environmental Sciences and Sustainability, Fine Arts Film School, Computer Science, Chemical Engineering, Instructional Technology, and Osteopathic Medicine.

Program Accolades and Recognition During Budget Period 2

- PORTSfuture was selected as one of only six projects across Ohio University to present information about the PORTSfuture Program at the Ohio University Innovation Showcase event held during October 2023 on Ohio University's Athens campus. This event was part of Investiture Week for the newly hired Ohio University President.
- PORTSfuture was the recipient of a National Association of Development Organizations (NADO) infrastructure award for our site reindustrialization activities in September of FFY23, and the award event was held in November of FFY24 at the NADO conference in Cleveland, Ohio.
- PORTSfuture received a special commendation from United States Senator J.D. Vance in February of 2024. Senator Vance praised our NADO award and our overall collaborative efforts to, in his words, "…bring about positive change, not only for the Ohio Valley and Central Appalachia, but as a model for similar initiatives nationwide."

Site Reindustrialization Industry Partners

Current core site reindustrialization partners are depicted below in Figure 1.

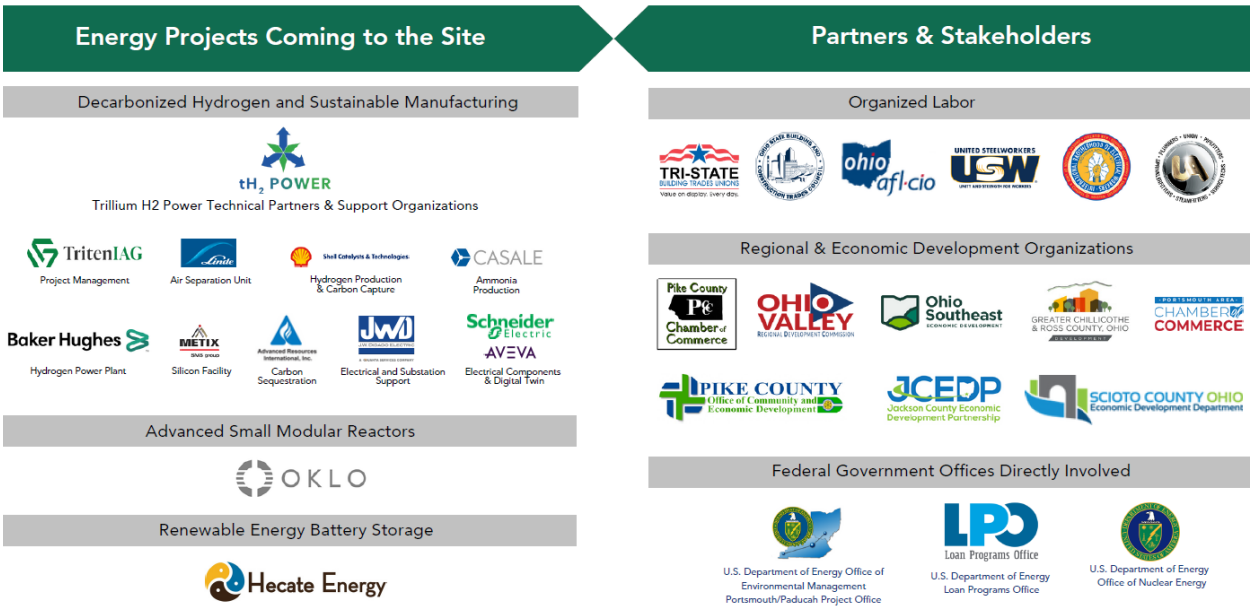

Figure 1. Current core site reindustrialization partners

Industry partner: Trillium H2Power (formerly referred to as Newpoint Gas LLC)

The GEM initiative's inaugural industry partner planning a project rollout in the near-term is Trillium H2Power (Trillium) which was established by Newpoint Gas LLC. Trillium will be developing a $1.8B clean hydrogen fueled energy and manufacturing hub. The complex will be located on clean or remediated land DOE EM has already deeded to SODI with additional land needs pending with SODI and DOE EM PPPO. Trillium is pursuing a loan guarantee for approximately 80% of the project via the DOE Federal Loan Program Office, and the remainder of the financing will consist of private equity financing.

The project enjoys solid regional support and is an environmentally sustainable, labor-focused, decarbonized power generation and manufacturing initiative. Trillium regularly proclaims that the development of the project was made possible because of the successful 14 + year joint effort by Ohio University's Voinovich School of Leadership and Public Service PORTSfuture Program and the Southern Ohio Diversification Initiative (SODI) to establish a transformational reindustrialization and economic development strategy for the PORTS site, post cleanup.

Trillium supports the U.S. goals to reduce carbon emissions, incorporates the Department of Energy Clean Hydrogen & Carbon Sequestration Incentives, creates long-term clean energy jobs in Central Appalachia, and intends to provide exceptional returns to its investors. The project focuses on the production of decarbonized hydrogen utilizing natural gas as the feedstock. Decarbonized hydrogen will be used in the production of clean ammonia and clean metallurgical grade silicon. These two commodities will be sold to offtake entities who utilize ammonia and silicon in their productions processes, thus enabling "downstream decarbonization" to be achieved.

Building on the region's extensive power distribution and transport infrastructure, Trillium supports the following low-carbon production processes:

- 500 MT/day clean hydrogen with carbon storage for power generation and commodities production.
- 240 MW clean hydrogen-fueled power generation, silicon production, and power sales to grid.
- 350 MT/day clean ammonia, supporting the production of sustainable fertilizer.

- 200 MT/day clean silicon resulting in a sustainable feedstock in the production of aluminum, steel, and solar panels.
- Future expansion includes hydrogen storage, research and development of clean low-carbon fuel production processes, and low-grade-waste-heat-recovery for large-scale organic produce production.

Significant economic impacts and union job creation will result from this project**.** IMPLAN Analysis conducted by PORTSfuture estimates:

Construction Phase Economic Impact-$212,269,794 per year contribution to regional GDP and an estimated 2,881 union jobs.
Long-Term Operations & Maintenance-$173,939,581 per year contribution to regional GDP and an estimated 204 ongoing, direct jobs.

Project points of interest:

- Project Team: Trillium's project partners include Shell (hydrogen carbon capture/separation), Linde (gas separation plant), Casale (ammonia), SMS Metix (silicon), Advanced Resources International (carbon capture and storage), Baker Hughes (hydrogen turbines for power generation), Aveva (digital twin/technology platform), J.W. Didado (electrical contractor), and Schneider Electric (electric supply and electrical engineering studies).
- Parcel 1- 80 acres purchased December of 2023 for $1.6M.
- Parcel 3-~17 acres to be transferred and available for purchase estimated early 2025.
- Parcel 4- ~150 acres to be transferred and available for purchase estimated late 2025.
- Equity financing recruitment activities are ongoing.
- Due diligence activities and the application for the DOE Loan Guarantee is underway.
- The project will fall under the Ohio Power Siting Board (OPSB) process both for the natural gas pipeline and the power generation facility, which should enable the consolidation of all state-level permitting under the OPSB process.
- Trillium is establishing a Community Benefits Plan that will commit a portion of its project profits to be invested into community projects and programs. Potential areas of investments will be identified by a Community Benefits Planning committee. The committee will be comprised of local and regional stakeholders.

Trillium holding company has been established:

- Management teams have been hired, and meetings with State of Ohio entities are being held (JobsOhio, ODOD, etc.)
    - Newpoint Trillium Management leads project engineering.
    - Trillium H2 Power Management leads operations, investor relations, and funding.
- Trillium H2 Power, LLC was established to be the portfolio company and long-term licensor of intellectual property to the individual project companies. Trillium Piketon LLC is the project name in Pike County, Ohio. There are plans to potentially establish a future Trillium Paducah, LLC, to replicate this effort at the DOE EM site in Paducah, Kentucky.
- Trillium H2 Power is the company currently holding long-term agreements and contracts, but those will be transferred to Trillium Piketon LLC as things move forward.
- Trillium Piketon LLC is the loan applicant and will be the permit holder for the site at Piketon.
- Newpoint Trillium Management, LLC was established for project development, to hold the construction contracts, and to "deliver" the project to Trillium H2 Power/Trillium Piketon.

The holding company will continue to amass resources for the partners to launch a multi-state decarbonized hydrogen and sustainable manufacturing effort with the central node being located on SODI parcels that

were formerly part of the PORTS reservation. The holding company will contribute to identifying and evaluating sites with unique infrastructure that can be repurposed for future economic benefit such as decommissioned federal facilities and retired or operating energy production facilities in the area that could be potentially converted to decarbonized energy generation and sustainable manufacturing facilities. This will increase economic security by attracting additional clean energy and manufacturer investment to expand new job creation and promote auxiliary business development in the heart of Appalachia. Another focus of this effort will be to advance research, demonstration, and deployment (RD&D) efforts for emerging technologies in partnership with private industry, universities, and/or national laboratories when possible.

Industry partner: Oklo Inc.

Oklo Inc. (Oklo) is a company focused on advanced nuclear microreactor design technology to create compact and fast reactors that can recycle, and use spent fuel (i.e., previously used nuclear fuel, also considered nuclear waste) from other nuclear reactors and spent fuel from their own reactors. Oklo reactors are smaller, less obtrusive in appearance, and have exceptional safety profiles due to their design compared to other reactors currently operating. The company claims to have more than 750 MW of customer interest in signed memoranda of understanding and letters of intent. Oklo is actively evaluating 15 different sites for projects including the DOE former Gaseous Diffusion Plant in Pike County, Ohio. Oklo has successfully won four DOE competitive awards for fuel recycling totaling approximately $17 million. Fuel diversification is an advantage enjoyed by Oklo in that Oklo's advanced reactors can be configured to operate on transuranic-based or high-assay, low-enriched uranium (HALEU)-based fuel. During 2020, Oklo was the first advanced reactor design firm to access recycled HALEU fuel from Idaho National Laboratory for demonstration purposes. Commercializing the technology to recycle fuel has the potential to propel small modular reactor deployment as a source of zero carbon power in the United States by providing a reliable source of cost-competitive fuel to this industry while simultaneously providing a viable use for spent nuclear fuel.

Oklo has signed an MOU with SODI to explore the viability of installing two advanced nuclear small modular reactors on former DOE EM land that has been deeded to SODI. Oklo is also pursuing a partnership with Centrus Energy on advanced nuclear fuel fabrication and advanced fuel recycling technologies centered at the Centrus facility, which is collocated at the DOE EM former Gaseous Diffusion Plant in Pike County, Ohio. Oklo has a land purchase option with SODI but has not yet finalized land needs and locations regarding which SODI land to use for siting Oklo reactors. Oklo intends to pursue power purchase agreements from data centers and other high-volume energy users. Oklo will also explore repurposing deactivated coal fired power plants for conversion to advanced nuclear small modular reactor technology for baseload power generation as part of its revenue stream strategy.

Industry partner: Hecate Energy

In July of 2023, Hecate Energy (Hecate), one of the nation's leading developers in renewable energy projects and storage solutions, approached GEM about exploring a large-scale renewable energy battery storage project on SODI parcels in Pike County, Ohio. The company deploys innovative approaches to craft power purchase agreements and financing for power projects in the United States. During FFY24, Hecate signed a land option and is making annual payments to SODI to purchase an initial 50 acres in the southern portion of SODI's parcel 2. The company has also articulated an interest in acquiring two additional 50-acre parcels as those become available from DOE EM and are deeded to SODI. Access to the PJM grid interconnection adjacent to the site to disperse decarbonized energy on a wide scale is the most enticing reason for its interest in siting a project as part of the IES-CLM complex. During FFY24, PORTSfuture supported Hecate by consulting with DOE EM on a viable gen-tie route for access to the

American Electric Power Don Marquis substation, which would enable interconnection to the PJM grid. PORTSfuture also completed draft economic impact and workforce analysis studies for the Hecate project which will be finalized in FFY25.

Site Repurposing Activities-Budget Period 2

PORTSfuture site repurposing activities include collaborating with SODI and other stakeholders in the areas of master planning, site readiness and property transfer activities, data analysis, GIS, industry attraction support, and networking, collaborations and partnership building, stakeholder engagement, project resource acquisition for SODI, and developing linkages to applicable Ohio University researchers and technology commercialization entities. Ongoing Technical Assistance, Public Outreach, Education, and Engagement for Property Transfer and Future Use activities include assisting in evaluating property requests from private industry (as requested), property transfer planning, a phased-implementation schedule, providing reindustrialization planning and progress updates, information gathering and sharing through meetings and webinars, and STEM educational activities for regional youth in the four-county region.

These activities support the diversification of the regional economy by imagining possibilities beyond the immediate and existing economic realities in southern Ohio. The activities help to identify what is needed to best prepare the PORTS site to attract 21st century industries with enduring missions. This will provide residents in the region with new job prospects, enhanced wages, and an overall improved quality of life. Site reindustrialization will spur regional cluster and supply chain-related growth throughout the impacted counties, further advancing economic prosperity by growing both large and small business opportunities in southern Ohio and beyond. PORTSfuture Budget Period 2 activities are depicted in Figure 2 below.

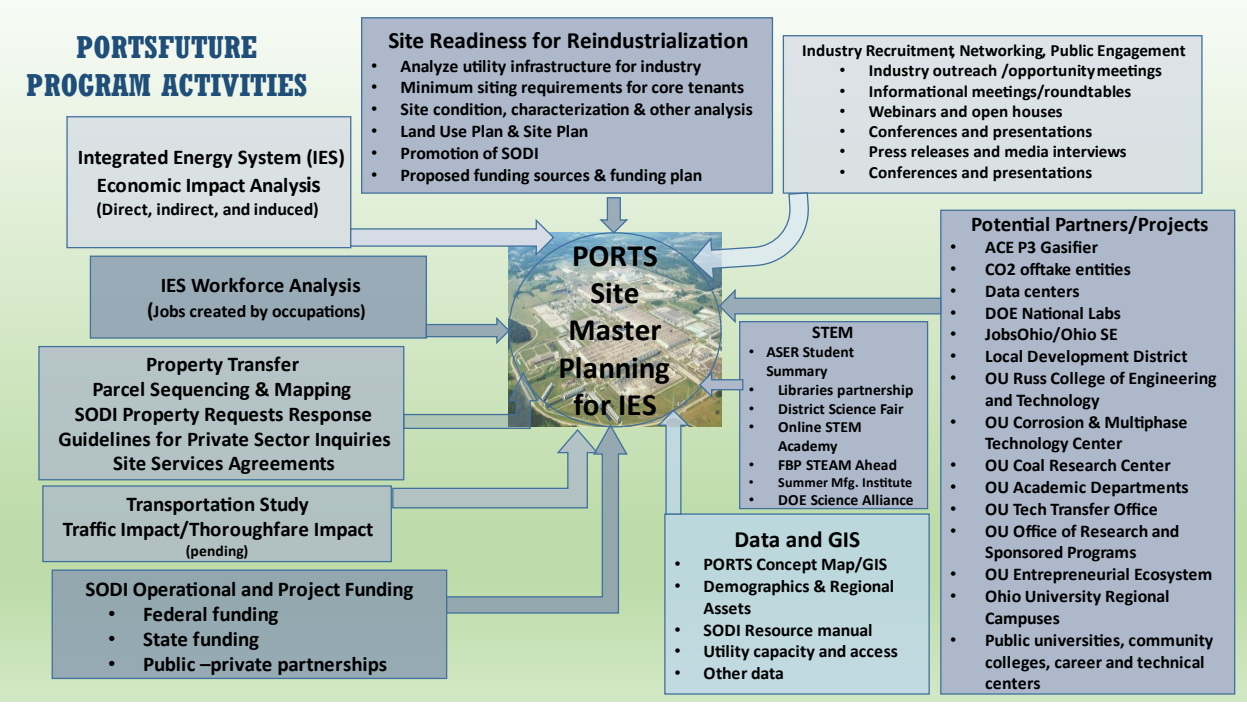

Figure 2. PORTSfuture Budget Period 2 activities

Integrated Energy System-Closed Loop Manufacturing (IES-CLM) complex

As previously stated, the Southern Ohio Diversification Initiative is pursuing the development of an

Integrated Energy System-Closed Loop Manufacturing (IES-CLM) complex on land formerly owned by DOE EM at the PORTS site. The goal is to leverage the unique infrastructure and other assets of the site to the optimal value for new economic growth opportunities.

The technical definition of an IES is two or more energy resources utilized as inputs to two or more physically coupled subsystems to produce one or more energy commodities as outputs. A simpler definition is multiple energy resources combined to produce one or more energy related products. An IES embodies a synergistic integration of an "all-of-the-above" energy strategy.

The key aspects of an IES-CLM are collocating, combining, interconnecting, and/or networking of energy producers and energy users and utilizing waste outputs from one industrial process as an input or feedstock into a different industrial process. In an IES-CLM, the "whole" is worth more than the "sum of the parts," value is the driver, and desired value propositions such as high efficiency, high reliability, low emissions, acceptable production costs, and creation of more permanent, higher quality jobs are achieved. An IES-CLM results in industrial symbiosis as depicted in Figure 3 below.

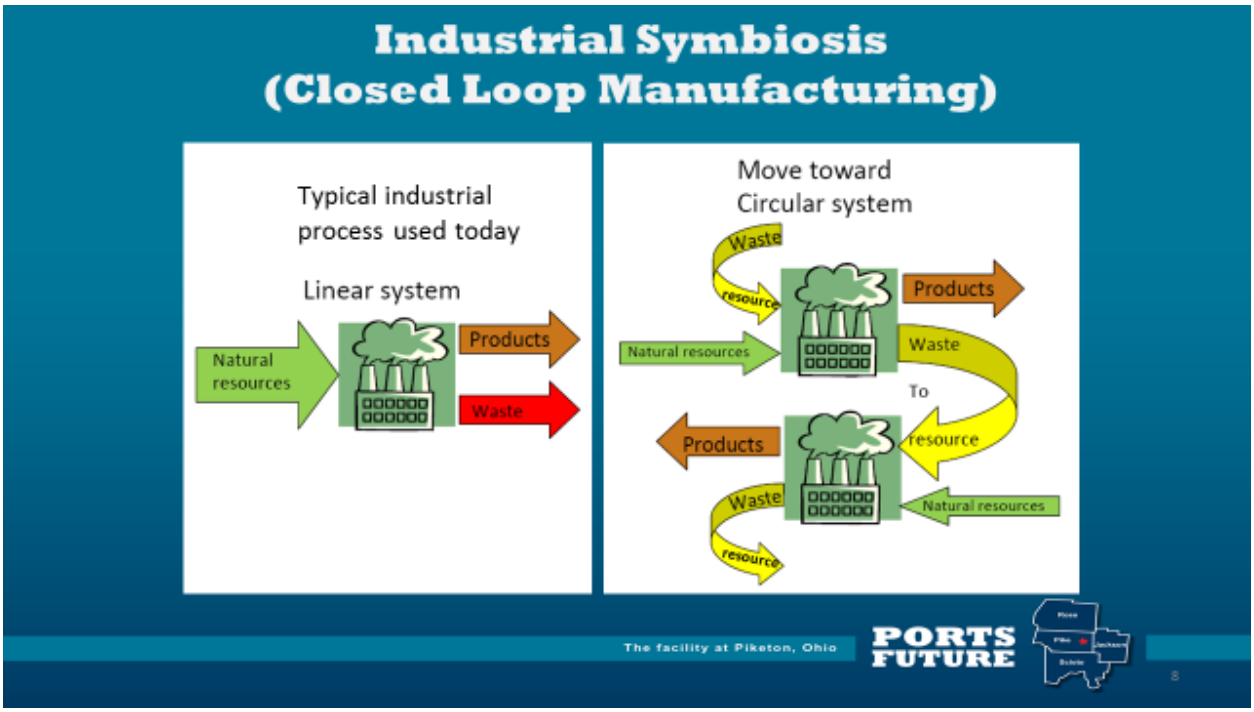

Figure 3. Industrial symbiosis depiction

IES-CLM complexes integrate high-temperature heat with industrial technologies to produce electricity for use by manufacturers, data centers, and residential consumers, supply predictable, low-cost energy for industry and for the national grid, power industrial processes such as carbon conversion (e.g., coal to liquids) and chemical production, and produce decarbonized hydrogen for transportation fuels, ammonia production, silicon production, and the hydrogen fuel cell market to name a few. Creating an IES-CLM at the PORTS facility will serve and expand existing markets, create new markets, establish new applications for value-added manufacturing with the region's coal and natural gas assets, utilize hydrogen across components of the IES-CLM, develop flexible processes to accommodate market shifts, and utilize residual heat to drive low-temperature processes such as water purification (e.g., distillation, osmosis) and enzymatic processes (e.g., fermentation, anaerobic digestion).

The SODI IES-CLM Project is being developed along these time frames:

- Near-term (1 to 4 years)-Deployment of current technologies that are scalable and investable now to build a process plant that produces decarbonized hydrogen to produce clean ammonia and clean silicon needed by industries to meet their market goals while adhering to regulatory requirements.
- Mid-term (4 to 15 years)-Transition and prepare for the potential addition of advanced nuclear small modular reactors and other energy sources, renewable energy battery storage, and process plants to accommodate changing economic and regulatory environments.
- Long-term (15+ years)-Integration and optimization of energy sources and industrial processes and continued recruitment of industries to accommodate changing economic and regulatory environments.

A graphical depiction of the Integrated Energy System-Closed Loop Manufacturing concept is depicted in Figure 4 below. To view the IES-CLM complex technical concept diagrams, see Appendix 2.

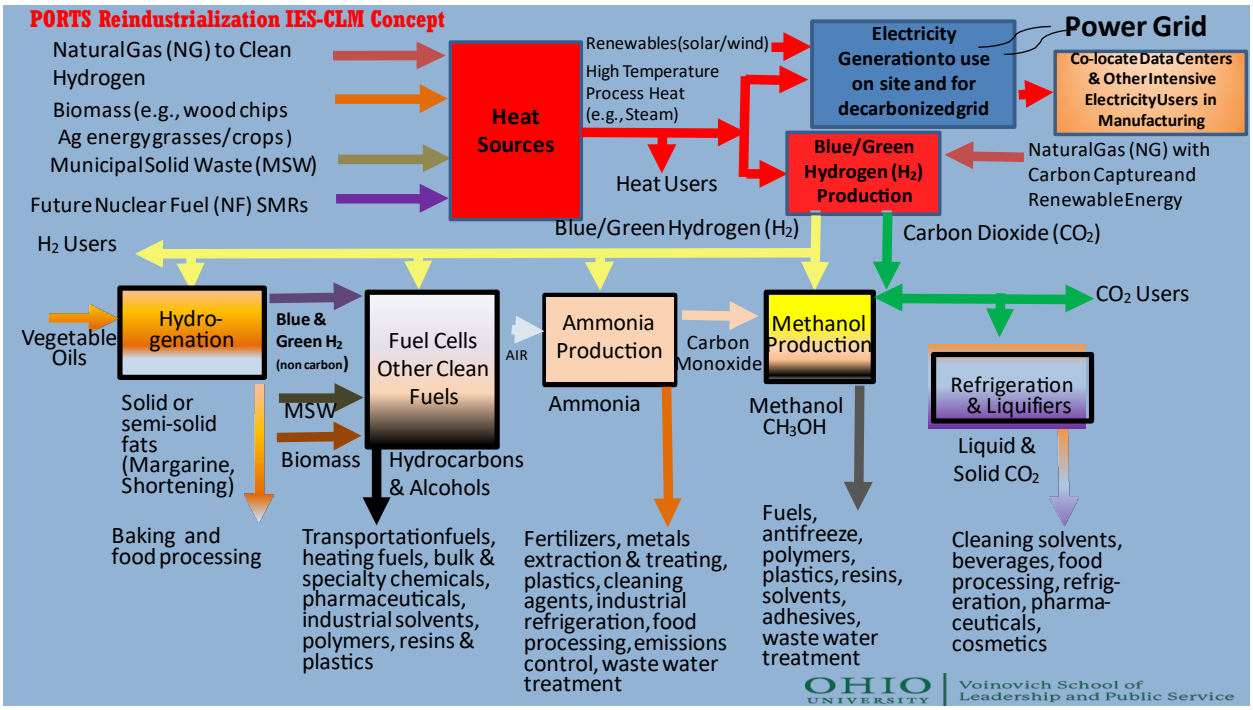

Figure 4. Integrated Energy System-Closed Loop Manufacturing Concept overview graphic

Regional cluster development will occur with the growth of natural spin-offs from the core IES-CLM complex at the former PORTS facility as various industries can realize more effective production costs when collocated within an IES-CLM. Industries that are high-hazard, high-security, high-investment, and/or require extremely high-temperature process heat can be located within the secure area of the IES-CLM complex. Other industries can tie into the IES-CLM complex to access heat, electricity, hydrogen, and other production outputs via transportation networks (e.g., roads, rail, and pipelines). A depiction of the potential for regional cluster development with an IES-CLM complex follows in Figure 5 below.

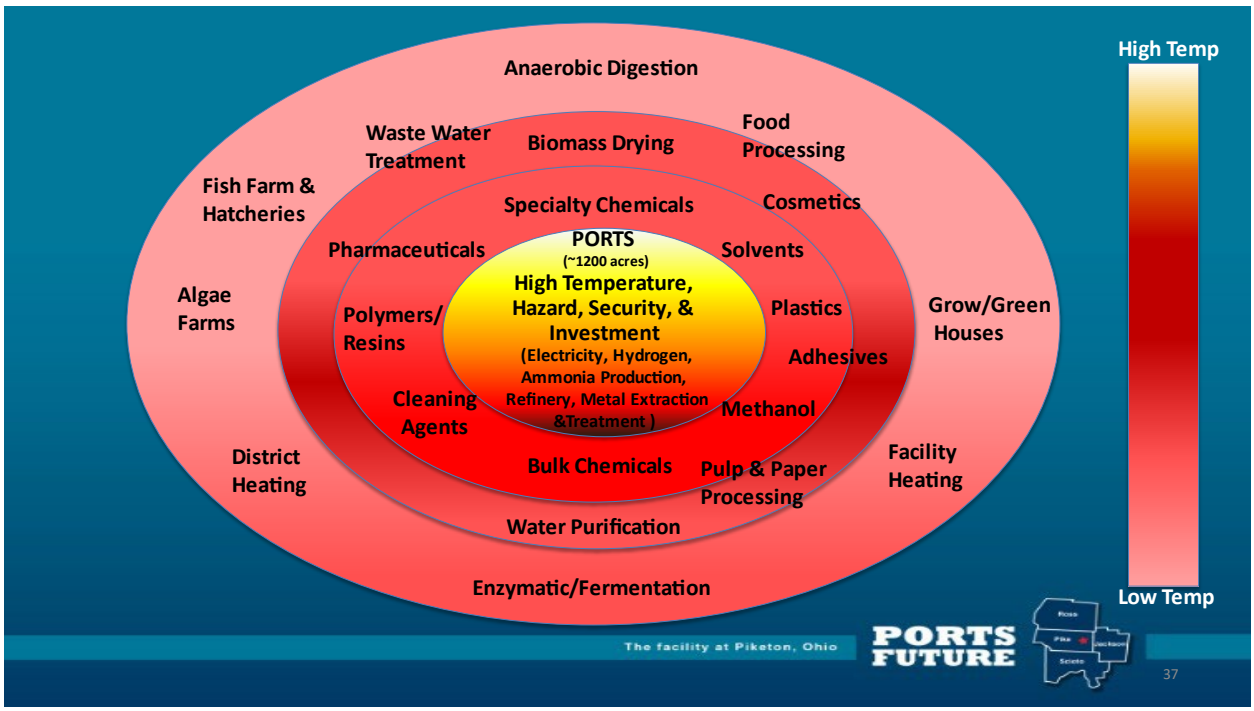

Figure 5. Potential for regional cluster development with an IES-CLM complex

Reindustrialization of the PORTS site into an IES-CLM complex would serve as an excellent example of converting a national liability to a national asset, resulting in much-needed regional economic development. This effort is an extraordinary opportunity to demonstrate what can and should be done with former DOE Defense Nuclear Sites or other brownfield sites. The IES-CLM complex will provide enduring and non-exportable jobs focused on optimizing efficiency of energy production and energy utilization in a sustainable and environmentally responsible manner. Sustainability, recycling and the efficient use of the region's natural resources and its industrial infrastructure are key drivers. Repurposing coal assets as a chemical feedstock to make new and innovative products is an excellent opportunity for economic development. Using coal and shale assets in additive manufacturing and diversifying the regional economy will revitalize the region.

Citizens will have access to an increased number of high-quality and higher-than-average-paying jobs. Economic impact analyses and workforce analyses of prospective future jobs have been and continue to be conducted by faculty at Ohio University. The region's entire economy will benefit from the site reindustrialization in the form of direct economic impacts (i.e., worker wages), indirect economic impacts (i.e., commerce and business revenue), and induced economic impacts (i.e., purchasing of goods and services in local communities that will generate business and job expansion and enhance state and local tax revenue). It is impossible to overstate the impact that site reindustrialization will have on the region's economy as there have been no large-scale industry start-ups or expansions to replace the former DOE plant operations in this part of southern Ohio.

OU grant activities supported SODI's collaboration with a nuclear industry collaborative that conducted a siting study funded by the DOE Office of Nuclear Energy. This study is applicable to any site that may be considered by an advanced nuclear small modular reactor vendor. SODI is seeking to identify and pilot versatile, next generation advanced nuclear small modular reactor technologies such as Oklo's at the PORTS site. The next generation nuclear reactors could serve as the long-term source of high-temperature heat to power aspects of the IES-CLM complex at PORTS and could serve as a vital source of zero carbon power for high-volume users of electricity as

well as serving the national electric grid. This innovative technology would be attractive to energy-intensive heat-using and power-using industrial end-users who are seeking zero carbon, environmentally friendly energy sources in their production processes. Key concerns that must be addressed include mitigating the significant upfront cost to construct the reactors and resolving regulatory issues associated with the design and federal licensing of these technologies. SODI continues to work closely with Oklo Inc., a private advanced nuclear small modular reactor (SMR) company, along with the U.S. Department of Energy, and other stakeholders with the goal of effectively launching an SMR project as part of site redevelopment.

Summary of Budget Period 2 Activities for Site Repurposing Continuation and Ongoing Technical Assistance, Public Outreach, Education, and Engagement for Property Transfer and Future Use

Activities from Budget Period 2 that will carry into the next grant cycle as ongoing grant activities include:

Site readiness for reindustrialization

The Southern Ohio Diversification Initiative (SODI) continues its focus on asset recovery operations by dedicating staff resources to that effort. Asset recovery involves SODI collaborating with DOE EM and site cleanup contractors to identify, retrieve, recycle, and/or sell personal property assets that are located at the PORTS site. By expanding asset recovery efforts, SODI will reduce landfill waste and increase revenue streams for regional economic development. Asset recovery proceeds are used by SODI for economic diversification initiatives in Pike, Ross, Scioto, and Jackson counties. These four counties served as the primary labor market for the PORTS site when it operated as a U.S. DOE gaseous diffusion facility. The asset recovery proceeds are also used to accelerate the PORTS site reindustrialization efforts including working with the PORTSfuture Program. DOE EM funding appropriated to the site by Congress is dedicated to cleanup activities including funding for the DUF6 facility. DUF6 is a coproduct that resulted from the gaseous diffusion processes that occurred when the DOE gaseous diffusion plant was operating in Ohio as well as at DOE EM sites in Paducah, Kentucky, and in Oak Ridge, Tennessee. The mission of the DUF6 program is to convert this stored DUF6 into depleted uranium oxide, which is a more stable chemical form that can be reused, stored, or more safely disposed. A coproduct of the conversion process is hydrofluoric acid (HF), that can be reused in industrial processes and provides a valuable “upcycling” component to the DUF6 program.

Site readiness activities for site reindustrialization focus on preparing parcels to be made available for reindustrialization. This includes identifying industry types that would be a good fit for the available parcels, ensuring that the site can meet those industries’ minimum siting criteria, analyzing the utility infrastructure in relation to industry attraction and determining minimum standards, identifying weaknesses and proposing funding sources to strengthen utility infrastructure, ensuring basic geological, environmental, and other related site characterization studies are completed or identifying studies that need to be completed to prepare the site for redevelopment, and improving and maintaining the SODI website. This information will enable SODI to respond to and alleviate concerns of prospective companies, which will be crucial to attracting industries. SODI formally received the first 80-acre land parcel transfer at a ceremony held in July of 2018. An additional parcel of approximately 226 acres was deeded to SODI in January of 2023. Future parcel transfers that are currently being processed by DOE EM will expand the land transferred footprint. The goal is to transfer these additional parcels during calendar years 2024 and 2025. SODI needs to accelerate site reindustrialization preparedness to quickly attract industries and provide the requested land to current developers described previously in this report so that job creation can be realized for the region.

PORTSfuture continues to be active with various regional and national groups that have a nexus to site reindustrialization efforts including:

- Energy Communities Alliance (ECA)-PORTSfuture remains involved as a non-voting member with the Energy Communities Alliance to keep apprised of policy and priorities of this group. ECA serves to inform and advance the needs and requests of host communities and local governments that are adjacent to or affected by US DOE EM facilities.
- American Manufacturing Communities Collaborative (AMCC)-A group of leading manufacturing development organizations across the United States, AMCC's mission is to create and strengthen an alliance of communities with regional economic development initiatives underway. AMCC's work is dedicated to achieving sustainability through economic growth, improved environmental performance, and the creation of inclusive well-paying jobs to create new opportunities and equity within a revitalized American manufacturing base.
- BlueGreen Alliance (BGA) national and Ohio offices-The BlueGreen Alliance brings together labor unions and environmental organizations to address environmental challenges by developing commonsense solutions to create and maintain quality jobs to build a clean, thriving, and equitable economy. Key objectives of BGA include activities that will result in clean jobs, clean infrastructure, and fair trade. BGA works to facilitate conversations among environmentalists, union members, and other stakeholders. BGA designs and informs public policies and educates labor union members and environmentalists about the economic and environmental impacts of climate change. BGA also focuses on job opportunities that can be a part of deploying environmental protections, educates the public on these issues, and advocates for practical solutions.
- Appalachian Energy Future (AEF)-An industry-led alliance designed to accelerate the transition to a clean energy future through the formation of public and private partnerships across borders and industry sectors in Ohio, Pennsylvania, and West Virginia. AEF strives to move toward a more sustainable energy future by employing innovative technologies for energy production that will provide high-quality jobs and strengthen our national prosperity.
- Ohio Manufacturers Association (OMA)-A member-supported, member-driven, and member-focused trade group that is comprised of manufacturers in the State of Ohio that strive to protect and grow Ohio manufacturing. OMA provides services in the areas of legislative and regulatory policy advocacy, workforce support, energy, and manufacturers' marketplace, and provides general information relevant to Ohio manufacturers.
- ReImagine Appalachia-A diverse consortium of stakeholders in the Ohio, Pennsylvania, and West Virginia geographic area that joined together to define and advocate for environmentally responsible economic development opportunities to advance economic prosperity for the region. Their blueprint was developed at the grassroots level and their advocacy has significant impact at the regional, state, and federal levels.

Data and GIS

As stated earlier, the purpose of the site reindustrialization and outreach activities summarized in this report is to serve the DOE EM cleanup mission including informing cleanup activities and property transfer priorities for future site reindustrialization. The potential for cost savings or cost avoidance is enhanced as cleanup efforts continue by expanding data utilization with site stakeholders. Data utilization will enhance information-based decision making when determining viable future use options for the site and site assets. Data and GIS created under previous grant activities are maintained and new and/or updated data and GIS products are developed as needed under the current grant. PORTSfuture data activities are summarized in Figure 6 and described below.

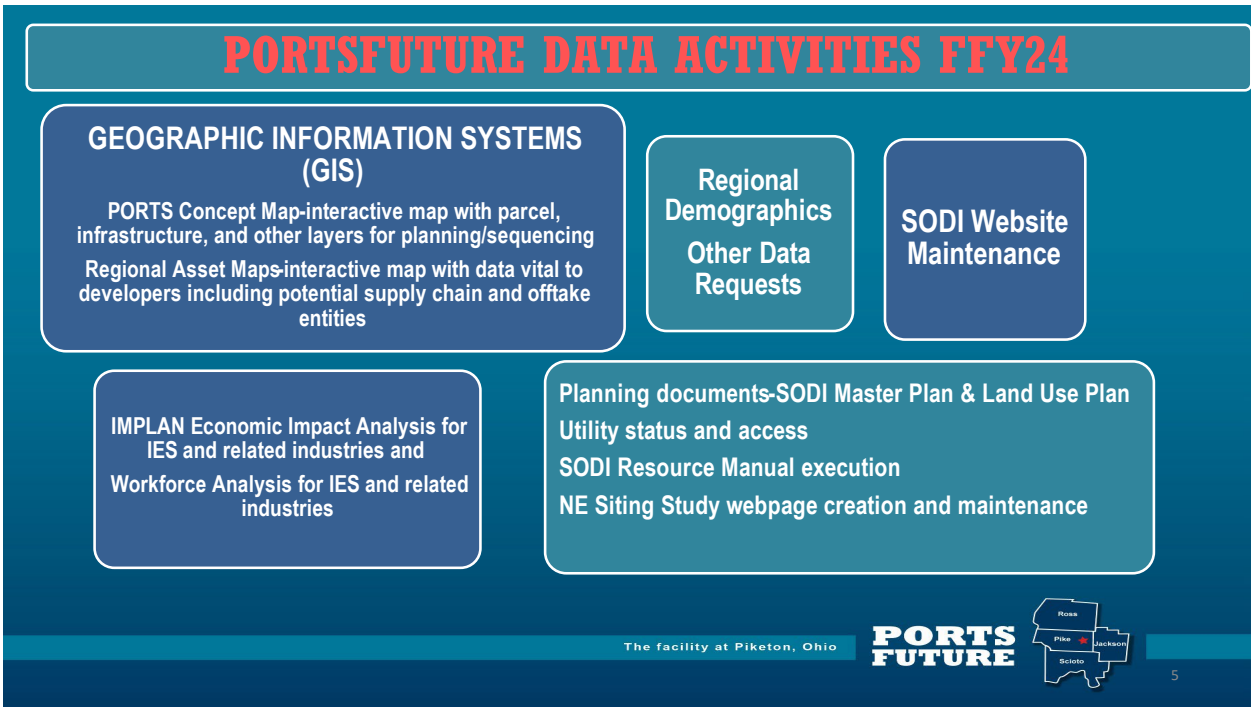

Figure 6. PORTSfuture data activities

Industry IMPLAN economic impact analysis and workforce analysis

In previous grant years, PORTSfuture conducted analyses on the direct, indirect, and induced economic impact and related workforce analysis of manufacturing industries on the four-county labor market closest to the facility (Pike, Scioto, Jackson, and Ross counties). A study was also completed for Trillium H2Power. Additional analyses of other potential site reindustrialization options will be added to the findings of previous grant years as appropriate. Budget Period 2 deliverables follow below.

Trillium H2Power development related to Integrated Energy System Closed Loop Manufacturing (IES-CLM) economic impact and workforce analysis

Using 2024 data inputs, PORTSfuture updated the analysis of the direct, indirect, and induced economic impacts on the regional economy and the resulting impact on the regional workforce that was originally produced for Trillium in 2022. These updates were completed in May 2024. The analyses will inform site reindustrialization, local economic development planning efforts and workforce development strategies. This information can be used to seek advocacy and/or resources from industry, investors, government, and the community in support of the development of this initial project that will launch the IES-CLM complex.

Deliverables include a summary document that can stand alone or be compiled as part of a larger summary document. The report is available at:
https://www.portsfuture.com/wp-content/uploads/2024/05/2024-Final-h2-TEAM-Full-Report-Economic-Impact-and-Workforce-Analysis-of-Project_May-2024.pdf

Draft electronic version of report in PDF format-April 2024
Final electronic version of report in PDF format-completed May 2024

Hecate Energy development related to Integrated Energy System Closed Loop Manufacturing (IES-CLM) economic impact and workforce analysis

PORTSfuture completed a draft analysis of the direct, indirect, and induced economic impacts on the regional economy and an analysis on the resulting impact on the regional workforce for our industry partner's planned utility scale renewable energy battery storage project. These analyses will inform site reindustrialization, local economic development planning efforts, and workforce development strategies. This information can be used to seek advocacy and/or resources from industry, investors, government, and the community in support of the development of this project. Deliverables include a summary document that can stand alone or be compiled as part of a larger summary document.

Draft electronic version of report in PDF format-August 2024
Final electronic version of report in PDF format-pending review of the industry partner

DOE Office of Nuclear Energy (NE) siting study for advanced reactor stakeholders

In a previous grant year, PORTSfuture provided data and GIS products and services to the NE Siting Study conducted by SODI and their advanced reactor partners. This group developed generic design support for advanced reactor companies in the form of a Site Reuse Deployment Guidance document. The PORTS site is being used as the case study to develop guidance for an early site permit. The project focused on identifying, characterizing, and licensing sites for near-term deployment of advanced reactor demonstrations and first-commercial units. The Site Reuse Deployment Guidance document evaluates the benefits and potential obstacles of repurposing an existing nuclear facility undergoing decommissioning for siting and construction of an advanced reactor project. This group built upon earlier projects and products from the initial U.S. public-private efforts on new plant licensing. The study documents insights in relation to cleanup for intended future use of DOE facilities. The group has stressed that this effort is not intended to supersede or evade other formal decision processes related to identifying future uses of the PORTS site. The project merely serves to use the PORTS site as an example for explicating the revised requisite advanced reactor permitting and licensing documentation. The study developed a Plant Parameter Envelope (PPE) for use at the DOE EM PORTS site for advanced reactors and will also quantify potential savings to DOE EM if the PORTS site is repurposed for an advanced reactor project.

At the request of Orano Federal Services, PORTSfuture is hosting the final NE Siting Study and related study data for public availability on the PORTSfuture Program website.
https://www.portsfuture.com/nesitingstudy/

Draft electronic version of the webpage-January 2024
Final electronic version of the webpage-February 2024

Data on Ohio geology

PORTSfuture is maintaining comprehensive data from the Ohio Department of Natural Resources (ODNR) and other sources on geology and related information that will be needed by private developers. A password-protected web page was created on the PORTSfuture website where data can be reviewed as needed by external parties upon request. New data was added in Budget Period 2 that PORTSfuture requested and received from DOE EM, ODNR, and the Ohio Department of Development (ODOD).

Data added to the private webpage- July 2024

Data for industry project planning

PORTSfuture secured data requested by industry partners from DOE EM, state agencies, and private sector entities related to onsite wells, status of utilities at PORTS, parcel transfer documentation, and natural gas pipeline access and capacity.

Data obtained throughout Budget Period 2 as requested

Principal Influencers tracking spreadsheet

PORTSfuture maintained and updated the Principal Influencers of Appalachian Energy Hub and IES-CLM spreadsheet that informs site reindustrialization activities and is available upon request.

PORTS site master plan

PORTSfuture collaborated with SODI to produce a site master plan that fully explicates SODI's mission, vision, assumptions, guiding principles, goals, values, objectives, challenges, benefits, and strategy for launching the IES-CLM complex at PORTS. PORTSfuture is maintaining this master plan, pending formal approval by the SODI Board.

Draft electronic version of report in PDF format-August 2022
Final electronic version of report in PDF format-to be determined by SODI after SODI Board approval

PORTS land use plan

PORTSfuture collaborated with SODI to produce a site land use plan that describes SODI's site reindustrialization purpose, assumptions, current land use, leases, transfers and other land use actions, future land use plans, land use issues, planning and control for existing missions, and process for future land use changes. PORTSfuture is maintaining this land use plan, pending formal approval by the SODI Board.

Draft electronic version of report in PDF format-August 2022
Final electronic version of report in PDF format-to be determined by SODI after SODI Board approval

PORTS reindustrialization concept map

PORTSfuture is maintaining, expanding, and modifying as requested the interactive site map that displays various layers including site infrastructure, easements, broadband points of presence, topography, limitations, parcel transfers, and other information to be used in site reindustrialization planning efforts. This is an interactive GIS database creating a land use and site master planning tool that enables the user to display various layers such as site infrastructure assets, wetlands, landfills, and other features in relation to developable parcels. This GIS tool will assist in assessing suitability to industry siting criteria and with other activities related to planning for reindustrialization. During Budget Period 2, PORTSfuture created 13 new layers and updated 14 layers we obtained from DOE EM for this map to ensure the data is current for SODI and private developer requests.

This interactive GIS database can be viewed at:
https://ohiou.maps.arcgis.com/apps/webappviewer/index.html?id=fe14a57f8ccb48d4875cbfbeb17e0271

Asset map

PORTSfuture is maintaining, expanding, and modifying as requested the existing regional asset map. This map visually displays relevant regional assets useful for future site use decision-making such as highways, hazmat routes, rail, airports, navigable waterways, accredited education institutions, metro centers, population that can be reached within various drive times from the site, potential industry offtake customers, supply chain vendors, and many other data points. During Budget Period 2, the asset map was updated to include creating 5 new layers.

This map can be viewed at:
http://ohiou.maps.arcgis.com/apps/webappviewer/index.html?id=e5e8bf0c28464fa9b558cd6064afce98

Utility matrix and permit inventory

PORTSfuture developed a utility matrix and permit inventory in collaboration with DOE EM in a previous grant year. The utility matrix provides an at-a-glance view of utilities' current capacity, current usage, excess capacity, and other notes of importance for industries looking to site operations at PORTS. PORTSfuture created an index/matrix of infrastructure requirements for targeted industries (e.g., water, gas, electric, security) that could serve to identify assets to preserve rather than demolish, resulting in potential for DOE EM cost avoidance. The utility matrix provides useful data points on investments an industrial tenant might need to consider if certain utility assets are removed by DOE EM and for general planning of an industrial partner's utility needs.

The utility matrix is available upon request and at the discretion of SODI. This matrix is being maintained to support SODI's reindustrialization efforts.

PORTS Virtual Model

Ohio University's Game Research and Immersive Design (GRID) Lab is an award-winning program located in Ohio University's Scripps College of Communication that utilizes undergraduate and graduate students, faculty, and staff researchers in their project development. The GRID Lab was created to provide the Appalachian Ohio region with education and technical assistance for developing unique products that utilize digital game technology, 3-D modeling, computer animation, simulations, and virtual, augmented, and mixed reality. These platforms can be applied to address specific requests from both the public and private sectors. In the past two decades, the GRID Lab has been awarded grants and contracts from state and federal agencies including the U.S. Department of Homeland Security, Central Ohio Urban Area Security Initiative, Ohio Board of Regents, U.S. Department of Energy, U.S. Department of Labor, and the National Institutes of Health.

During 2012, DOE EM funded the GRID Lab to create a 3-D virtual model of the PORTS reservation with the intention of utilizing the virtual model as a public information resource. At that point of site cleanup activities, security considerations emerged that prevented the public use of the virtual model. During Budget Period 2, DOE EM requested an update of the PORTS Virtual Model to be reflective of current site cleanup status. This request was made by DOE EM because the site cleanup has progressed to the point that enables broader release of site information. Planned modifications include graphical upgrades, remodeling and texturing of all buildings, upgrading code for modern game engines and operating systems, updating simulation timelines, and creating an updated, narrated fly-through video demonstration. The updated model can also be used with private developers interested in the site to help identify optimal locations for projects based on developers' specific land needs and preferences.

Updates to the PORTS Virtual Model began during Budget Period 2, and the draft and final models will be completed during Budget Period 3.

SODI resource manual implementation

In a previous grant year, Ohio University provided approximately $50,000 in non-DOE EM funds toward a collaboration among PORTSfuture, private sector consultants, and SODI to create a comprehensive site reindustrialization resource manual. The manual is for use by SODI and other regional and state economic development entities working on the reindustrialization of the PORTS site consistent with the IES-CLM concept. Throughout Budget Period 2, OU continued discussing with SODI the implementation of recommendations in the manual. OU will continue to work with SODI as requested on carrying out recommendations in the manual in future grant years.

The SODI resource manual is available upon request and at the discretion of SODI.

PORTSfuture data reports from previous grant years that continue to support site repurposing efforts include:

Habitat Mapping of the Land and Vicinity of the United State Department of Energy (DOE) Portsmouth Gaseous Diffusion Plant (PORTS) in Pike County, Ohio.

Under this 2-year activity, OU compiled a fully georeferenced database from DOE EM, State of Ohio, and public sources, completed a data gap analysis of the georeferenced data, and created a detailed land cover map of the PORTS site, including a 1-mile buffer around the site.

The report and land cover map are available at:
https://www.portsfuture.com/habitat-and-land-use-plan/

Wetland and Primary Headwater Streams Mitigation Conceptual Design Plan.

This activity resulted in the preparation of a mitigation conceptual design plan, including a wetland mitigation bank proposal, which could be used by DOE EM and/or private developers to compensate for potential unavoidable losses to waters of the United States (Clean Water Act Section 404 jurisdictional wetlands and headwater streams as regulated by Ohio EPA). Wetland mitigation analysis and planning was limited to federal lands outside the central high-security area and to other proximate lands that may be identified as potential locations for headwater stream mitigation.

The report is available at:
https://www.portsfuture.com/habitat-and-land-use-plan/

SODI public information and website redesign launch

During Budget Period 2, discussions began for a public information campaign and website redesign launch for the SODI website. The goal of these activities is to develop a positive and informative narrative about site reindustrialization activities. PORTSfuture has hired communications consultants to assist in this effort. Funding for the consultants comes solely from non-DOE EM resources at Ohio University. PORTSfuture finished the redesign of the SODI website in a previous grant year in collaboration with SODI and an outside vendor. That effort designed and built a website for SODI that is easy to navigate and provides useful information to target audiences such as industry prospects, businesses, nonprofits, economic development professionals, and general inquiries.

Throughout Budget Period 2, OU continued to maintain the SODI website and assist with updates, software licensing and other technical assistance.

The website can be viewed at: http://www.sodidevelopment.org/
SODI public information campaign and website launch dates will be determined by SODI.

SODI operational and project funding

This is an on-going activity in Budget Period 2 in partnership with SODI. PORTSfuture continued to pursue sources of funding for SODI operations and assisted SODI with its financial plan. A financial plan needs to be deployed to increase SODI's capacity to obtain the resources necessary to transform PORTS into an IES-CLM complex and to pursue complementary missions. In the near-term, economic development funding is needed to establish a project development team with a full-time person to lead and coordinate the rollout of a master plan and subsequent execution and implementation plans, including a more formal financial plan. These plans must be in harmony with State of Ohio and regional economic development strategies and efforts to the maximum extent possible. Additionally, funding is needed for site readiness activities and analyses, identifying potential project opportunities, and other activities to expand site reindustrialization. In summary, the initial economic development funds are to be used for:

- Expansion of asset recovery efforts.
- Compensation for a project development team, project manager, and professional support staff.
- Execution of a master plan for transforming PORTS.
- Execution of implementation plans.

During Budget Period 2, PORTSfuture provided support to SODI's financial plan and project funding in the following ways:

- PORTSfuture tracks and summarizes available sources of state and federal initiatives related to infrastructure improvements, industrial park improvements, and other related programs for which SODI may qualify. PORTSfuture also assists SODI as requested in pursuing these opportunities.
- PORTSfuture continues to advise SODI on public-private partnerships aligned with SODI's work. PORTSfuture supports SODI in pursuing such partnerships as part of the previously mentioned SODI financial plan.
- PORTSfuture tracks congressional legislative updates on proposed congressional bills that can impact PORTS reindustrialization efforts and the surrounding Appalachian region and periodically reviews these with SODI.
- PORTSfuture brokers meetings with relevant state and federal agencies to assist SODI with seeking funding from those entities.

During Budget Period 2, PORTSfuture wrote, submitted, and/or followed up on these funding applications to acquire resources for ongoing SODI operations and to support the overall GEM initiative:

- Successfully secured from U.S. Senator Sherrod Brown a Congressionally Directed Spending request in the amount of $500K for SODI support. PORTSfuture wrote the proposal for SODI and is assisting SODI in the execution of these activities. This award will provide funding for:
    - Operational costs for SODI's site reindustrialization activities.
    - Utility analysis to determine the most efficient and cost-effective provision of utilities on a long-term basis. These efforts will require coordination of several townships, municipalities, and service providers to develop the optimal plan for the region. This includes analyzing the

utility infrastructure in relation to industry attraction to create a utility strategy that supports the reindustrialization initiative including determining minimum standards needed by developers, identifying weaknesses, proposing funding sources to strengthen utility infrastructure, ensuring all basic geological, environmental, and other related site characterization studies are completed or identifying gaps and studies that need to be completed to prepare the site for redevelopment.
    - Workforce resource analysis to identify the needs of developers who will be employing union labor, identify workforce development that is currently available through organized labor groups in Ohio, identify gaps in needs and training resources, and develop a plan for addressing any gaps.
    - Various SODI outreach activities.
- PORTSfuture and our policy consultants collaborated with SODI and the President of USW Local 689 to secure a $2 million grant to establish the Appalachian Clean Energy (ACE) Industrial Assessment Center (IAC). USW Local 689 was awarded this funding during the summer of 2024 from the U.S. Department of Energy's Office of Manufacturing and Energy Supply Chains. The funding will refurbish the USW Local 689 union hall to create a workforce training center to prepare workers for current and future jobs in clean energy and advanced manufacturing projects that will be created as part of the PORTS site reindustrialization. The team mentioned above identified and helped secure $50,000 in grant funding from the Just Transition Fund that enabled SODI to hire a grant writer for the proposal. PORTSfuture worked with USW Local 689 and SODI to develop a successful grant application that includes partnerships with Sinclair Community College (SCC) and the University of Dayton (UD) to leverage their existing industrial assessment curriculum. USW Local 689 will also partner with SCC and UD on establishing the Appalachian Clean Energy (ACE) Industrial Assessment Center. PORTSfuture and SODI will participate on the advisory board that USW Local 689 established to assist with the implementation of the ACE grant. Here is a press release on the award: https://www.brown.senate.gov/newsroom/press/release/sherrod-brown-new-usw-job-training-center-piketon
    - During Budget Period 3, PORTSfuture will be working with SODI and USW Local 689 on a Phase II project proposal that will feature an experiential learning component to train future workers on equipment operation, a virtual learning laboratory to train future workers on operations and maintenance skills for incoming private developer projects, a Research Development and Deployment (RD&D) facility to provide space to develop and test operational innovations, and office space for industries that are part of the site reindustrialization. PORTSfuture prepared a concept paper on Phase II to assist with outreach to possible funders for this effort. A meeting was held with the Director of the U.S. Economic Development Administration (EDA) Region 5 contact in June of 2024 to discuss whether EDA could be a source of funding for Phase II. The USW Local 689 President is travelling to Washington DC in October of 2024 with PORTSfuture's policy consultant to attend the Just Transition Fund convening to discuss funding for this effort.
- PORTSfuture and SODI conducted meetings with the U.S. Department of Agriculture Ohio Office, U.S. Economic Development Administration Region 5 Office, Ohio Rail Development Commission, Governor's Office of Appalachia, Ohio Department of Development, and the Ohio Valley Regional Development Commission to determine funding opportunities that may exist to support site readiness. PORTSfuture will assist SODI in the upcoming Budget Period 3 to seek funds as such resources become available.

Coalition building for advancing site repurposing efforts

PORTSfuture continues extensive activities in stakeholder engagement on behalf of, and at times with, our core site reindustrialization partners. These activities are crucial for coalition building at the regional, state, and national levels to advance site repurposing activities. Coalition building efforts have focused on:

- Meetings with key stakeholders/funders/influencers.
- Meetings with federal elected officials.
- Meeting with federal entities.
- Meeting with State of Ohio government executive branch entities and other state agencies.
- Ongoing contact with the Pike County Council of Governments.
- Facilitating an organized labor steering committee to assist with coalition building.
- Developing press releases, public information, and messaging materials.
- Other efforts to be determined moving forward.

State government meetings

PORTSfuture continued communications with state government leaders during Budget Period 2 to provide updates on site reindustrialization progress at PORTS. Key state officials have been invited to all public reindustrialization activities including the advanced nuclear small modular reactor webinars and the Meet the Developers Open Houses. Key engagements with state officials during Budget Period 2 include:

- January 8, 2024-Meeting with the Ohio Air Quality Development Authority and Hecate Energy to discuss a battery storage facility and the role that OAQDA could play in the project. Hecate Energy followed up with OAQDA after the meeting to further discuss its project.
- February 8, 2024-Meeting with OAQDA to introduce Trillium H2Power to the Authority and explore how OAQDA could be helpful to their project. Conversations between OAQDA and Trillium are ongoing.
- February 22, 2024-Meeting between Trillium and the Ohio Rail Development Authority to obtain guidance on seeking rail improvements at PORTS to support reindustrialization. The Rail Development Authority advised Trillium to follow up with potential rail industry partners serving this region as an initial step in the process to expand rail access.
- February 28, 2024-Meeting with Ohio Department of Development (ODOD)leadership team to update them on progress with reindustrialization and inform them of a utility study that will be conducted at the site to identify infrastructure needs that could be supported through state funding. Department of Development officials who participated in the meeting included Assistant Director Matt McClellan, Governor's Office of Appalachia Director John Carey, Director of Programs Operation Michael Frazier, and Assistant Chief of Business Operations Division Eric Lindner. The Department of Development officials followed up with information of funding opportunities and parameters as the utility study is conducted.
- April of 2024-Assisted Trillium with developing an application for funding for a carbon capture and storage project from the One-Time Strategic Community Investment Fund through State Senator Shane Wilkin. Senator Wilkin submitted the request to the Senate Finance Committee; however, the Trillium project was not funded.

Federal meetings

Congressional Offices and key federal officials have been invited to all public reindustrialization activities including the advanced nuclear small modular reactor webinars and the Meet the Developers Open Houses. Key engagements with federal officials during Budget Period 2 include:

- May 22, 2024-The offices of Senators Brown and Vance and Congressman Wenstrup participated in a Labor Steering Committee meeting to be briefed on recent developments on reindustrialization and to meet the newly installed corporate leaders for the Trillium project.
- July 26, 2024-Met with USDA Rural Development State Director to discuss the readiness of the PORTS site for reindustrialization and to discuss funding opportunities for the site.
- September 30, 2024-Attended USDA conference in Portsmouth, Ohio and met with the USDA State Director. During the conference, the Director praised the PORTS site as a preeminent industrial site in Southern Ohio.
- August 22, 2024-Assisted U.S. Senator Sherrod Brown's Office to arrange the Senator's appearance at the USW Local 689 facility to announce the $2 million workforce training grant for the Appalachian Clean Energy Training Center.

Labor engagement in support of site reindustrialization

PORTSfuture has retained a nationally prominent firm, Remington Road Group (RRG), to work with OU, SODI, and GEM partners on coalition building with organized labor at the regional, state, and national levels to advance site repurposing activities. Ohio University has approved the use of its State of Ohio Appalachian New Economy Partnership funds to cover this vendor's costs. RRG has developed this partnership with organized labor that has been foundational to reindustrialization work at PORTS. Unions are respected messengers in Ohio by both community members and business and governmental leaders. The state's citizens trust unions to advocate for the rights of working people and to help create well-paying, endurable jobs. To formalize our efforts and to create continuity, under the leadership of RRG, we formed The Ohio Valley Green Energy and Manufacturing (GEM) Labor Steering Committee. The Committee includes the leadership of the Ohio American Federation of Labor and Congress of Industrial Organizations (AFL-CIO), Ohio State Building and Construction Trades Council, Tri-State Building Trades, and international and local leaders of the International Brotherhood of Electrical Workers (IBEW) and the Plumbers and Pipefitters unions. The Labor Steering Committee supports the PORTSfuture Program goals by actively engaging with industry partners and other stakeholders to provide advice and guidance, lead advocacy, and share workforce expertise, and ensuring a ready workforce with the tailored skills and expertise necessary to advance GEM projects.

The Labor Steering Committee meets with SODI and PORTSfuture to stay informed about site reindustrialization progress and to provide input and guidance to other stakeholders. The Committee engages with the private and public partners about the site's new and ongoing developments and to share insight into workforce issues. Industry partners, such as Trillium and Oklo, have been invited early in their project development processes to join in Labor Steering Committee meetings to share their plans and to build relationships that will help their projects move forward more effectively. This effort has been key to Trillium signing a Memorandum of Understanding (MOU) committing to a Project Labor Agreement with the Tri-State Building and Construction Trades Council for construction of the Trillium Piketon facility. Trillium signed an MOU with the United Steel Workers (USW) Local 689 committing to voluntary recognition of USW Local 689 as the workforce to operate the Trillium Piketon facility.

Congressional partners are periodically invited to attend Labor Steering Committee meetings on significant topics to provide general updates and to inform on issues that may lead to a congressional

request. For example, congressional offices were invited to sessions with industry partners to discuss project benchmarks prior to issuing press releases publicly. They have also been invited to discussions about federal programs that industry partners may be interested in pursuing such as Hydrogen Hubs and Tech Hubs. In the past, invitations have been extended to the offices of United States Senators Portman, Brown, and Vance and Congresspersons Wenstrup, Ryan and Kaptur. After the election of Senator Vance, we invited his State Director to a special briefing by labor and other partners on the potential of reindustrialization at PORTS. The offices of Senators Brown and Vance and Congressmen Wenstrup remain actively engaged in the Labor Steering Committee and with GEM partners.

Seminal work that has been facilitated through the Labor Steering Committee includes:

- Setting up and participating in meetings between labor-friendly investment funds and Trillium to secure financing for the Trillium hydrogen project.
- Joining in meetings with the DOE Loan Program Office and Trillium in Washington D.C.
- Participating in congressional meetings with Trillium on Capitol Hill.
- Collaborating in providing information on union members' skills and training capabilities for nuclear industry recruitment.
- Participating in meetings with local government leaders about reindustrialization.
- Providing support for our earned media efforts through interviews and quotes in press releases.
- Providing input that has helped in drafting grant requests.
- Providing letters of support for grant applications made by SODI and our industry partners.
- Showing support by attending public meetings on reindustrialization efforts.
- Co-hosting and/or participating in webinars produced through the PORTSfuture Program work.

The Labor Steering Committee primarily engaged in ad hoc activities during Budget Period 2 to support reindustrialization activities. Ohio AFL-CIO President Tim Burga and Ohio State Building and Construction Trades Council Executive Secretary-Treasurer Mike Knisley both met with Trillium Founder Wiley Rhodes in October of 2023 to offer advice, and both provided letters of support for the Trillium project. Mike Knisley invited the labor-aligned private equity group, GMC Grosvenor, to visit PORTS as a potential investor in Trillium. Mike Knisley secured letters written to JobsOhio from GMC Grosvenor and from another union private equity group, ULLICO, both expressing their interest as potential Trillium investors. Mike Knisley has followed up regularly with GMC Grosvenor throughout Budget Period 2. GMC Grosvenor is an ideal investor given its alignment with labor and history of working with another hydrogen project in Ohio. Mike Knisley also formed a building trades hydrogen working group and invited Trillium to meet with the group on March 19, 2024.

Labor Leaders Steering Committee meetings that occurred between October 1, 2023, and September 30, 2024, include the following:

2023

- October 24-Tim Burga, Ohio AFL-CIO President, and Wiley Rhodes, Trillium CEO.
- October 25-Wiley Rhodes, Trillium CEO, and Mike Knisley, Secretary/Treasurer, Ohio State Building and Construction Trades Council.

2024

- May 22- Union leaders labor steering committee meeting with Trillium and representation from U.S. Senators Brown and Vance Offices and Congressman Wenstrup's Office attending.
- July 16-Union leaders and Trillium met to discuss Trillium's progress.

Stakeholder engagement meetings for site reindustrialization

These meetings occur with a wide range of stakeholders to share information on site reindustrialization efforts, public outreach, and STEM engagement, to seek information or input, and/or explore synergies and potential collaborations and partnerships. Meetings that occurred during Budget Period 2 are listed below.

2023

- October 3-Luke Stedke, Assistant Chief, Community Investments and Community Services Division, Ohio Department of Development
- October 4-Linda Sekura, sustainability specialist and ecologist
- October 5-Amanda Woodrum, ReImagine Appalachia
- October 10-Mark Denton, Senior Project Manager, Orano Federal Services
- October 12-Wendy Patton, Director, Columbus Program in State Issues, Kent State University Department of Political Science
- November 2-Amanda Woodrum, ReImagine Appalachia
- November 6-Jack Ackerman, Principal, Caruso Energy
- November 6-Lee Geisse and Suzanne Caflisch, Blue Green Alliance; Tracy Sabetta, Shannon Heyck-Williams, Denise, Poloyac and Jessica Arriens, National Wildlife Federation
- November 10-John Seryak, President of Go Sustainable
- November 17-Amanda Woodrum, ReImagine Appalachia
- November 28-Scott Sklar, Founder, The Stella Group
- November 30-Amanda Woodrum, ReImagine Appalachia
- December 8- Ryan Augsburger, President, Ohio Manufacturers Association
- December 11-Amanda Woodrum, ReImagine Appalachia
- December 15-David Wilhelm, Chief Strategy Officer, Hecate Energy

2024

- January 8-Christine O'Keeffe, Executive Director, Ohio Air Quality Development Authority and David Wilhelm, Chief Strategy Officer, Hecate Energy
- January 17-Christine O'Keeffe, Executive Director, Ohio Air Quality Development Authority
- February 1-John Carey, Director, Governor's Office of Appalachia
- February 1-Christine O'Keeffe, Executive Director, Ohio Air Quality Development Authority
- February 2-Craig Butler, Chief Executive, Muskingum Watershed Conservancy District
- February 20-Kelli Johnson, Southeastern Ohio District Director, US Senator J.D. Vance
- February 21-Lindsey Geisler, Director of Corporate Communications and Executive Administration, Dan Leistikow, Vice President, Corporate Communications, Centrus Inc.
- February 22-Matt Dietrich, Executive Director, Thomas Burns, Project Development Manager, Timothy Brown, Senior Project Manager, Ohio Rail Development Commission
- February 28-John Carey, Director, Governor's Office of Appalachia, Matt McClellan, Assistant Director, Eric Lindner, Assistant Chief, Business Services Division, Mike Frazier, Director, Program Operations, and Patrick Smith, Chief, Community Services Division, Ohio Department of Development
- February 29-Paul Turner, Senior Vice President Business Development, Jared Wren, Senior Manager, Development & Stakeholder Engagement, Hecate Energy
- March 5-Jared Wren, Senior Manager, Development & Stakeholder Engagement, Hecate Energy
- March 12-Christine King, Director, Emily Nichols, Digital Marketing & Engagement Specialist, U.S. Department of Energy, Gateway for Accelerated Innovation in Nuclear (GAIN)

- March 21-Matt Snider, Enrichment Operations Plant Manager, Centrus Energy Corp.
- April 4-Natalie Roper, Director of Special Projects, Just Transition Fund and Herman Potter, President of Local 689, United Steel Workers Union
- April 5-Riley Hoepfner, Project Manager, Sunday Creek Horizons
- April 10-Jessica Arriens, Senior Program Manager, Climate & Energy Policy, National Wildlife Federation
- April 18-Jeff Dimick, CEO, and Darlene Sherrod, VP Technology, TCG Global
- April 22-Jeff Dimick, CEO, and Darlene Sherrod, VP Technology, TCG Global
- May 1-John Hanson, Senior Director of Special Projects, Bonita Chan, Director of Marketing & External Relations, Oklo Inc.
- May 7-Christine King, Director, U.S. Department of Energy, Office of Nuclear Energy Gateway for Accelerated Innovations in Nuclear (GAIN), Dr. Shannon Bragg-Sitton, Division Director, Integrated Energy & Storage Systems, Idaho National Laboratory, Matt Snider, Centrus Energy Enrichment Operations Plant Manager
- May 9-Mark Denton, Senior Project Manager, Orano Federal Services LLC
- May 20-Christine O'Keeffe, Executive Director, Ohio Air Quality Development Authority and Jessica Kuenzli, Deputy Director, Business and Regulatory Affairs, Ohio EPA
- May 22-Jeff Dimick, CEO, and Darlene Sherrod, VP Technology, TCG Global and Scott Miller, Associate Dean for Industry Partnerships at the Ohio University Russ College of Engineering and Technology
- June 13-Herman Potter, President of Local 689, United Steel Workers Union
- June 17- Herman Potter, President of Local 689, United Steel Workers Union
- June 18-Herman Potter, President of Local 689, United Steel Workers Union and Ashley Badesch, Just Transition Fund
- June 18-Caitlin Holly, Board member, Trillium H2 Power
- June 24-Sam Belcher, CEO and Caitlin Holly, Board member, Trillium H2 Power
- July 2-Sandra Wilson, President, Paducah, Kentucky Chamber of Commerce, Maegan Mansfield, Project Manager, BFW Engineering and Testing, Inc./Marcum Engineering LLC
- July 2-Herman Potter, President of Local 689, United Steel Workers Union
- July 11-Paul Turner, Senior Vice President Business Development, Jared Wren, Senior Manager, Development & Stakeholder Engagement, Hecate Energy
- August 28-Justin Gentry, Contract Officer, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy (EERE)
- August 29-Wiley Rhodes, Zane Rhodes, Zach Brown, Steven Cuffle, Caitlin Holley, Trillium H2 Power, and Ohio University Russ College of Engineering and Technology faculty
- September 17-Alex Sherwood, Project Director, Murray State University
- September 19-Dr. Cassie Patterson, Founder and Executive Director, Southern Ohio Folklife

Key regional organizations

During Budget Period 2, PORTSfuture set up introductions for Trillium with key entities and associations including the Ohio Manufacturers Association, the Ohio Valley Regional Development Commission, Pike County Chamber of Commerce, Greater Portsmouth Area Chamber of Commerce, the Chillicothe Ross Chamber of Commerce, Ross County Chapter of the National Association for the Advancement of Colored People (NAACP), and Scioto County Chapter of the NAACP. These organizations have either written a letter of support for Trillium's Loan Program Office application or are currently working on a letter of support. Trillium has joined the Ohio Manufacturers Association as a paid member and is in the process of joining the local Chambers of Commerce. PORTSfuture continues to engage with these key

organizations and associations to provide updates and explore areas on which to partner as site reindustrialization progresses.

Energy Communities Alliance (ECA)

Ohio University remains involved as a non-voting member with the Energy Communities Alliance (ECA) to keep apprised of policy and priorities of this group. ECA serves to inform and advance the needs and requests of host communities and local governments that are adjacent to or affected by U.S. DOE EM facilities. PORTSfuture's Executive in Residence, Dr. Ben Cross, is our primary contact on ECA's activities focused on the nuclear industry. He participated in Energy Community Alliance's (ECA) meetings, participated in ECA's Policy Committee, and is a member of the ECA Nuclear Committee.

PORTSfuture's Budget Period 2 involvement included:

- Actively participated in Energy Community Alliance's (ECA) meetings.
- Actively involved in ECA's Policy Committee.
- Active member of ECA's Nuclear Committee.
- Dr. Cross participated in planning meetings for the New Nuclear Development initiative held in Richland, WA, on May 7-10, 2024.
- Dr. Cross participated in ECA joint virtual meetings with the American Nuclear Society (ANS) on advanced nuclear reactors, nuclear fuels, and the repurposing of coal plants for nuclear power generation.
- Actively participated in ECA Board of Directors meetings.

American Manufacturing Communities Collaborative (AMCC)

PORTSfuture participated in the American Manufacturing Communities Collaborative (AMCC) bi-weekly calls with leading manufacturing development organizations across the United States. AMCC's mission is to create and strengthen an alliance of communities with regional economic development initiatives underway dedicated to achieving sustainability. AMCC focuses on initiatives striving to obtain economic growth, improved environmental performance, and inclusive well-paying job creation to provide new opportunities and equity within a revitalized American manufacturing base. Dr. Ben Cross is our primary contact with AMCC, and he actively participated in scheduled AMCC calls with leading manufacturing development organizations across the United States.

Ohio Manufacturers Association (OMA)

Through other Ohio University resources leveraged by PORTSfuture, we continued to engage with the Ohio Manufacturers Association to inform our site reindustrialization activities. Mike Zimmer, Executive in Residence with the PORTSfuture Program, served as our point of contact with OMA. He engaged in various consultations with the President of OMA in support of our industrialization strategy that has economic benefits for the State of Ohio. OMA provided recommendations of individual OMA member companies to evaluate as potential offtake customers for products that will be generated by Trillium. OMA offered transportation and logistics advice based on OMA members' experiences about what is needed to support large manufacturing projects. This could be a value-added benefit for determining how the PORTS site interacts with and/or supports the wider region related to rail, trucking, pipeline, electricity transmission and distribution, river barges, intermodal and harbor transport, and logistics support. Consultations and referrals by OMA have been valuable to the GEM effort.

ReImagine Appalachia (RA)

The PORTSfuture Program has regularly participated in the regional collaborative meetings established by ReImagine Appalachia. This group is primarily funded by the Heinz Foundation and is advancing an integrated energy strategy for Appalachian areas within the four-state region of Pennsylvania, West Virginia, Kentucky, and Ohio. RA's work is grounded in garnering labor and community support and input for the conversion of distressed energy and manufacturing sites, in an environmentally responsible fashion, to transform them into critical economic assets. The GEM project strategy has been highlighted during RA meetings and convenings. PORTSfuture's involvement in RA provides an opportunity to give input into obtaining wider technical assistance to the Central Appalachian region, assists in procuring regional public and policy support for the GEM strategy, and aids with identifying potential reindustrialization partners in the region.

Relevant strategy meetings, listening sessions, training sessions, and webinars attended by the PORTSfuture Program team to inform site reindustrialization efforts during Budget Period 2 follow below:

- October 3, 2023-Participated in US EPA Revitalizing Rural Communities: Addressing Contaminated Sites. Via webinar.
- October 5, 2023-Partcipated in ReImagine Appalachia-Listening Session: Reimagining Shuttered Coal Plants. Via virtual connection.
- December 7, 2023-Participated in Ohio Manufacturer Association's Energy Committee Meeting, which included a presentation by Wiley Rhodes on Trillium H2Power's plan for its development on land formerly owned by DOE EM at the PORTS facility. Via virtual connection.
- January 16-17, 2024-Participated in ReImagine Appalachia's Virtual Strategy Summit, which focused on the repurposing of coal fired power plants and coal mining communities. Dr. Ben Cross discussed PORTS repurposing activities, integrated energy systems, closed loop manufacturing, and developing clean innovation ecosystems consisting of multiple business clusters. Via virtual connection.
- January 30, 2024-Attended Green Ohio, Solar Myths and Solar Truths: Utility Scale Solar Developments. Via webinar.
- February 7, 2024-Attended US EPA Recognizing the Positive Economic Impacts of Superfund Redevelopment. Via webinar.
- February 13, 2024-Participated in Energy Futures Initiative's meeting on Building Community Engagement in Regional Hydrogen Hubs. Via virtual connection.
- February 21, 2024-Participated in the Energy Communities Alliance training on Advanced Nuclear Technology Deployment: An introductory conversation with U.S. DOE and U.S. Nuclear Regulatory Commission. This ECA webinar series was designed for communities, as well as tribal, state, and local governments, to provide information about advanced reactor developments, demonstrations, and deployments. Via virtual connection.
- February 5-6, 2024-Dr. Cross attended in person The Resilient Renewable Electric Planet (R2eP) Conference held at PJM's headquarters in Audubon, PA. The meeting was focused on resiliency of the grid on a global and national basis and provided information relative to the PJM wholesale electric market, which is applicable to Southeast Ohio. (No DOE grant funds were used for this activity.)
- March 27, 2024-Participated in DOE Office of Clean Energy Demonstration (OCED) Listening Session for the Appalachian H2 Hub. Via virtual connection.
- May 23, 2024-Dr. Ben Cross attended in person the Savannah River Site's Information Day for Clean Energy Initiatives to support a potential Request for Information at Paducah, Kentucky for its Clean Energy Initiative activities.

- May 29, 2024-Attended Energy Futures Initiative (EFI) session on Clean Energy Hydrogen Hubs and Environmental Justice. Via webinar.
- July 11, 2024-Attended Clean Energy Education and Empowerment (C3E) Initiative Advanced Nuclear Energy, Electricity and Beyond. Via webinar.
- July 23-24, 2024-Dr. Cross attended in person the Empowering America's Energy Communities: IWG Stakeholder Retreat held in Washington, DC. This was a national meeting for energy communities from across the United States that have a viable interest in the economic well-being of their communities during and after the energy transition to low-carbon resources. Ohio and Central Appalachia were well represented at the meeting. Much of the discussion was related to repurposing coal plants for low-carbon power generation. (No DOE grant funds were used for this activity.)
- August 1, 2024-Participated in ReImagine Appalachia meeting on the IWG Coal Communities. Via virtual connection.
- August 20, 2024-Attended Appalachian Community Capital Green Bank for Rural America. Via webinar.
- September 11, 2024-Attended Energy Communities Alliance (ECA) Presents: U.S. Department of Energy Office of Nuclear Energy (DOE NE) Coal-to-Nuclear. Via Webinar.
- September 18, 2024-Attended Voinovich School Brown Bag Series: Building Age-Friendly & Climate Resilient Communities, Climate Security & Environmental Peacebuilding, and Voinovich Academy/Ohio 360. Via Teams.

Ongoing Technical Assistance, Public Outreach, Education, and Engagement for Property Transfer and Future Use: Property Transfer, STEM, and Entrepreneurship Activities

Property requests response guidelines

Initial planning for this activity began in previous grant years when PORTSfuture and SODI gathered information from other former DOE EM sites on how property transfer and reuse had been deployed. PORTSfuture continues to assist SODI with identifying areas on the site that are not good candidates for building (and remove them from consideration in the property transfer proposal process), defining steps for the transfer of property to private industry, identifying documentation needed for each involved party, establishing criteria for reviewing proposals that are submitted for consideration, and producing GIS maps for areas that are "build-able" based on the articulated needs of the developer. SODI has tabled the need for formal guidelines to be drafted in collaboration with PORTSfuture since DOE EM PPPO has established an exemplary property transfer process. PORTSfuture would be pleased to draft formal guidelines in the future if requested by SODI to do so.

Transportation study and traffic impact/thoroughfare impact study (pending)

PORTSfuture began exploring the planning of a transportation study and traffic impact and thoroughfare impact study. At the request of SODI, this activity is currently tabled until SODI's site reindustrialization transportation needs are more fully identified.

Stakeholder outreach, partnerships, and networking support

Many entities continue to express interest in supporting and/or assisting SODI's reindustrialization efforts. PORTSfuture collaborates with SODI in regional outreach, partnership building, and networking activities. These activities inform site stakeholders and citizens of site reuse activities, engage economic development professionals and elected officials, identify private sector interests aligned with site reindustrialization goals, and broaden contacts with potential collaborators to expand partnerships. These

activities also elicit regional support for SODI's site reindustrialization mission. The Budget Period 2 activities were summarized in the stakeholder engagement section above.

STEM activities

Science, Technology, Engineering, and Mathematics (STEM) enrichment activities are designed to encourage regional students to learn about and engage in activities in STEM disciplines. The goal is to encourage students to pursue careers in these in-demand STEM fields that provide well-paying employment opportunities. These activities may help prepare the future workforce in the region to be job-ready when site reindustrialization efforts are realized. PORTSfuture STEM partners are depicted in Figure 7 below.

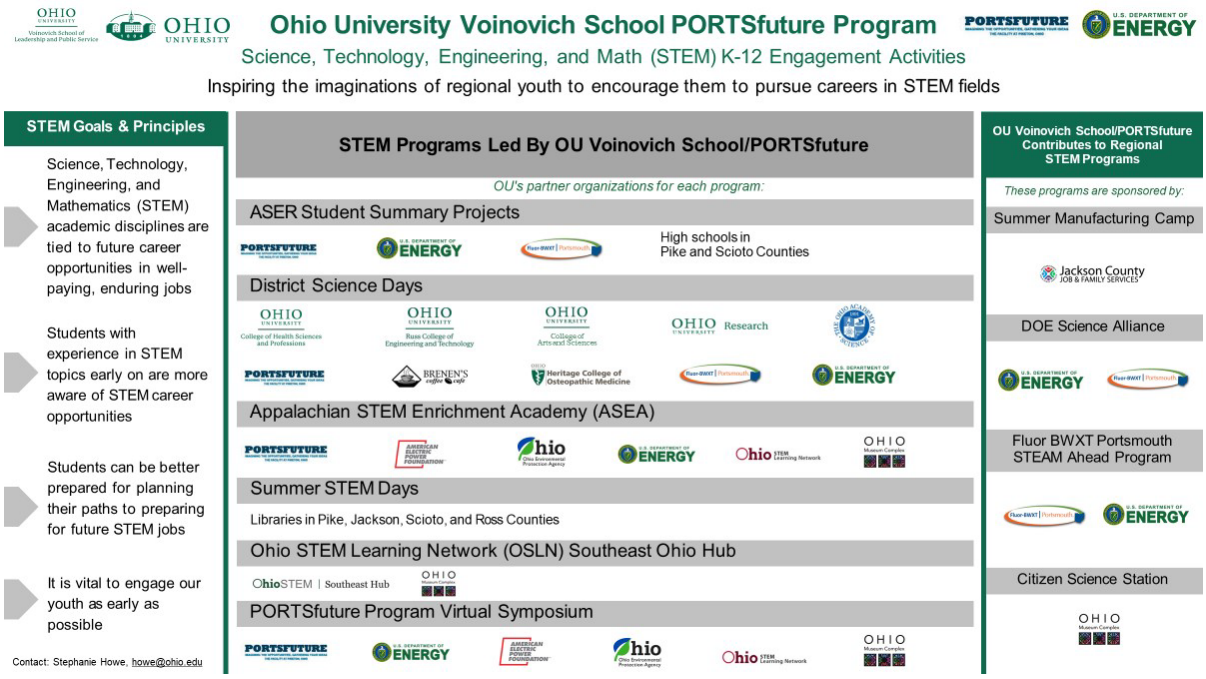

Figure 7. PORTSfuture STEM partners

PORTSfuture STEM activities are summarized in Figure 8 and described below.

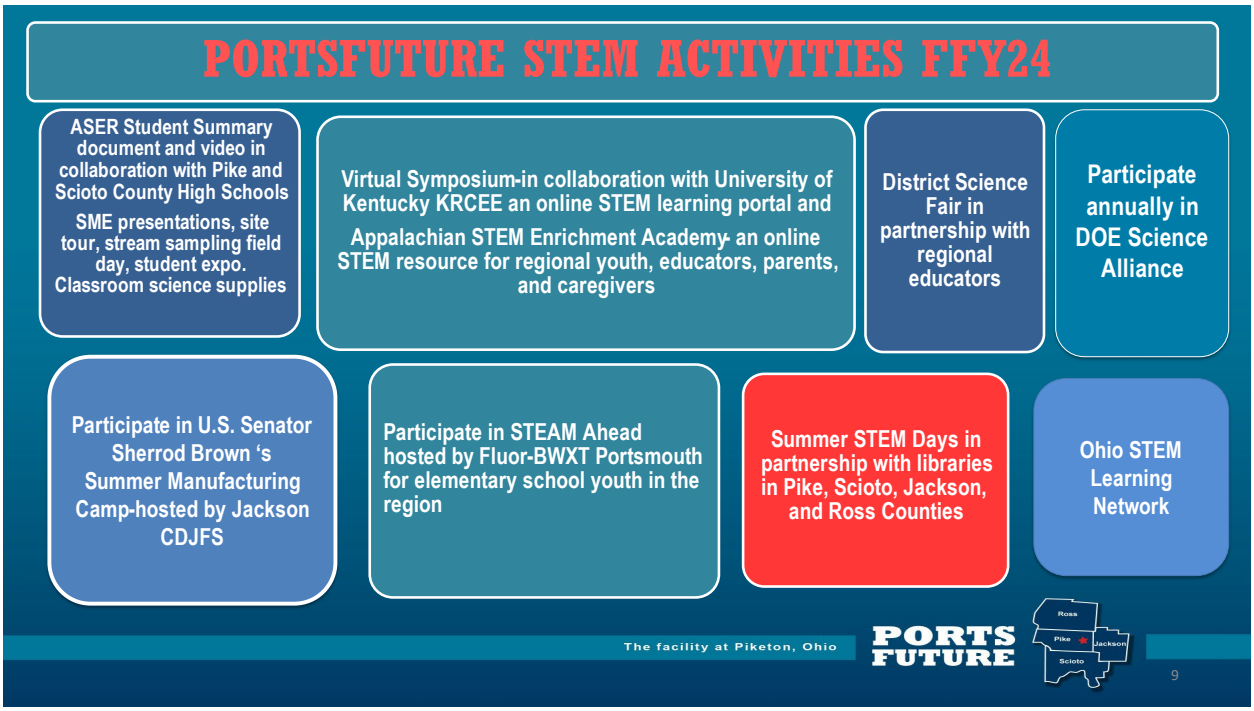

Figure 8. PORTSfuture STEM activities

ASER 13 and Regional ASER Student Summary

ASER 13 and Regional ASER are primarily funded under separate activities within the grant. During Budget Period 2, PORTSfuture collaborated with Eastern High School in Pike County with seven students and Northwest High School in Scioto County with 50 students to produce the 13th Annual Site Environmental Report Student Summary. The ASER Student Summary program has been executed since 2011 in Pike County and this year, DOE EM established the Regional ASER program to enable a high school in Scioto County to participate as well. One summary was created with both schools contributing to the content. The summary produced by these students provides information to the public regarding the U.S. Department of Energy's progress on cleanup work at PORTS. During the 2023-2024 academic year, students received Subject Matter Expert (SME) seminars on site history, radiological contamination, site reindustrialization, site cleanup and other environmental engineering topics. DOE EM site leaders provided an in-depth overview of the site, and the student group participated in a tour of the PORTS reservation. Due to persistent spring flooding that raised concerns for student safety, the planned field day at Lake White that would have been facilitated by OU staff was cancelled. These field days are held each year at a suitable location as part of the program and provide opportunities for the students to engage in hands-on stream sampling and aquatic biology learning activities.

The PORTSfuture ASER team developed a new capstone component for the FFY24 ASER Student Summary project to provide small teams of students with the opportunity to create informational posters on an aspect of the DOE EM ASER. Students presented their posters and shared what they learned with invited guests at an end of the year ASER Student Expo event including school personnel, DOE EM leadership, site contractors, and other stakeholders. The Expo included a ceremony where PORTSfuture and DOE EM recognized teachers and students and certificates of completion were provided to each student. A brief video of the ASER 13 project was created by an Ohio University communications student. Hard copies of the final student-generated report, which

included images of the student posters, were widely distributed via mail throughout the region.

The video and final document can be accessed at this link:
https://www.portsfuture.com/aser-13/

ASER 14 and Regional ASER 2

ASER 14 and Regional ASER 2 are primarily funded under separate activities within the grant. PORTSfuture began preparations for the ASER 14 and Regional ASER 2 projects to be conducted in partnership with Waverly High School in Pike County and Valley High School in Scioto County for the 2024-2025 academic year during Budget Period 3.

Appalachian STEM Enrichment Academy (ASEA)

PORTSfuture continued the development of the Appalachian STEM Enrichment Academy (ASEA), a virtual academy that serves as an online resource for ongoing STEM learning year-round for teachers, students, parents, and caregivers. Nine new lessons were developed and added to the online academy, and the ASEA website had 36,088 visits and 154,198 page views during Budget Period 2.

The ASEA is a versatile modality for expanding regional STEM engagement. In Appalachian Ohio, we are connected to the land, communities, history, and spaces around us. At Ohio University, we are proud of our history of encouraging students to be stewards of Appalachian Ohio, and of the entire world, by connecting them with skillsets and career pathways for creating a more sustainable future. The ASEA provides virtual hands-on STEM learning opportunities and career track development for K-12 students throughout Appalachia Ohio and beyond.

Engaging our regional youth of all ages in Science, Technology, Engineering, and Math (STEM) activities can foment in them an interest in STEM learning and STEM career opportunities. The Academy platform provides hands-on learning activities, online lessons, and other resources that are available 24/7/365. It can be utilized by teachers, after school groups, summer camps, parents, grandparents, caregivers, and students themselves. Our lessons follow a "5E instructional model" which facilitates topical connections through engagement, exploration, explanation, elaboration, and evaluation (see more at https://bscs.org/bscs-5e-instructional-model/).

Our online platform delivers these programs remotely, while fostering an appreciation for the beautiful Appalachian region, and introduces ways students can experience STEM every day. The Academy is led by a team of faculty and professional staff and students at the Voinovich School, along with contributions from external partners and subject matter experts. The lessons are organized in specific substantive career tracks including water, energy, environmental remediation, technology, and sustainability. Learning modalities include a blending of online sessions, hands-on learning activities, career videos, and student peer-to-peer sharing via their online postings, videos, and social media interaction. In-person classroom presentations can be provided as well upon request and dependent on available resources.

The virtual academy addresses the resource limitations in Appalachian Ohio and is a collaboration across several programs at Ohio University. Joint funding and/or resource support is provided by the PORTSfuture Program, American Electric Power (AEP) Ohio Foundation, Ohio STEM Learning Network, OHIO Museum Complex, Sugarbush Foundation, National Science Foundation, U.S. Environmental Protection Agency's Climate Literacy program, Ohio Habitat for Humanity, and Ohio University's Voinovich School of Leadership and Public Service. This collaborative approach enables funders to leverage investments across regional STEM efforts. Cross-promoting STEM offerings expands

reach and impact by increasing the volume of student participants and improving long-term access to STEM career pathways information for regional students. The virtual academy reaches wider audiences than if each STEM effort were to develop virtual learning opportunities separately. The online nature of this effort enhances the value of the investments across programs as the content is created once and can serve thousands of regional students. Marketing efforts are ongoing by PORTSfuture and by our partnering entities.

ASEA Lessons completed in BP2 include:

- Intro to Circular Economy: grades 5-8
- Intro to Climate Change: grades 5-8 and 9-12
- Climate Change in Appalachia: grades K-4, 5-8, and 9-12
- Green Infrastructure: grades 5-8
- SMART Waste Management: grades 5-8
- Introduction to Arduino: grades 5-8 and 9-12
- What is the Purpose of a Drone: grades 9-12
- What is Artificial Intelligence: grades 9-12
- What is Augmented Reality: grades 9-12

The Academy is free and open to the public for use from any internet-abled device at home or on the go. To explore the ASEA, please visit**:** https://www.appalachianstemacademy.org/.

The ASEA homepage is shown in Figure 9 below.

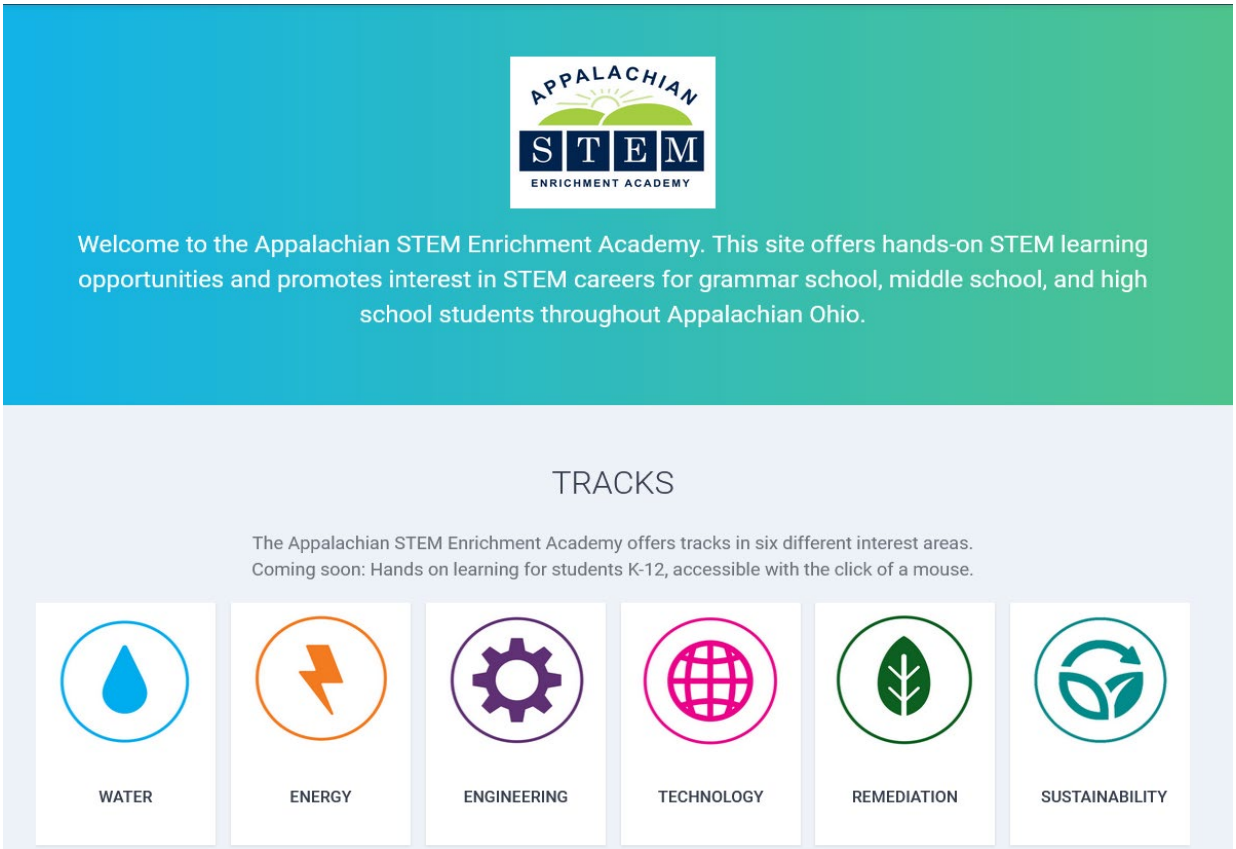

Figure 9. ASEA homepage

Appalachian STEM Enrichment Academy (ASEA) library kiosks

In partnership with our Summer STEM main branch libraries in Pike, Scioto, Ross, and Jackson counties, ASEA kiosks were installed at these locations. The kiosks publicize the availability of the online academy to youth, parents, caregivers, and educators who frequent the libraries. The kiosks include an iPad programmed to highlight the ASEA website. The display includes a QR code to be scanned by a smartphone that will take the viewer directly to the website so that the website can be accessed at home. Figure 10 below shows an ASEA promotional library iPad kiosk at a main branch library.

Figure 10. ASEA promotional library iPad kiosk

District Science Days

District Science Days was led by the Voinovich School's Dr. Natalie Kruse Daniels, professor, and Director of the Environmental Studies Program. District Science Days serves students in District 12 with support from the PORTSfuture Program for schools in Ross and Jackson counties. Pike and Scioto counties belong to a different district served by the University of Rio Grande. Students in grades 5-12 can compete by presenting their original projects following either the standard scientific method or engineering design principles. Through inquiry-based project learning, students gain skills in posing a research question, creating a hypothesis, method development, data collection, data analysis, and written and oral communication. The Ohio Academy of Sciences has developed standards for science fairs across grades 5-12. Students earning a superior at their school fair qualify to compete at their District Fairs, and those earning superiors at District Fairs qualify to compete at State Science Day held in Columbus, Ohio, each May. High school students in both districts have the additional opportunity to qualify for the Buckeye Science and Engineering Fair, which allows them to compete for a spot at the International Science and Engineering Fair. High school students in District 12 can compete for a spot at the International Fair straight from their district. The potential for learning, exposure to a community of engaged young scientists, and competition for scholarships and awards for students from southern Ohio is unparalleled.

During FFY24, Ohio University hosted twelve schools from five regional counties including Jackson, Ross, Washington, Meigs, and Athens, with 111 students from grades 5th through 12th in attendance and 71 student projects represented. PORTSfuture funding has increased participation from students and schools in Ross and Jackson counties. This year, PORTSfuture helped teachers mentor 72 students, supported three local Science Fair judging days, provided OU staff to coordinate with and support schools, supported district fair operations, and connected students from District 12 with Ohio University resources. Teachers in Ross and Jackson counties who participated this past academic year received a $500 stipend from the PORTSfuture Program. During FFY24, PORTSfuture supported six schools in Ross and Jackson counties. Ross County schools included Bishop Flaget, Chillicothe Intermediate, Unioto Elementary, Zane Trace Middle School, and Zane Trace High School. Jackson High School in Jackson County was also supported by PORTSfuture, and schools participating from other counties were supported by other OU resources. Over 100 awards were provided and included certificates, cash prizes, and scholarships. More than 35 special awards were granted for student projects, and 50 student projects advanced to the State Science Fair. Ohio's 2024 International Science and Engineering Fair Finalist was Xinrui Han, a senior at Athens High School in Athens County. Her project title was "Development and Application of Water Quality Detection Method Based on Smartphone Color Recognition."

Funders for the District 12 Science Fair included OU Voinovich School of Leadership and Public Service, PORTSfuture, OU College of Arts and Sciences, OU Russ College of Engineering and Technology, OU College of Health Sciences and Professions, OU Heritage College of Osteopathic Medicine, Ohio Research Division, and Brennen's Coffee Café. Figure 11 below depicts a student presenting a science project at the District Science Days event at the Ohio University Athens campus.

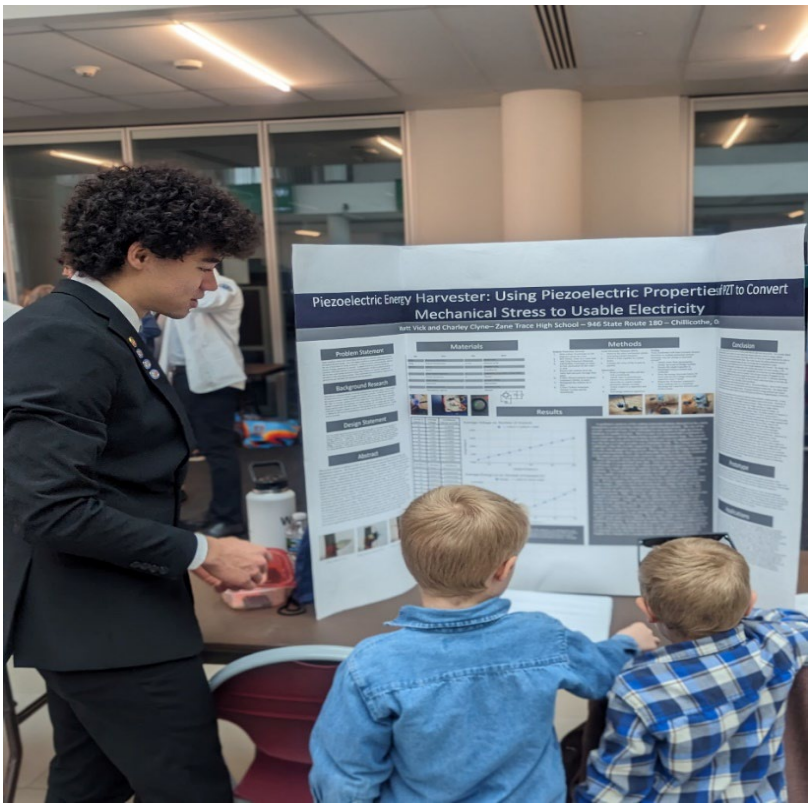

Figure 11. A student sharing their project with "up-and-coming young scientists" at the District 12 Science Fair Day held on March 23, 2024, on Ohio University's Athens campus

Summer STEM Days

PORTSfuture staff and students engaged regional youth in Jackson, Ross, and Scioto counties in hands-on activities to learn about water quality, aquatic biology, and computer programming at Summer STEM Days events at public libraries in each county. Pike County was unable to host an event this year due to an unfortunate fire that occurred which closed the library during the summer. These events are funded by the PORTSfuture Program and OU's grant from the American Electric Power (AEP) Foundation as part of its Growing STEM in Appalachia program. Events were planned and promoted in partnership with each county's main branch public library. Ohio University developed a computer programming lesson utilizing information that is hosted on the Appalachian STEM Enrichment Academy website for the session in Ross County. In Jackson County and Scioto County, OU utilized collapsable microscopes (Foldscopes) and prepared slides to assist students in learning about aquatic life. The "family sized" My Backyard Stream (MBYS) kits that were prepared during BP1 for all four county main branch libraries were also promoted. The MBYS kits include water quality testing materials, family friendly instruction sheets, and content cards for biological, chemical, and physical stream monitoring. Parents and caregivers can borrow the kits from these libraries to take home and use with their families. Figure 12 below depicts the My Backyard Stream kit.

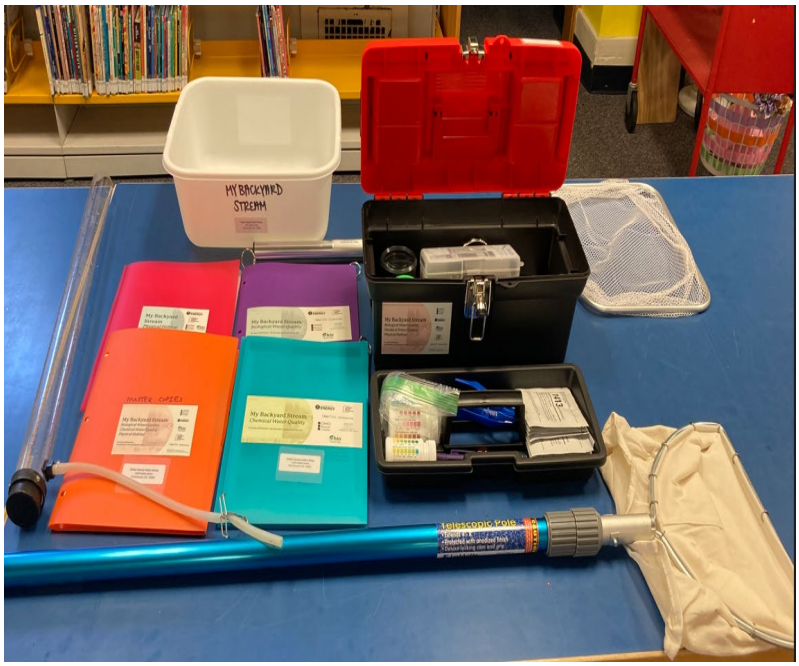

Figure 12. My Backyard Stream kit

Summer STEM Days included the Jackson County Library event with 56 participants, Scioto County Library event with 13 participants, and Ross County Library with one participant.

These Summer STEM Days events provided an engaging opportunity for participants to explore science techniques through hands-on activities. PORTSfuture outreach efforts strive to inspire regional youth interest in STEM careers for the future. The Appalachian STEM Enrichment Academy was also promoted to youth, parents, and caregivers at these events.

Ohio STEM Learning Network (OSLN) Southeast Ohio Hub

During Budget Period 2, PORTSfuture continued engagement with the OHIO Museum Complex at Ohio University and the OSLN Southeast Ohio Hub, to expand and develop rural cohort relationships that will have continuity and longevity. Ohio University was selected to lead the Southeast Ohio STEM Learning Network Hub during BP1. The Hub has an established record in the region with working with teachers, K-12 students, higher education students, communities, and industry across several established programs and partnerships. Programs that provide the OSLN Southeast Ohio Hub broad support and a robust network to strengthen and grow regional STEM education include but are not limited to the OHIO Museum Complex, STEMstart, My Backyard Stream, STEAM Ahead, Appalachian STEM Collaborative, and the Appalachian STEM Enrichment Academy. In addition to these established projects, the OSLN Southeast Ohio Hub communicates with STEM schools, aspiring STEM schools, community leaders, and industry through electronic communication, in-person professional development, and stakeholder convenings. The Hub conducts surveys to obtain valuable input from partners and stakeholders about resources and support needed to grow quality STEM education in the region. During Budget Period 2 PORTSfuture partnered with the Ohio University OSLN Southeast Ohio Hub to promote our outreach events and resources. Information on the OSLN Hubs can be found at this link: https://osln.org/hubs/

Virtual Symposium

Budget Period 2 included maintenance of the Virtual Symposium, which is a collaboration between the Voinovich School of Leadership and Public Service at Ohio University (OU) and the Kentucky Research Consortium for Energy and the Environment (KRCEE) at the University of Kentucky (UK). These activities are funded by grants administered by DOE's Office of Environmental Management Portsmouth/Paducah Project Office. Primarily funded under a separate task, the Virtual Symposium provides ongoing access to scientific and technical presentations for STEM education interests. The video presentations, PowerPoint presentations, and project reports serve as useful Science, Technology, Engineering, and Math (STEM) education tools for area schools, colleges, and universities. The Virtual Symposium also provides information to the public about OU and KRCEE projects. Several videos were added this year related to the Appalachian STEM Enrichment Academy.

The Virtual Symposium can be viewed at: https://www.portsfuture.com/virtual-symposium-2/

Science Alliance

PORTSfuture was delighted to participate in the DOE EM PORTS annual Science Alliance event held in October of 2023. The three-day event provided 1,068 high school students from 21 schools in Pike, Scioto, Ross, and Jackson counties access to a variety of interactive kiosks to learn about careers in the environmental and engineering fields. The Voinovich School's Raccoon Creek Watershed team and AmeriCorps volunteers provided a display that included a living stream table with live fish and macroinvertebrates for the students to explore to learn about stream health and stream cleanup methods. The Voinovich School's Geographic Information Systems (GIS) and data team provided a display illustrating data and GIS applications and uses and discussed potential careers using GIS skills.

Fluor-BWXT Portsmouth STEAM Ahead collaboration

The PORTSfuture Program is pleased to continue to participate in a collaborative STEM education program sponsored and hosted by Fluor-BWXT Portsmouth LLC (FBP), a DOE EM contractor engaged in cleanup activities at the PORTS site. FBP's Science, Technology, Engineering, Arts, and Math (STEAM) Ahead program engages elementary students in grades 3 and 4 at Western, Eastern, Waverly, and Jasper elementary schools in Pike County, and Bishop Flaget School in Ross County. The PORTSfuture Program provided an engaging habitat activity utilizing puzzles of aquatic

macroinvertebrates and a 2D model of a stream. Students assembled the head, thorax and abdomen of each species and learned about stream habitat and water quality conditions in which species can thrive. During Budget Period 2, PORTSfuture and FBP collaborated with the five schools previously mentioned. PORTSfuture presented at 15 sessions and 283 students were engaged. Figure 13 below shows the OU STEAM Ahead activity display.

Figure 13. Ohio University STEAM Ahead activity display

Western Local School District

Western Local School District in Pike County hosted a PreK-12 Science, Technology, Engineering, Arts, and Mathematics (STEAM) Career Day on May 9, 2024**.** The event included regional subject matter experts who provided engaging activities to inform students about career paths in STEAM fields. The goal of the event was to encourage students to learn about and explore STEAM careers as part of their future. PORTSfuture was invited to participate with our Geographic Information Systems (GIS) and data team who provided a display illustrating data and GIS applications and uses and discussed potential careers using GIS skills. The total student attendance count was not available from the Western Local School District.

U.S. Senator Sherrod Brown's Summer Manufacturing Camp in Jackson, Ohio

The Jackson County Summer Manufacturing Camp is an annual event organized by Jackson County OhioMeansJobs and the Jackson County Department of Job and Family Services in collaboration with the office of United States Senator Sherrod Brown. The Camp provides an opportunity for Jackson County middle school students to learn about careers in their community, tour local manufacturing facilities, and engage with industry experts. During BP2, this multi-day camp took place May 28 through May 30. This year, 23 Jackson County middle school students in grades 6-8 attended the event. On May 30, 2024, Ohio University's PORTSfuture staff along with Ohio University students facilitated building and coding activities with Forward Education's Climate Action Kits.

During the program, students explored the differences between renewable and nonrenewable energy sources with a specific focus on solar power. They investigated how solar power is produced and how solar cells function to collect and store energy. Additionally, the program involved an introductory coding experience in which students engaged with common coding terms such as variables, if-then statements, and loops. Later in the program, students were split into small groups in which they built a mock solar panel using Climate Action Kit components and using MicroBit coding software to write associated code. Once initial models were built and codes were written, learners were provided with additional challenges to interact with their code including changing the rotational pattern of the panel as well as adding sound effects for detecting levels of solar energy.

Pike County STEM Careers for Kids Day

The Pike County STEM Careers for Kids Day was held June 2 and June 3 of 2024 at the Pike County Career Technology Center. This event was organized by the Ross-Pike Educational Service District (ESD) to provide an opportunity for local students to participate in hands-on workshops with community businesses and professionals to gain exposure to STEM career pathways. This was the first year that the Ross-Pike ESD held the event, and 21 students in grades 2-6 attended. On June 3, 2024, PORTSfuture staff along with an Ohio University student facilitated a session on the importance of trees to our ecosystem. Students engaged in hands-on activities to learn how scientists collect data to identify and age trees. Each learner also investigated tree samples in the form of tree cores and tree cookies to determine their ages and species, also drawing an image of the leaf for their tree. Students enjoyed using magnifying glasses and tree species identification books for this session.

Additional classroom STEM offerings

STEM activities previously developed by PORTSfuture can be offered onsite in classrooms across the four-county area in southern Ohio dependent upon available funding. We have created a body of work around renewable energy, the Internet of Things/smart technology, water quality, physical features of lakes and streams, acid mine drainage, analyzing chemical and biological data, and collecting water quality data as a citizen scientist that translates across ages and grades. By collaborating with local teachers, we can customize single class period sessions to their curriculum needs and interests. Hands-on activities augment these programs when possible. Career pathway discussions are integrated into programs for middle and high school students.

Dissemination of Program Activities and Technical Assistance

The PORTSfuture Program website, www.portsfuture.com, is used widely to disseminate information, resources, reports, videos, and other materials. The PORTSfuture website had 27,268 visitors and 137,682 page views during Budget Period 2.

Press releases are developed for specific events and activities when applicable, related to site reindustrialization, STEM events, and other outreach events.

Presentations are provided to stakeholders such as economic development entities, elected officials, federal offices, labor leaders, private companies, investors, community groups, and the Site-Specific Advisory Board (SSAB) in addition to other regional site stakeholders and other related regional initiatives.

Site Reindustrialization Meet the Developers Open Houses

PORTSfuture collaborated with SODI, local chambers of commerce, and other project partners to hold two Meet the Developers Open House events in September of 2024. Industrial partners who have signed property agreements with SODI were invited to participate and provide information about their projects. The events offered community members and other site stakeholders an opportunity to engage directly with the developers to learn about the projects, ask questions, and share comments.

Site stakeholders who attended included community members, site workers, governmental officials, economic development professionals, businesses, regional media outlets, and others. The events were held at Twin Lakes Resort in Pike County with over 100 attendees and at the Portsmouth Welcome Center in Scioto County with over 66 attendees. A trade-show type format was employed, and Trillium H2Power and Oklo Inc. were on hand with display materials to visualize key points of their projects. Hecate Energy was unable to attend due to schedule conflicts. DOE EM shared information on cleanup and property transfer activities at the PORTS site. Ohio University's PORTSfuture Program and SODI shared information on their collaborative work on site reindustrialization. These events were cosponsored by SODI, PORTSfuture Program, Pike County Chamber of Commerce, and the Greater Portsmouth Area Chamber of Commerce. Figure 14 below shows an image of attendees at the Pike County Meet the Developers Open House.

Figure 14. Attendees at the Pike County Meet the Developers Open House

DOE EM Community Open Houses

Historically, DOE EM PPPO leads the coordination and rollout of a series of Community Open Houses each year to enable residents in the four-county area near the PORTS site to learn about site cleanup, property transfer, and site reindustrialization progress. Kiosks include the Site-Specific Advisory Board (SSAB), SODI, PORTSfuture, DOE EM, and site cleanup contractors who present information on asset recovery, cleanup progress, onsite waste disposal facility construction, and workforce opportunities. PORTSfuture attends the events and displays work products including the interactive PORTS site

reindustrialization concept planning and regional assets maps, economic impact and workforce analysis data, general site reindustrialization materials, and summaries of outreach and/or STEM activities. DOE EM Community Open Houses were not held during Budget Period 2 since DOE EM attended the Meet the Developers Open Houses. PORTSfuture will be eager to attend future DOE EM-sponsored events when they are scheduled.

Special presentations provided during Budget Period 2

At times, PORTSfuture is invited to provide special presentations to key site stakeholder groups, dignitaries, partners, and others who would benefit from learning about our program. Requests for special presentations during Budget Period 2 are described below.

- October 20, 2023-Selected as one of only six projects across Ohio University to present information about the PORTSfuture Program at the Ohio University Innovation Showcase on Ohio University's Athens campus. This event was part of Investiture Week for the newly hired Ohio University President.
- October 24, 2023-At the invitation of DOE EM PPPO and DOE Legacy Management (LM), presented information on the PORTSfuture Program site reindustrialization and stakeholder engagement activities to a group of international business professionals and DOE EM site contractor representatives from other sites. This presentation was part of DOE's "International Workshop on Stakeholder Engagement in Decommissioning and Legacy Management." Forum members from Belgium, Canada, Czech Republic, Finland, France, Germany, Italy, Japan, Norway, Romania, Sweden, Switzerland, and the United States attended the presentation. The purpose of the forum was to share knowledge on approaches to meaningful stakeholder engagement to create a viable economic development plan when repurposing a large facility.
- November 14, 2023-Amplifire presented on PORTSfuture and media and community engagement at the Adding Nuclear to the Mix Conference sponsored by U.S. DOE Gateway for Accelerated Innovation in Nuclear. The conference was held in Morgantown, West Virginia. No DOE funds were used in this activity.
- November 30, 2023-At the invitation of DOE EM PPPO, presented on PORTSfuture site reindustrialization and stakeholder engagement activities for leaders and consultants with the Paducah Area Chamber of Commerce located in Paducah, Kentucky. This organization is working on the reindustrialization of the DOE EM Paducah, Kentucky, former gaseous diffusion facility.
- April 30, 2024-At the invitation of DOE EM PPPO, presented information in partnership with SODI on site reindustrialization and stakeholder engagement at the National Site-Specific Advisory Board Chairs Meeting held in Piketon, Ohio.
- September 10, 2024-At the invitation of the Nuclear Energy Institute, PORTSfuture's media support consultant presented on the PORTSfuture Program and community engagement at the Nuclear Energy Assembly 2024 event sponsored by the Nuclear Energy Institute. This gathering was held in Philadelphia, Pennsylvania. No DOE funds were used in this activity.

Technical assistance provided during Budget Period 2

At times, PORTSfuture is invited to provide technical assistance to key site stakeholder groups, partners, and others who could benefit from our program. Requests for technical assistance during Budget Period 2 are described below.

Technical assistance to Murray State University

When requested, PORTSfuture shared program materials and provided technical assistance to Murray State University (MSU), a DOE EM PPPO grantee, in the Paducah, Kentucky area, to assist MSU with its grant development and with planning its program rollout in the areas of site reindustrialization and STEM engagement.

Technical assistance to the Paducah Area Chamber of Commerce in Paducah, Kentucky

When requested, PORTSfuture shared program materials and provided technical assistance to the Paducah Area Chamber of Commerce to inform its efforts to plan for the reindustrialization of the DOE EM Paducah, Kentucky, former gaseous diffusion facility.

Technical assistance to the United Steel Workers (USW) Local 689

When requested, PORTSfuture provided technical assistance to the United Steel Workers (USW) Local 689 in its efforts to obtain funding to expand its workforce training center.

Technical assistance for the Trillium H2Power Community Benefits Advisory Board

PORTSfuture serves in a key advisory role to Trillium as the company develops its Community Benefit Plan, a component of their DOE Loan Programs Office application. PORTSfuture is also assisting Trillium with planning and facilitation of stakeholder engagement meetings. Trillium has established a Community Benefits Advisory Board that is providing input into the Trillium community benefit framework and focus. The Labor Steering Committee, formed by PORTSfuture, was the first group convened to provide guidance to Trillium on its Community Benefit Plan. The Trillium Community Benefit Advisory Board's initial meeting was held in August of 2024. A SODI representative serves as co-chair of the Board along with a Labor Steering Committee member from the Shawnee Central Labor Council. PORTSfuture facilitated the Trillium workforce working group meeting held in September of 2024. This meeting focused on developing strategies for engaging with underrepresented communities in the region for Trillium's future workforce recruitment efforts. The next community benefit working group meeting will be held in October of 2024 with a focus on regional business supply chain entities and potential off take customers for ammonia and silicon products to be produced by Trillium. Every local member of the PORTSfuture Labor Steering Committee now serves on the Trillium Community Benefit Advisory Board.

Trillium will also establish funding from a portion of its profits to reinvest into community improvements as part of the Community Benefits Plan. The Advisory Board will provide guidance on those investments. The Advisory Board is comprised of Ohio organized labor leaders, community leaders in economic development and workforce development, SODI, PORTSfuture, and private sector developers. Additional meetings with other stakeholder groups will be held during BP3. Two Trillium Community Benefits Plan meetings were held during BP2:

- August 15-Full Community Benefits Advisory Committee meeting held in Piketon, Ohio.
- September 25-Workforce development working meeting held in Piketon, Ohio.

Technical assistance on energy finance

Through other Ohio University resources leveraged by PORTSfuture, Mike Zimmer, Executive in Residence with the PORTSfuture Program, served as a resource for energy finance networking and outreach activities related to PORTS reindustrialization until his retirement in December of 2023. He offered consultations on energy project finance trends, climate and green banking, bond finance

implications of the recently enacted Infrastructure Act and Inflation Reduction Act, and on wider energy project development issues. This included informed guidance and assistance for PORTS site reindustrialization projects to procure attention and support from the DOE Loan Programs Office, Ohio Air Quality Development Authority bond financing, project development funding, and general development strategies. Consultations included support from ReImagine Appalachia, Heartland Capital, energy professional practitioners in Washington DC, American Bar Association, American Council on Renewable Energy, and George Washington University. Zimmer also advised on sources of possible programmatic support from the U.S. Treasury, U.S. Department of Energy, U.S. Department of Commerce, Appalachian Regional Commission, U.S. Environmental Protection Agency, and the U.S. Department of Agriculture.

PORTSfuture Program Budget Period 2 webinar series

Two live, interactive webinars were held during Budget Period 2 to promote public awareness of advanced nuclear small modular (SMR) site reindustrialization activities and their linkages to advanced SMR fuel production. The webinars focused on integrated energy systems, nuclear ecosystems, the advanced nuclear small modular reactor (SMR) industry, and High-Assay Low Enriched Uranium (HALEU) fuels because all these areas are components of site reindustrialization. The sessions follow on the successful webinars held in Budget Period 1 that focused on national clean energy initiatives and three types of hydrogen production as decarbonized hydrogen is a component of site reindustrialization. The Budget Period 2 webinars focused on topical areas essential to site reindustrialization and provided an opportunity for wider-reaching stakeholder engagement than is possible with traditional, in-person meetings.

The webinars were cohosted by the PORTSfuture Program, Southern Ohio Diversification Initiative (SODI), and the U.S. Department of Energy Office of Nuclear Energy Gateway for Accelerated Innovation in Nuclear (GAIN) program. Co-sponsors included the Tri-State Building and Construction Trades Council, Pike County Chamber of Commerce, Ohio Valley Regional Development Commission, and Amplifire Strategies. The hosts and sponsors promoted the virtual events via press releases, email lists, social media, flyers, and daily networking.

Session 1: Advanced Nuclear Small Modular Reactor (SMR), National Focus: The first webinar was held on May 15, 2024. The title was "Advanced Nuclear Small Modular Reactor (SMR), National Focus. Benefits and Progress." Topics included the benefits and progress of the advanced nuclear small modular reactor (SMR) industry, including information on integrated energy systems, nuclear ecosystems, advanced SMRs in general, advanced SMR fuel production, and viable SMR technologies that will utilize HALEU fuel.

Presenters included Stephanie Howe, Director of Energy Programs, Ohio University Voinovich School of Leadership and Public Service, Dr. Shannon Bragg-Sitton, Director, Integrated Energy and Storage Systems, Idaho National Laboratory, Christine King, Director, U.S. Department of Energy, Office of Nuclear Energy, Gateway for Accelerated Innovation in Nuclear (GAIN) initiative, and Matt Snider, Centrus Energy, Enrichment Operations Plant Manager.

Stephanie Howe provided background on the PORTSfuture Program and discussed how PORTSfuture is supporting the work of SODI, along with other partners, to accelerate the PORTS site reindustrialization, which includes advanced nuclear SMRs. Dr. Bragg-Sitton discussed integrating energy generation sources for thermal and electrical energy that industrial facilities need. Bragg-Sitton also highlighted the importance of nuclear energy as a component in integrated energy systems. Christine King discussed the nuclear ecosystem, the importance and future of advanced SMRs to our national energy mix, energy

independence, national security, advanced SMRs, and HALEU fuel projects. Matt Snider discussed HALEU production and advanced nuclear fuels fabrication.

There were 96 participants registered for this event. The audience included public officials, labor leaders, economic development experts, industry leaders, and other interested parties. A link to the webinar can be found at https://www.portsfuture.com/webinars. Figure 15 below depicts the webinar series session 1 event flyer.

Figure 15. Webinar series session 1 event flyer

Session 2: Advanced Nuclear Small Modular Reactor (SMR) Technologies highlighted viable advanced SMR technologies that will utilize HALEU fuel. The second webinar was held on June 12, 2024. Participants received information from industry leaders about SMR technologies and connections to projects in southern Ohio.

Presenters included Stephanie Howe, Director of Energy Programs, Ohio University Voinovich School of Leadership and Public Service, Christine King, Director, U.S. Department of Energy Office of Nuclear Energy Gateway for Accelerated Innovation in Nuclear (GAIN) initiative, Everett Redmond, Senior

Director of Fuel Affairs, Oklo Inc., Peter Hastings, Vice President of Regulatory Affairs and Quality at Kairos Power, and Ben Reinke, Vice President of Global Business Development, X-energy.

Stephanie Howe provided background on the PORTSfuture Program and discussed how PORTSfuture is supporting the work of SODI, along with other partners, to accelerate the PORTS site reindustrialization, which includes advanced nuclear SMRs. The three industry representatives each discussed their respective design, testing, implementation, fuel types, safety, and regulatory approaches. Christine King moderated a panel discussion that included questions from the virtual audience.

There were 122 participants registered for this event. Participants included public officials, labor leaders, economic development experts, industry leaders, and other interested parties. A link to the webinar can be found at https://www.portsfuture.com/webinars. Figure 16 below depicts the webinar series session 2 event flyer.

Figure 16. Webinar series session 2 event flyer

Communications and media engagement

PORTSfuture has retained a well-respected Ohio firm, Amplifire Strategies, to work with PORTSfuture, SODI, and site reindustrialization partners on communications and media activities to advance site reindustrialization activities. Ohio University has approved the use of non-DOE, Voinovich School research incentive funds to cover this vendor's costs. In coordination with SODI and PORTSfuture, Amplifire engaged with the media through press releases and individual reporter outreach, developed public information materials, assisted with public engagement activities, and participated in public presentations to enhance the visibility of the PORTS reindustrialization work. Amplifire activity highlights for Budget Period 2 include:

Media engagement

In coordination with PORTSfuture, Amplifire engaged with the media through press releases, individual reporter outreach, and events to publicize PORTSfuture's work to advance site reindustrialization and related STEM engagement. Below is a summary of the media engagement:

- October 2023-Wrote and sent press release: District Science Days Opens for Sign Ups for Students in Pike, Scioto, Ross, and Jackson Counties. Media coverage included:
    - Scioto County Daily News: District Science Days Opens for Sign-Ups for Students in Pike, Scioto, Ross, and Jackson Counties
    - Highland County Press: District Science Days open for signups for students in Pike, Scioto, Ross, Jackson counties
    - Vinton Jackson Courier: District Science Days opens for students in Pike, Scioto, Ross, and Jackson counties
    - Portsmouth Daily Times: District Science Days opens for sign-ups for local students
- October 2023-Pitched local media on PORTSfuture Program's My Backyard Stream STEM project. Media coverage included:
    - Vinton-Jackson Courier: Kids in Jackson County can become citizens scientists thanks to OU program
- November 2023-Wrote and sent press release: Ohio University PORTSfuture Program Wins National Award for Site Reindustrialization Efforts. Media coverage included:
    - Logan Daily News: Ohio University PORTSfuture Program wins national award for site re-industrialization efforts
- December 2023-Coordinated a WOUB interview with PORTSfuture and Trillium H2Power. Media coverage included:
    - WOUB: A uranium enrichment plant in Piketon has plans to become an energy hub for the region and beyond
- January 2024-Drafted a press release about Oklo signing an option to purchase land from SODI to deploy two advanced nuclear small modular reactor powerhouses. Amplifire coordinated with Oklo on the press release and sent the final Oklo press release to Ohio media outlets.
- January 2024-Wrote and sent press release: Southern Ohio Diversification Initiative Announces Monumental Step Forward for Reindustrialization Project, Job Growth in the Ohio Valley. Media coverage included:
    - Highland County Press: Southern Ohio Diversification Initiative announces monumental step forward for reindustrialization project, job growth in the Ohio Valley
    - Gongwer: Piketon: Trillium H2 Power LLC has purchased 80 acres of land for what is being called a major 250-acre reindustrialization project at the Department of Energy's former facility in Piketon.
- April 2024-Coordinated an Ohio Newsroom interview with PORTSfuture. Media coverage included:

    - Ohio Newsroom: Piketon stopped enriching uranium twenty years ago. Now the nuclear industry is coming back
    - Ohio Newsroom: A small town in rural Ohio is producing enriched uranium again. Here's why that matters
- September 2024-Managed media engagement for Meet the Developer Community Open Houses hosted by SODI and PORTSfuture in Pike and Scioto counties. (For more information on Amplifire's involvement in the events, see the Meet the Developers Open Houses section below). Media coverage included:
    - Pike County News Watchman: SODI hosts developers at A-Plant site to discuss plans
    - The Scioto Post: Piketon Open House Informs Community about Progress at Former Gaseous Diffusion Plant
    - iHeartRadio: Open House Informs about Progress at Former Gaseous Diffusion Plant
    - WOUB and The Columbus Dispatch attended the events, interviewed PORTSfuture, DOE EM, site stakeholders, and industry partners. The publishing of these news articles is pending.

Content and materials

- July 2024-Created visual document for printing and board display purposes on PORTS site reindustrialization summarizing the background and history, goals, energy projects coming to the site, partners, and stakeholders.
- April 2024-Coordinated and assisted with drafting Trillium H2Power's "State of Ohio Investment-The Case for Investment in the Carbon Capture".
- Ongoing-Updated PORTS Site Reindustrialization partners slide.

Webinars

Amplifire partnered with PORTSfuture to conduct the two national webinars described above.

Amplifire's role in the webinar series included:
- Assisted with planning the events.
- Recruited webinar cosponsors including the Southern Ohio Diversification Initiative, DOE GAIN, Tri-State Building and Construction Trades Council, Pike County Chamber of Commerce, and Ohio Valley Regional Development Commission.
- Worked with cosponsors on marketing the events including creating and disseminating flyers and invitations.
- Assisted with securing speakers for the webinars.
- Invited government, industry, organized labor, and other stakeholders to the webinars.
- Helped establish agendas and run of show guidance.
- Moderated the webinars.
- Provided other logistical support.

Meet the Developers Open Houses

Amplifire supported PORTSfuture and SODI joint efforts to host two Meet the Developers Community Open Houses in September 2024. One event was held in Pike County and the other was held in Scioto County. The open houses provided an opportunity for residents, site stakeholders, and media to learn about the redevelopment of the PORTS site from PORTSfuture, SODI, DOE, and two industry partners, Oklo and Trillium H2 Power.

Amplifire's role in the community open houses included:
- Assisted with planning the events.

- Recruited event cosponsors including the Southern Ohio Diversification Initiative, Pike County Chamber of Commerce, and the Portsmouth Area Chamber of Commerce.
- Worked with cosponsors on marketing the events including creating and disseminating flyers and invitations.
- Created fliers, social media graphics, and marketing language for the events and disseminated promotional materials.
- Provided pre-event logistical support, including securing the locations, catering, and door prizes.
- Supported Trillium H2Power with creating a display and other materials.
- Sent press advisories to regional media and managed press at the events.
- Secured interviews for PORTSfuture and industry stakeholders.
- Provided onsite support, attended the events, and engaged with stakeholders, elected officials, community members, and the media.

Presentations

- November 14, 2023-Amplifire was invited to present on PORTSfuture media and community engagement at the "Adding Nuclear to the Mix Conference" sponsored by U.S. DOE Gateway for Accelerated Innovation in Nuclear. The conference was held in Morgantown, West Virginia. No DOE funds were used in this activity.
- September 10, 2024-Amplifire was invited to present on PORTSfuture and community engagement at the "Nuclear Energy Assembly 2024" event sponsored by the Nuclear Energy Institute. The event was held in Philadelphia, Pennsylvania. No DOE funds were used in this activity.

Educating government stakeholders

- January 2024-Drafted U.S. Senator Sherrod Brown's letter of support to promote SODI site reindustrialization activities to U.S. Department of Energy headquarters staff.
- March 2024-Assisted SODI in completing worksheet application for Congressionally Directed Spending grant to expand public outreach for the site reindustrialization project.

Collaborations

During Budget Period 2, PORTSfuture continued to sustain and expand collaborations with entities that can assist with achieving site reindustrialization goals.

DOE-related entities such as U.S. DOE National Laboratories and Community Reuse Organizations

The PORTSfuture Program connects with various experts at DOE National Laboratories and community reuse organizations around the country to seek information to inform our program activities and to discuss PORTSfuture Program activities in support of DOE EM cleanup and community preferred future uses for the site. During Budget Period 2, we continued our engagements with the National Energy Technology Laboratory (NETL) and Idaho National Laboratory (INL) for the purpose of gathering information relevant to site reindustrialization activities.

PJM Interconnection, LLC

PJM is a regional electricity transmission organization (RTO), and PORTSfuture continues to track PJM activities and announcements related to grid capacity and potential load needs. This information is helpful in positioning the site's interconnection possibilities and reindustrialization partners' energy-related projects to be part of a viable electricity transmission and distribution hub for PJM. In a previous grant

year, PORTSfuture secured the PJM database of coal fired power plants designated to be deactivated in the PJM service area. Our hydrogen industry partner, Trillium, is using this database to evaluate the possibility of converting some of the deactivated coal fired power plants to produce electricity using decarbonized hydrogen. These regional plants could serve as "spokes" to the hydrogen production hub being created by Trillium on transferred parcels at the PORTS site.

Institute for Sustainable Energy and Environment (ISEE)

PORTSfuture remains connected to the OU Russ College of Engineering and Technology (RCET) ISEE, which houses a coal research center that is touted as one of the nation's leading academic energy research organizations. ISEE is developing innovative and responsible engineering solutions to issues surrounding domestic energy sources and alternative uses of coal in additive manufacturing. These efforts can play a key role in the development and operation of the site reindustrialization IES-CLM complex, and contacts with RCET ISEE are ongoing.

Institute for Corrosion and Multi-Phase Technology (ICMPT)

PORTSfuture remains connected to ICMPT at the OU Russ College of Engineering and Technology (RCET). ICMPT researches new ways to address corrosion in pipelines in partnership with a global gas and oil industry alliance. Pipelines will be a key infrastructure component for the site reindustrialization IES-CLM complex.

Biomass, bio-digesters, bio products, and co-production systems

The PORTSfuture program collaborates with faculty researchers at Ohio University who are exploring opportunities for developing biomass, bioenergy, and bio products co-production systems to enhance environmental ecosystem protections. Biomass, bioenergy, and bio products could play a role in the development and operation of an IES-CLM complex.

Related OU academic departments

The PORTSfuture program continues to engage with faculty and researchers from engineering, regional economic and community development, environmental studies, public administration/public policy, and other disciplines when applicable to advance grant activities.

OU Office of Research and Sponsored Programs

In previous grant years, the Vice President (VP) for Research and Creative Activity and Dean of the Graduate College at Ohio University engaged with SODI and DOE EM through the PORTSfuture Program to learn more about the site reindustrialization effort. The OU Research Office remains committed to providing support to our work, whenever possible, and specifically by linking relevant OU researchers to site reindustrialization efforts.

OU entrepreneurial ecosystem

Ohio University's Small Business Development Center (SBDC), APEX procurement technical assistance center (APEX), TechGROWTH Ohio entrepreneurship program, Innovation Center, LIGHTS Regional Innovation Network, Social Enterprise Ecosystem (SEE), and OU Tech Transfer Office are excellent resources for the PORTSfuture Program. They provide expert entrepreneurial education, business assistance, approaches for procuring government contracts, and venture development connections in

Appalachian Ohio. These groups provide specific services that may be utilized by reindustrialization partners when applicable.

National experts and thought leaders

Ohio University's PORTSfuture grant leverages and incorporates University resources and relationships by engaging well-respected national experts and thought leaders in our grant activities. These august individuals provide valuable guidance to our work and raise the visibility of efforts to reindustrialize the facility. During Budget Period 2, the following served in an ongoing and/or in-depth consultative capacity to our grant activities:

- Mike Zimmer, Esq., attorney, and international energy business development expert who served as an Ohio University Voinovich School Executive in Residence.
- Dr. Benjamin Cross, P.E., founder and CEO of NuSynergy Energy LLC, formerly with Savannah River National Laboratory who serves as an Ohio University Voinovich School Executive in Residence.
- Jeff Finkle, past President and CEO of the International Economic Development Council (IEDC) and Ohio University Voinovich School Appalachian New Economy Partnership Fellow.
- Rob Painter, OU alum with a storied career in the field of GIS/Data/Cybersecurity and venture capital including working for the U.S. government, Central Intelligence Agency (CIA), Google, and other endeavors. Rob serves as a Senior Executive in Residence at the Voinovich School.
- Dr. Greg Browning, President of Capital Partners, former Ohio University Trustee, former Director of the State of Ohio Office of Budget and Management, and former Senior Policy Advisor to Governor George V. Voinovich. Dr. Browning has served as a Senior Fellow and past chair of the Voinovich School of Leadership and Public Service advisory board.

Summary and Next Steps

Ohio University's PORTSfuture Program is honored to remain a part of, and to continue to add value to, DOE EM, SODI, and site contractor collaborative efforts to inform end-state configuration to support viable site reindustrialization. Activities may result in cost savings/cost avoidance for DOE EM and assist in reducing the DOE EM footprint at PORTS. The work that occurred during Budget Period 2 under the Site Repurposing Continuation and Ongoing Technical Assistance, Public Outreach, Education, and Engagement for Property Transfer and Future Use activities created public value and served the public interest. These activities informed site cleanup and future use planning, while being mindful of leveraging the existing public assets of the PORTS site and the region to create regional economic prosperity.

The activities and information cited in this report serve to advance SODI's goal to develop an Integrated Energy System-Closed Loop Manufacturing (IES-CLM) complex at the site. It is important to restate and emphasize that these activities were conducted in a manner that was responsive to the stated future use preferences of the public in the four-county region near the site. These community preferences were identified at the beginning of Ohio University's involvement in this grant program through various DOE EM and Ohio University public engagement efforts and can be viewed in Appendix 1. Numerous site stakeholders continue to be involved in site reindustrialization including SODI, Site-Specific Advisory Board (SSAB), community-at-large, Ohio organized labor groups, local, state, and federal elected officials, county, regional, and state level economic development officials, private sector industry, and national experts.

Ohio University's PORTSfuture Program remains committed to building on the momentum gained to continue the vital activities reported on in this document. DOE EM, SODI, and PORTSfuture have

identified the following areas in which Ohio University's PORTSfuture Program can continue to add value:

- Continue to conduct work depicted in the OU Current Grant Activities graphic shown earlier in this report in Figure 1.

- Continue to expand existing partnerships and develop new partnerships to advance site reindustrialization efforts.

- Continue to identify IES-CLM complex industries and identify those industries' needs to support expansion in the region and/or at the PORTS site. Conduct targeted industry site infrastructure analysis to inform sequencing for cleanup. This includes conducting a comparison of current site conditions versus conditions needed to support commercial use in specific targeted industry sectors to inform DOE EM decisions on property transfer.

- Preferred industries for future development have been identified as decarbonized energy production, advanced manufacturing, and related support industries. We will continue our efforts to develop Public Private Partnerships with these industry types for site reindustrialization.

- Identify private developers' siting requirements such as utilities and other assets to be left in place when possible, resulting in cost avoidance for DOE EM. Develop a utility strategy for SODI in its efforts to recruit new developers. Utilize GIS to display information when appropriate.

- Develop and assist with the execution of a site repurposing implementation plan and recommendations described in the SODI Resource Manual as requested and incorporate federal programs when possible.

- Work with SODI to develop site services agreements to facilitate and streamline new businesses' ability to access needed site services when locating on parcels transferred to SODI for site reindustrialization.

- Collaborate with SODI to promote its website and available parcels through public information activities to audiences that include industry prospects, businesses, nonprofits, economic development professionals, and general inquiries.

- Assist SODI in fielding requests for property. This includes SODI requests to DOE EM for property and includes private sector requests to SODI for property.

- Produce data and GIS needed to support site reindustrialization. This may include maintaining existing data products, GIS products, creating profiles of regional economies, and/or other data products to be determined.

- Conduct economic impact analysis, workforce analysis, and other types of data analysis for IES-CLM industries.

- Assist SODI in developing and executing a financial plan to increase SODI's capacity to obtain the resources necessary to transform PORTS into an IES-CLM complex.

- Continue executing public information initiatives utilizing regional and national influencers and thought leaders to articulate the value of the PORTS site for economic development and elevate the visibility of the site reindustrialization efforts.
- Continue and/or expand Science, Technology, Engineering, and Mathematics (STEM) engagement activities designed to encourage regional students to learn about and engage in activities in STEM disciplines. The goal of these activities is to encourage students to pursue careers in these in-demand fields that provide well-paying employment opportunities. STEM engagement activities also serve to inform students of future employment opportunities with the incoming developers involved in site reindustrialization.

- Continue to disseminate program information through websites, presentations, webinars, public open houses, news releases, and/or conferences as appropriate.

- Continue to inform and update key regional, state, and federal political stakeholders on activities and progress.

- Continue to leverage other funding opportunities whenever possible and especially pursue opportunities to bring private sector dollars and/or public private sector partnerships into the site reindustrialization process. This includes building upon current initiatives with entities such as:
    - Commercial partners interested in exploring opportunities at the site.
    - University partners interested in conducting research, development, and deployment activities in advanced energy endeavors.
    - Technology commercialization experts, private sector venture capitalists, and pre-seed fund resources interested in investing in southern Ohio companies.

- Other activities will be defined in collaboration with program partners as needs are identified.

Appendix 1 PORTSfuture Background, History, and Evolution

Background

The U.S. Department of Energy's former Portsmouth Gaseous Diffusion Plant (PORTS) near Piketon, Ohio, has been an important economic player in the Pike, Scioto, Ross, and Jackson County region for decades. This fact has impacted the region's socioeconomic profile. As the deactivation and demolition process continues at the PORTS site, it is expected that this transition period will lead to further changes in the region's socioeconomic profile including the creation of socioeconomic stressors as well as growth opportunities. The extent to which decisionmakers can minimize transitional stress and maximize the economic prospects for the region hinges upon the cleanup and transfer of the PORTS site and site assets for other economic use.

Leveraging foundational public engagement activities

Site repurposing continuation and Ongoing Technical Assistance, Public Outreach, Education, and Engagement for Property Transfer and Future Use activities for Budget Period 2 build upon site repurposing and outreach activities conducted with 3161 funding (federal funds focused on benefits to workers) during 2013-2015 and work conducted under previous grants. These activities also build upon findings from the Ohio University PORTSfuture Program's original DOE EM grant work under the public outreach task completed in 2011. Under the outreach task, PORTSfuture conducted a 15-month, broad-based, grassroots, public participation process in Pike, Scioto, Ross, and Jackson counties to identify residents' future use preferences for the PORTS facility. Community participants in outreach activities included residents, economic development entities, environmental groups, nonprofits, businesses, governmental interests, and other stakeholders in the four counties near the PORTS facility.

To inform the design of the outreach project, PORTSfuture conducted qualitative research that included interviewing key site stakeholders, conducting four focus groups with members of the public, administering a regional telephone survey to gain information about residents' opinions on major problems facing local communities and residents' awareness/knowledge of the site and cleanup efforts, and gathering residents' preferences for possible site future uses. Results from this qualitative research were used to design Community Visioning Teams that further broadened opportunities for public involvement at a more in depth and focused level. Future use scenarios were developed by community participants in County Visioning Teams and voted on by the public at large at numerous public events and online. County Visioning Teams were provided with summary findings from the qualitative research, data on the site and site assets, cleanup plans, and reports that detailed environmental conditions at the site. Throughout the visioning process, participants reviewed and discussed the data and used this input in creating their future use scenarios. The full outreach report can be found here: https://www.portsfuture.com/public-outreach-and-public-outreach-report/

Public voting on future use preferences occurred online and in-person at public events throughout the region from July 15, 2011, to September 30, 2011. A total of 1,141 people voted on the nine scenarios. Each person could select 1-3 scenarios as preferred options for future use consideration for PORTS. Results of the multiple-choice voting, with the top four scenarios highlighted in red font, are as follows:

Scenario Name	Total Votes
Nuclear power plant	**495**
Green energy production	**475**
Industrial park	**421**
National research and development	**418**

Warehousing, distribution, and transportation hub	179
Training and education facility	160
Metal recovery facility	152
Multi-use southern Ohio education center	143
Greenbelt	131

Scenario preferences obtained through the public voting activities were reported to site stakeholders, and the final outreach task report was submitted to the U.S. Department of Energy Office of Environmental Management Portsmouth/Paducah Project Office, DOE EM PORTS site officials, and the PORTS Site-Specific Advisory Board (SSAB) for their consideration related to cleanup and risk reduction decisions. These results served to inform site repurposing activities in subsequent years.

Site repurposing activities history and evolution

2013-2015

Staff from OU, SODI, DOE EM, and relevant site contractors met regularly and engaged in activities to achieve the collaborative goals of informing DOE EM cleanup, end-state configuration, and accelerated property transfer at PORTS. Efforts focused on identifying viable options for best leveraging the site and site assets and identifying related industrial sectors that could be recruited as future tenants of a reindustrialized PORTS reservation. The energy sector was vetted in depth and the potential to attract energy-related businesses to locate at the site appears to be extremely favorable. Due to southern Ohio's long-standing ties to energy industries, the ability to develop and strengthen an energy cluster in the region will be enhanced with the site cleanup, transfer, and reuse. During 2014, the President and CEO of the International Economic Development Council (IEDC) met with the collaborative group to discuss strategies for site reindustrialization in the top three identified potential future use sectors that include energy, advanced manufacturing, and transportation/logistics. The IEDC President, in his role as an OU Voinovich School Senior Fellow, continued to provide expert input and guidance to grant activities as requested and in-person, usually twice per year, until his retirement in 2022.

To gather meaningful input from energy industry leaders and state and regional economic development professionals, a regional energy sector roundtable was held in May of 2014 to further inform site reuse planning. The roundtable discussion focused on identifying opportunities to develop energy sector businesses at the PORTS site in the form of Public-Private Partnerships (P3s). Ohio University designed the roundtable concept in conjunction with IEDC and other national experts and in consultation with energy industry leaders who were interviewed by telephone. This information resulted in a concept paper that guided the materials developed for the session, the participant recruitment, and the facilitation design for the roundtable.

The roundtable was well-attended and included representation from private industry, economic development, government, national level consultants, PORTS-SSAB, DOE EM, SODI, and site contractors. The Energy Sector Roundtable revealed key insights regarding the most feasible energy industries to pursue including bio-chemicals such as polymers and plastics, waste recycling/waste transformation, waste heat recovery, municipal waste processing, anaerobic digestion, methane combustion, metals recycling, energy generation, energy storage and micro-grids, biofuels and bio-products, and coal alternatives such as carbon capture and use, carbon capture and sequestration, and coal to liquids. The goal is to recruit industries that will harmonize sustainable utilization of environmental resources to develop energy and provide economic benefit to the region.

During the winter of 2014-2015, Mike Zimmer Esq., an energy project and finance attorney, international energy business development expert, and Ohio University Voinovich School and Russ College of

Engineering and Technology Executive in Residence, authored an industry profile paper that discussed top energy sector industries viable for siting at PORTS. The paper can be viewed here:

https://www.portsfuture.com/wp-content/uploads/2019/03/PORTSfuture-Energy-Sector-PORTS-Campus-White-Paper.pdf

In February of 2016, Dr. Benjamin Cross P.E., Principal of NuSynergy Energy LLC, Ohio University Voinovich School Executive in Residence, and formerly Senior Advisor for the Clean Energy Directorate at the Savannah River National Laboratory, authored a white paper on establishing an Appalachian Regional Energy Cluster. This white paper provides an overview of industry clusters and discusses why the establishment of an Appalachian Regional Energy Cluster is considered a prerequisite for enhancing the viability of locating an Integrated Energy System-Closed Loop Manufacturing (IES-CLM) complex at the DOE PORTS site. The white paper can be viewed here: https://www.ohio.edu/ce3/resources/upload/CE3-Appalachian-Regional-Energy-Cluster-White-Paper-Feb-2016-FINAL.pdf

These papers served to guide subsequent grant activities related to site repurposing.

2016-2021

Site repurposing activities were informed by and built upon the previous efforts cited above. At the request of SODI, the local community reuse organization, PORTSfuture site repurposing activities were directed to focus on supporting the development of an Integrated Energy System/Closed Loop, advanced Manufacturing (IES-CLM) complex at PORTS and align with insights garnered throughout previous site repurposing grant work. An IES-CLM complex will attract and expand industries in the region, leverage coal and shale resources in additive manufacturing applications, create jobs, and grow the southern Ohio economy.

This strategy includes employing a multi-disciplinary cluster approach for regional development utilizing the PORTS campus as one element of a regional economic diversification strategy. This approach is employed based on the notion that clusters develop across a geographic area and businesses provide synergy across/among each other, which will enhance cluster growth. This cluster approach was consistent with stated public preferences for site reuse cited above. Additionally, during this time, southern and eastern Ohio had been identified as potential areas for siting billion-dollar petrochemical industries that were related to the shale boom in Ohio and western Pennsylvania. The PORTS site has the infrastructure capacity to serve as a major petrochemical industry hub. Since that time, the plans for the facility in eastern Ohio that would launch a regional petrochemical industry were tabled. The PORTS reindustrialization efforts have since focused on decarbonized and zero carbon energy production and sustainable manufacturing related to other industry sectors.

Another burgeoning industry across the nation and especially in Ohio relates to data centers, which consume vast amounts of electricity. The PORTS infrastructure and interconnection to the PJM national grid positions the site to be an ideal location for a central hub for electricity generation, transmission, and distribution for decades to come. The DOE EM PORTS site is widely viewed as a major regional asset that can greatly enhance efforts to develop several regional clusters in the areas of energy, advanced manufacturing, transportation/logistics, power generation, power transmission, and power distribution. The site could be reindustrialized in these areas to enhance the economic viability of the region for future generations of Ohioans.

Beginning January 2021, under the Biden Presidential Administration, national energy and economic development strategies abruptly shifted to focus on clean energy production and sustainable manufacturing. That shift in focus aligned perfectly with the Integrated Energy System-Closed Loop Manufacturing (IES-CLM) strategy for PORTS. This dramatic shift in national focus was instigated out of necessity to employ an "all hands-on deck" approach to combatting the rapidly worsening climate crises by developing ways to reduce CO_2 emissions in the areas of power generation, manufacturing, and transportation. Our site reindustrialization efforts expanded to include private sector developers to produce decarbonized energy in the form of clean hydrogen for use in power generation and sustainable manufacturing. We retained our partnership with Hecate Energy, an international solar energy developer, as well as with private companies who conducted a siting study to determine assets at the site that are aligned with attracting advanced nuclear small modular reactor projects in the future. Oklo Inc., an advanced nuclear small modular reactor (SMR) developer, emerged as the first SMR company to express interest in developing a project as part of the PORTS site reindustrialization. With these core energy producer partners, we are remaining steadfast to our articulated vision of engaging in an "all of the above" energy strategy in our IES-CLM development.

2021-present

Collaborative site repurposing efforts between PORTSfuture and SODI to launch an Integrated Energy System-Closed Loop Manufacturing complex have been branded as the "Ohio Valley Green Energy and Manufacturing (GEM)" initiative. Branding of the site reindustrialization efforts has enabled PORTSfuture, SODI, and our partners to differentiate the future opportunities of the site for private sector companies from the ongoing federal cleanup mission. Core GEM partners include PORTSfuture, SODI, Ohio organized labor steering committee, Trillium H2 Power (formerly referred to as Newpoint Gas LLC), Oklo Inc., and Hecate Energy. GEM also works closely with other energy producers and manufacturing interests. GEM has established a solid relationship with U.S. DOE headquarters and maintains contact with senior advisors to the Secretary of Energy and with the Office of Environmental Management leaders to provide updates on progress and opportunities as appropriate.

GEM efforts continue to be widely socialized throughout the SODI 4-county footprint, throughout the Ohio Appalachia region, and at the state and federal levels. GEM continues to enjoy widespread and bipartisan support as we continue to engage with diverse types of stakeholders. One of the most impactful aspects of GEM is the ongoing involvement of Ohio organized labor leaders who serve as our labor steering committee. The steering committee meets regularly with the GEM team and has been active in helping developers to identify labor-friendly private financing for their planned projects. Additionally, the labor group continues to engage in robust advocacy for GEM with elected leaders at the state and federal levels and with U.S. DOE headquarters. Our joint work with this labor committee has enabled GEM to establish strong bipartisan support at the federal level for the site reindustrialization vision. Representatives from the offices of Ohio's U.S. Senators Sherrod Brown and J.D. Vance and Congressman Brad Wenstrup regularly attend our meetings and events.

Appendix 2 Integrated Energy System (IES) Technical Concept