

Roane State Community College

2024 Governor's Investment in Technical Education (GIVE 3.0)

Leveraging Regional Workforce Partnerships to Create Secondary to

Postsecondary Pathways for Nuclear Technology at Roane State

RSCC (Lead)/RSCC (Fiscal) IN PARTNERSHIP WITH:

1. Oak Ridge Chamber of Commerce
2. The University of Tennessee
3. Oak Ridge Schools, Anderson County Schools, Morgan County Schools
4. East TN Economic Council, Oak Ridge Associated Universities, TRISO-X, UCOR, Oak Ridge National Laboratory

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Funding Requested:

\$1,912,233.88

X

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X

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Project Director (Lead Entity)

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PROJECT SUMMARY

DEMONSTRATION OF NEED

Roane State Community College (RSCC) has a strong relationship with regional K-12 institutions, the University of Tennessee, Oak Ridge Associated Universities, Oak Ridge National Laboratory (managed by UT Battelle), Y-12 National Security Complex, economic development agencies, and industry employers. These relationships have cultivated invaluable insights into understanding the workforce needs in the region. In particular, through participation in the East Tennessee Economic Council's (ETEC's) Nuclear Working Group, "ETEC brought together leaders from industry, government contractors, universities (colleges), and economic development organizations to begin defining our nuclear workforce [and identified workforce gaps]"¹ The ETEC Nuclear Working Group observed Nuclear Technicians as one of the critical workforce needs. As a result of these efforts, RSCC, in partnership with local nuclear industries, established an advisory board to initiate a Nuclear Technology Program (NTP), addressing the workforce gaps in the field of nuclear energy, defense, and environmental stewardship (decommissioning and decontamination). The direct linkage between RSCC's NTP (and future training certificate programs) proposed within this grant submission and local and regional needs are immediate and substantiated by area economic councils, chambers, and industries.

The need for the Nuclear Technology program is also supported by published data and reports, as well as statewide initiatives. The SOC Code associated with the Nuclear Technology program is 17-3029 (Engineering Technologists and Technicians, Except Drafters, All Other), which is in high-demand not only in East Tennessee, but across the state of Tennessee.² This high-need occupation is key to multiple TNECD target industry clusters including healthcare, automotive, and aerospace and defense. In Anderson

County, Nuclear Engineers is listed in the TNECD profile as a “unique occupation, with the United States Department of Energy listed as a top employer.³ Nuclear Technology is an emerging field throughout the state, with targeted initiatives supporting the need for a prepared workforce. For example, Governor Bill Lee partnered with the Tennessee General Assembly in 2023 to create a \$50 million Nuclear Fund to “continue [the] work to make Tennessee the number one state for nuclear energy companies to invest and thrive, bringing greater opportunity and quality jobs for Tennesseans.”⁴ In February 2024, Type One Energy was the first recipient of the funding, creating 330 new jobs in the Greater Knoxville region.⁵

PROGRAM PLAN

PROPOSED PROGRAM

With this GIVE 3.0 grant, RSCC will leverage our strong partnerships with local nuclear industries to address the skills gaps in nuclear technician workforce pools. Our strategy already underway involves working with local middle and high schools to coordinate and hold nuclear centric career awareness, exploration, and preparation programs. Within the middle school level, RSCC will coordinate nuclear and radiological centric programs aimed at fostering student interest in the nuclear industry such as campus tours, especially the simulated nuclear operations lab for the NTP, STEM days and camps, industry tours and uniquely designed nuclear / radiological “lab-in-a-box”. Lab-in-a-Box is an outreach to rural schools in East Tennessee to provide hands-on middle school STEM kits and teacher training that aligns with state standards. At the high school level, RSCC will promote the 2-year NTP while serving as a bridge between the high schools and industry to identify students interested in the nuclear industry, and will coordinate hands-on real-world experimental projects associated with the nuclear industry either at the high schools or

on the RSCC campus within the NOL. This nuclear technology pathway as a standalone or a stackable credential to success is shown in the graphic in Appendix A.

The NPT design will have Industry (stakeholder) input such as a robust curriculum designed by the chartered Nuclear Technology Program Advisory Board and other industry experts, as well as a laboratory incorporating real-world equipment in a simulated nuclear environment. The NTP classes integrate practical, hands-on exercises designed to simulate real-world working environments and enhance experiential learning and skill development and are taught by subject matter experts in the field of radiological and nuclear operations. The Program aims to serve various groups, including incumbent workers, dislocated workers, and underrepresented populations in STEM fields. In addition to offering a 2-year AAS, the Program will also be designed to provide education and training opportunities such as certifications to fill training gaps identified by regional employers, internships, and STEM recruitment at the K-12 level. The Program is poised to serve as a model for other rural areas seeking to establish similar programs to meet future workforce demands within the clean energy industry. The Program is targeted to begin in Fall 2024 and be fully scaled by Fall 2026.

Since the initial concept of the program, RSCC has developed the curriculum for the Nuclear Technology Program. Course work within the curriculum contains courses already established in the Chemical Engineering Program (e.g., chemistry, industrial equipment, industrial safety, and process controls) and in the Environmental Health Technology Program (e.g., industrial hygiene and safety and applied radiological control technology). RSCC will offer three new courses in nuclear, namely Nuclear Science and Radiochemistry; Radiation Detection and Measurement; and Nuclear Systems and Operations. The three new nuclear courses will be 4 credit-hour courses, each with lecture and laboratory (simulated nuclear processing area) components. The simulated nuclear processing area (Nuclear Operations Laboratory – NOL) will be equipped with equipment used in nuclear fissile production areas

such as gloveboxes, aqueous and dry nuclear material processing apparatuses, exempt radioactive sources, long-term and in-process storage protocols (vaults and racks), actual radiation measuring equipment, and other equipment used in the nuclear industry. RSCC has worked with our collaborating regional employers and Advisory Board members to develop the curriculum required to meet their workforce needs to ensure students graduating from the Nuclear Technology Program have the skills they require. Additionally, the Oak Ridge National Laboratory (ORNL) donated \$100,000 to the Nuclear Technology Program for the purchase of radiation monitoring equipment and is providing subject matter expertise in developing the Radiation Detection and Measurement course syllabus to meet Department of Energy standards. The Y-12 National Security Complex (Y-12) will be providing additional hands-on experimental learning opportunities at their new training center in Oak Ridge. Y-12's new training facility, called ORETTTC (Oak Ridge Enhanced Technology and Training Center) will leverage the XR (umbrella term used to refer to augmented reality (AR), virtual reality (VR), and mixed reality (MR)) tools such as haptic glovebox trainers to help students get familiar with working in glove boxes with actual nuclear materials. XR tools allow for simulated non-standard events such as radioactive spills, breakages, leakages, and accidents.

PROJECT TIMELINE

Timeline	Activity
July, August, September 2024	Attend required technical assistance for grantees, Program Start-up with 1 st cohort; hold 2 nd advisory board meeting; meet with industry partners (this will be an ongoing activity); hold middle school and

	high school events (this will be an ongoing activity).
October, November, December 2024	Nuclear Operations Lab 25% complete, 1 st course syllabus complete
January, February, March 2025	Nuclear Operations Lab 50% complete; start 1 st nuclear course; work with industry to place 1 st cohort interns in the summer of 2025; Complete short training course program curriculum (certificate program);
April, May, June 2025	Nuclear Operations Lab 75% complete; complete 2 nd course syllabus; 1 st cohort interns working in industry (summer 2025); deploy 1 st short training course (certificate program) in the summer of 2025
July, August, September 2025	Start 2 nd Cohort; start 2 nd Nuclear Course; Nuclear Operations Lab 90% complete; 3 rd Advisory Board Meeting
October, November, December 2025	Operations Lab 95% complete; complete 3 rd Nuclear Course syllabus
January, February, March 2026	Nuclear Operations Lab 100% complete; start 3 rd Nuclear course; start on Nuclear course elective curriculums (2 courses).

April, May, June 2026	NTP 1 st cohort graduates; Initiate purchase of Phase II Nuclear Operations Lab equipment (for course electives); 2 nd cohort interns working in industry (summer 2026); deploy 2 nd short training course (certificate program) in the summer of 2026
July, August, September 2026	Phase II Nuclear Operations Lab equipment (for course electives) 50% complete; Start 3 rd cohort; complete nuclear course elective curriculums (2 courses); 4 th Advisory Board Meeting
October, November, December 2026	Phase II Nuclear Operations Lab equipment (for course electives) 75% complete; list nuclear courses in catalogue (2 courses);
January, February, March 2027	Phase II Nuclear Operations Lab equipment (for course electives) 100% complete
April, May, June 2027	NTP 2 nd cohort graduates; NTP Advisory Board program assessment; 3 rd cohort interns working in industry (summer 2027); deploy 3 rd short training course (certificate program) in the summer of 2027
July, August, September 2027	Start 4 th cohort; start 4 th and/or 5 th nuclear course electives; 5 th Advisory Board Meeting
October, November, December 2027	Report out program Advisory Board and self-assessment

January, February, March 2028	Start 4 and/or 5 th Nuclear course electives
April, May, June 2028	NTP 3 rd cohort graduates; 4 th cohort interns working in industry (summer 2028); deploy 3 rd short training course (certificate program) in the summer of 2027
July, August, September 2028	Start 5 th cohort; Full Program underway with electives

KEY OBJECTIVES AND METRICS

Objectives	Metrics
<p>Upon completion of their third semester of the program, students will successfully complete a series of rigorous scenario-based practical exercises within the Nuclear Operations Laboratory (NOL) which will prepare them for real-world challenges in the nuclear industry.</p>	<p>80% of enrolled students will achieve a 90% or higher on these exercises.</p> <p>While the specific assessments and metrics are to be developed, procedure adherence; intricacies of specialized operations; radiological and nuclear safety; working with others as a team (e.g., 2 man-rule); critical thinking; and a deep understanding of nuclear operations will be emphasized, ensuring graduates are well-equipped for careers in this high-stakes field.</p>

Upon completion of their third semester of the program, students will successfully complete a capstone project requiring them to utilize their knowledge and skills acquired throughout the NTP to showcase the project among their peers, faculty, and the NPT advisory board.	80% of students will score “proficient” or higher (rubric to be developed).
Enable students who complete the NTP to gain employment in a related field within a year of graduation.	90% of students who earn an AAS in NTP will be employed or pursuing a degree in a related field within one year of earning the degree.
Provide dual enrollment opportunities to high school students in Anderson and Morgan counties.	Enroll at least 2 HS students in the NTP before the beginning of the 3 rd cohort.
Provide paid internships for students.	Employ at least 2 interns per year after a student’s first year in the NTP.
Complete the Nuclear Operations Laboratory.	Roane State will complete the NOL by March 2026.

PROJECT GOVERNANCE AND ACCOUNTABILITY PLAN

The project director, Dr. Stainback, holds a B.S. degree in mechanical engineering technology from Old Dominion University, an M.S. degree in engineering administration from George Washington University, and a Ph.D. degree in industrial engineering from the University of Tennessee. He has over 3 decades of direct operations experience in the nuclear industry including significant component manufacturing and security related programs and projects for the Department of Energy and other USG

agencies. This includes nuclear operations experience in high consequence nuclear facilities such as BWXT Nuclear Operations Division (BWXT), the Y-12 National Security Complex (Y-12) and the Oak Ridge National Laboratory (ORNL). While at BWXT, Dr. Stainback had direct hands-on experience handling nuclear materials as an engineer responsible for various nuclear components for the US Navy. This experience provided a deep understanding of Nuclear Criticality Safety, Radiation Protection, Industrial Safety and Hygiene, Environmental Stewardship, Nuclear Security, Quality Assurance and Work Management. After retiring from BWXT, Dr. Stainback served as a Research Professor at the University Tennessee focused on domestic and international nuclear security matters. Dr. Stainback worked closely with US National Laboratories and universities within his teaching, research, and international outreach capacities.

RSCC has formed an Advisory Board with collaborating regional industry employers for the development of the NTP. The mission of the Advisory Board is to “provide advice, opinions, and ideas on how to improve the Program’s competitiveness through the quality of the curriculum, new program tracks, and student recruitment and placement.” These regional employers are integrally involved with the program, providing valuable consultation of curriculum and course development in selecting relevant learning scenarios that emulate real-world experiences. Over time, the Advisory Board members will ensure education and training match the unique skillsets required by the advanced manufacturing and clean energy sector employers within the service area. The Nuclear Technology Advisory Board will guarantee that program communications, expectations, data gathering, and policies will be consistent among all partner employers. The Program Director, RSCC Grant Manager(s), as well as RSCC Workforce and Community Development staff, will work directly with the Advisory Board. The RSCC Nuclear Technology Program Advisory Board is comprised of ten collaborating regional employers; specifically, Y-12, ORNL, United Clean-Up Oak Ridge (UCOR), University of Tennessee Knoxville, Omega

Technical Services, X-Energy (TRISO-X), Energy Solutions, GEM Technologies, Inc. (GEM), MS Technology, Inc. (MSTI), and RbM Services, LLC (RbM). Given the cognizant nature of the individual board members, the Advisory Board has and will continue to play an active role in providing technical and programmatic input to the Nuclear Technology Program and will also provide input regarding their own unique workforce needs to guide the Nuclear Technology Program. Given the cognizant and active role of the Advisory Board, RSCC believes the board will provide NTP project governance and accountability as the program progresses to full implementation.

WORK-BASED LEARNING

RSCC views Work-Based Learning (WBL) as multifaceted. The GIVE 3.0 Work-Based Learning (WBL) component encourages local/regional industries to provide meaningful and sustainable work experiences to students and to increase workforce engagement. RSCC will be going beyond providing work experiences and engagement by directly working with industry to develop specific, measurable, and meaningful technical components to curriculum that are directly applicable to the job within the Nuclear Technology Program courses. This improves a student's employability by developing work related skills, experiences, and attributes directly tied to those of the industry providing input to the curriculum.

Another multifaceted component of RSCC's WBL approach is to expose the students to our industry partner by holding classes at one or more of our industry partners (e.g., Y-12, ORNL, UCOR) to attain real-world applications within industry settings. Through various nuclear and radiological hands-on experiences, students will gain insights into real procedural practices, enhance their problem-solving skills, and cultivate a deeper understanding of the relevance of classroom learning in the workplace.

The final component of our WBL will be internships. Oak Ridge Associated Universities (ORAU) has joined RSCC as a partner on this proposal and will assist RSCC in placing students within our industry

partners, especially those under the Department of Energy contracts. ORAU will be a valuable collaborator to RSCC for the placement of nuclear engineering technicians in work-based learning opportunities. For more than 75 years, ORAU has been partnering with government agencies, universities, and corporate entities on scientific and technical workforce initiatives in the nuclear industry. ORAU Workforce Solutions specializes in scientific and technical staffing support, bringing highly qualified and diverse professionals to fulfill mission critical project and business requirements for their government clients. Their experienced, certified recruiters match students and recent graduates with workforce opportunities to extend learning beyond the classroom.

STRENGTH OF PARTNERSHIP

ROANE STATE COMMUNITY COLLEGE

Roane State is committed to this project as the lead entity that will coordinate all grant activities and reporting, manage partner participation, and perform contract monitoring and auditing functions for the grant. The college will also serve as the fiscal agent. Roane State serves the higher education needs of a diverse eight-county area including Anderson and Morgan counties. The college has experience managing successful federal grants from the Department of Labor, Department of Education, and National Science Foundation. The college has also successfully managed grant awards from state and other entities such as Appalachian Regional Commission.

EMPLOYER PARTNERS

Employer partners for this grant project include Oak Ridge National Laboratory (ORNL), TRISO-X, and United Cleanup Oak Ridge (UCOR) (MOUs are attached). Employers will provide subject matter expertise to facilitate the development of course curricula, including relevant work-based learning

scenarios. These employers have agreed to provide guest speakers for classes and events and offer apprenticeships or internships. They are also committed to continue participating in the Nuclear Technology Program's Advisory Board. Oak Ridge Associated Universities (ORAU), another partner on this grant, will act as an intermediary to facilitate and provide internships and work-based learning opportunities for nuclear technology students.

K-12 PARTNERS

RSCC has been directly involved for many years with local high schools such as Oak Ridge High School (Oak Ridge Schools District), Anderson County High School (Anderson County School District), and Wartburg Central High School (Morgan County School District) for dual enrollment and other outreach efforts for K-12 students. Currently, we are working with these schools to recruit students into the Nuclear Technology Program (see attached MOUs). This involves two dimensions of effort. The first dimension involves developing nuclear-centric education modules (e.g., Nuclear lab-in-box, radiation detection using robotics, and creating a nuclear "recruiting course") to inspire middle and high school age students to pursue a career in the nuclear industry. The second dimension involves traditional recruiting methodologies such as holding career days, campus tours, and other community college promotions to either inspire students to major in the Nuclear Technology Program after graduation or consider dual enrollment while in high school. The Oak Ridge area schools, nuclear industries, University of Tennessee and community agencies such as the Oak Ridge Chamber and East Tennessee Economic Council (ETEC) are actively engaged in 'Nuclear is Here'¹ while supporting our area high schools. These initiatives could serve as a model across the State of Tennessee in other communities interested in addressing skills-gaps between K-12 and local/regional workforce pools within the nuclear industry.

OAK RIDGE CHAMBER OF COMMERCE PARTNERSHIP

The Oak Ridge Chamber of Commerce will support this GIVE 3.0 project by working with the college to facilitate communication across employers, agencies, and school systems. The Chamber will additionally provide regional nuclear workforce demand data. An MOU between RSCC and the Oak Ridge Chamber of Commerce is attached.

BUDGET PLAN

The Budget Plan is shown in Appendix B. Detailed information about the costs associated with each budget line is also provided.

SUSTAINABILITY

For over eight decades, there has been a rich history of nuclear innovation in the Oak Ridge area, and workforce needs for skilled labor in the nuclear industry are expected to remain sustainable. Demand will remain high for the unforeseeable future due to opportunities in national defense, research, decommissioning and decontamination efforts, and clean energy innovations (e.g., new small modular nuclear reactors) as reported by our local economic council and the Nuclear Energy Institute (NEI). Given these workforce demands, RSCC will continue to engage with our industry partners and anticipates sufficient student enrollment to sustain the program beyond the life of this grant. Already, the college has received a \$100,000 donation from UT-Battelle to launch the NTP, as well as a \$ \$1,444,545 grant from the Department of Labor to help develop the program and support students enrolled in the program. RSCC will also utilize the Nuclear Technology Program's simulated nuclear processing area to develop condensed

nuclear fuel cycle training / certificates or microcredential programs for new non-nuclear engineers or other collaborating employees aiming to enhance their skills or knowledge in the nuclear field.

Roane State acknowledges our responsibility to sustain our relationships with our industry partners and to maintain equipment (house, maintain, and/or repair) and components beyond the life of the grant. Further, success with this project will position RSCC to expand program offerings and partnerships with local school systems and employers.

OPTIONAL CRITERIA

HIGH DEMAND PROGRAMS

Roane State's pending proposal to TBR for the approval of its Nuclear Technology Program lists the program with a CIP code of 15.1401 and an associated SOC Code of 17-3029. According to THEC's Academic Supply for Occupational Demand Report², SOC Code 17-3029 (Engineering Technologists and Technicians, Except Drafters, All Other) is in high demand not only in East Tennessee, but across the state of Tennessee.

COUNTY ECONOMIC STATUS

Partnering Morgan County Schools is located in Morgan County, Tennessee. Morgan County is recognized as an at-risk county by the Appalachian Regional Commission.

CENSUS TRACTS IN PERSISTENT POVERTY

This proposal seeks to serve students at Oak Ridge High School in Oak Ridge Schools District. According to the National Center for Education Statistics⁶, Oak Ridge Schools serves 16 census tracts, one of which is 47001020500. Further, students at Robertsville Middle School, located within census tract

47001020500, transfer to Oak Ridge High School.⁶ See appendix C for the corresponding census tract map.

REFERENCES

1. <https://www.eteconline.org/nuclear-industry-hub/>
2. THEC Academic Supply and Occupational Demand Report,
<https://www.tn.gov/content/tn/thec/research/supply-and-demand.html>
3. TNECD County Profile Tool, <https://tnecd.com/county-profiles/>
4. <https://www.tn.gov/governor/news/2023/5/16/gov--lee-issues-executive-order-to-advance-nuclear-energy-innovation---investment.html> (linked from Jobs4TN)
5. <https://www.tn.gov/eecd/news/2024/2/21/governor-lee--commissioner-mcwhorter-announce-type-one-energy-group--inc--to-establish-hq-and-expand-r-d-operations-to-tennessee-.html> (linked from Jobs4TN)
6. National Center for Education Statistics,
<https://nces.ed.gov/programs/edge/geographic/relationshipfiles>

APPENDIX A: NUCLEAR TECHNOLOGY PATHWAY TO SUCCESS

ALIGNING Workforce and Secondary Education Partnerships to a

NUCLEAR TECHNOLOGY PATHWAY

Tennessee College of Applied Technology OR **Roane State**

Oak Ridge Schools

Morgan County Career & Technical School

Anderson
Every Student, Every Day

K-8 STEM EXPLORATION

- Campus Tours
- Lab-in-a-Box (Nuclear)
- STEM days & Camps
- Industry Tours

Roane State
COMMUNITY COLLEGE

RSCC NUCLEAR TECHNOLOGY PROGRAM

- 2-Year Associates Degree
- Nuclear Fuel Cycle Program
- Industry & UTK Input & On-Site Classrooms
- Work Based Learning
- Internships
- Real-World / Experimental Learning
- Training Certifications and Certificates

Partners Forging the **PATH TO SUCCESS**

X-energy
TRISO-X Fuel

OAK RIDGE
National Laboratory

CNS | Y-12

UCOR

ORAU

APPENDIX B: BUDGET PLAN
GRANT BUDGET

GIVE Program Competitive Grant				
The grant budget line-item amounts below shall be applicable only to expenses incurred during the following				
Applicable Period: BEGIN: 9/1/24 END: 9/30/28				
POLICY 03 Object Line- item Reference	EXPENSE OBJECT LINE-ITEM CATEGORY ¹	GRANT CONTRACT	GRANTEE PARTICIPATION	TOTAL PROJECT
1, 2	Salaries, Benefits & Taxes	161,724.00	0.00	161,724.00
4, 15	Professional Fee, Grant & Award ²	135,000.00	0.00	135,000.00
5, 6, 7, 8, 9, 10	Supplies, Telephone, Postage & Shipping, Occupancy, Equipment Rental & Maintenance, Printing & Publications	190,900.00	0.00	190,900.00
11, 12	Travel, Conferences & Meetings	60,000.00	0.00	60,000.00
13	Interest ²	0.00	0.00	0.00
14	Insurance	0.00	0.00	0.00
16	Specific Assistance to Individuals	258,000.00	0.00	258,000.00
17	Depreciation ²	0.00	0.00	0.00
18	Other Non-Personnel ²	110,000.00	0.00	110,000.00
20	Capital Purchase ²	949,200.00	0.00	949,200.00
22	Indirect Cost	47,409.88	0.00	47,409.88
24	In-Kind Expense	0.00	0.00	0.00
25	GRAND TOTAL	1,912,233.88	0.00	1,912,233.88

Grant Budget Line-Item Details

A detailed discussion of how the budget aligns and supports the goals and outcomes of the Nuclear Technology Program are delineated below. In addition, RSCC is seeking capital equipment purchases for the Nuclear Operations Laboratory (NOL) to address local and regional labor market employment and training needs in the nuclear industry as part of the overall Nuclear Technology Program.

Line Item 1,2 – Salaries, Benefits and Taxes – Dr. Stainback’s salary is not included in this proposal as his salary is paid by the institution. RSCC has included provisions for 2 adjunct salaries for the NTP, paid at the institution’s rate for adjunct faculty (\$591.50-\$616.50 per credit hour, depending on education level). These individuals will contribute expertise on a part-time basis for at least 2 of the specialized nuclear courses.

Line Item 4, 15 – Professional Fee, Grant & Award – RSCC has included consultants for curriculum development for industry experts in the field of nuclear operations. In addition, based on prior experience using technical equipment within our mechatronics program, additional funding for training for the two advanced specialized capital equipment, Boston Dynamic robots and the drone. The training will be conducted by certified professionals, ensuring proficiency and safety in handling the specialized equipment. Finally, also included in this line-item are costs associated with the East Tennessee Economic Council (ETEC), a convening organization with economic developers, private industries, federal contractors, and educators, to study and refine workforce projections in the nuclear industry.

Line Item 5,6,7,8,9,10 – Supplies, Telephone, Postage & Shipping, Occupancy, Equipment, Rental & Maintenance, Printing & Publications - RSCC has included customary and routine costs for Supplies, Telephone, Postage & Shipping, printing & publications in this line item. Maintenance, repair, and installation costs for the capital equipment are included under the advisement from our university partner. General supplies for the NOL include items such as general chemistry equipment typically found in a nuclear operations facility, signage, personal protective equipment (PPE), storage containers, racks, calibrations, expendables, and ovens.

Line Item 11,12 - Travel, Conferences & Meetings - Networking and knowledge exchange are paramount in the nuclear industry, hence we have allocated funds for travel to industry conferences (\$7,500 per conference per year). Participation in these events will facilitate engagement with key academic and industry stakeholders and foster collaboration.

Item 13, 14, 17 and 24 – Interest, Insurance, Depreciation nor In-Kind Expenses - RSCC will not have any costs associated with Interest, Insurance, Depreciation nor In-Kind Expenses.

Item 16 – Specific Assistance to Individuals – RSCC will be securing internships after the first year for students enrolled in the NTP. Some employers in the nuclear defense industry within the Oak Ridge area may require security clearances. Funding for two students per year to attain security clearances are included in this line item.

Line 18 – Other Non-Personnel - In line with our commitment to inspire students to go into the nuclear fields, RSCC has earmarked funds for middle and high school programs. These programs are intended to

inspire and foster interest in nuclear to cultivate talent uniquely skilled for our industry partners. In addition, this line item includes nominal costs for Oak Ridge Associated Universities (ORAU) to provide support for work-based learning activities aligned with the Nuclear Technology Program. Funding will allow ORAU to use its network channels to support nuclear industry workforce initiatives in collaboration with ORAU STEM Accelerator’s public-private partnerships with government agencies and corporate entities.

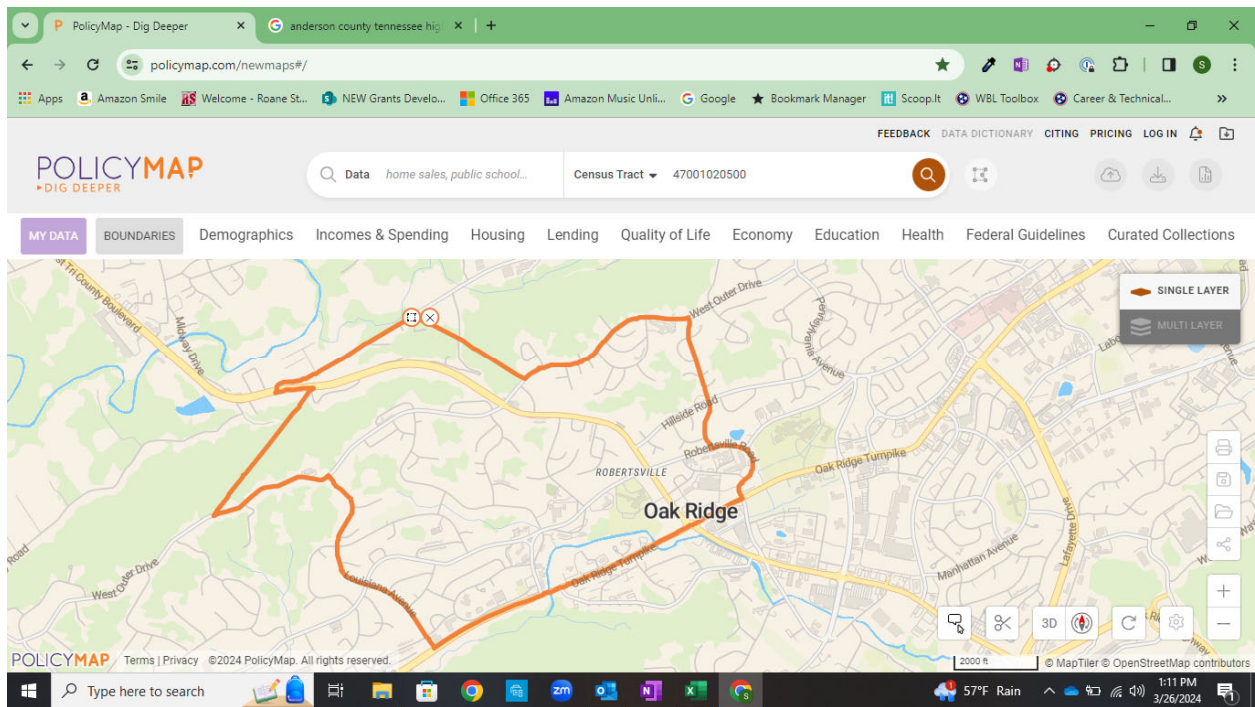
Line 20 – Capital Purchases – RSCC has included major capital equipment necessary for advancing the Nuclear Operations Laboratory (NOL) that will facilitate real-world education, experimental and work-based learning (WBL) objectives. These investments will enhance the capabilities of our NOL infrastructure, enabling us to undertake the latest and realistic simulated nuclear operation’s scenarios. Moreover, this equipment emulates or duplicates exact equipment used by our industry partners. This equipment supports both the 2-year nuclear technology program pathway and certificate training programs. RSCC along with the Nuclear Advisory board members are confident that the equipment purchases will prepare students to enter a career within our local industry partners. The detailed list of equipment is summarized below

Vac 2-Glove Port Gloveboxes – 2 needed + Installation costs	\$78,750
Spectrum Techniques – Spectrographic Equipment	\$52,500
Aqueous Radioactive Solution Demonstration Apparatus	\$42,000
Dry Chemical Simulated Demonstration Apparatus	\$42,000
Radioactive Material Hold-up Demonstration Apparatus	\$26,250
Security System Hardware and Access Control System	\$42,000
Boston Dynamics Robot – SPOT (capable of mounting a radiological instrument)	\$367,500
Teletrix Simulated Radiation Source Package	\$73,500

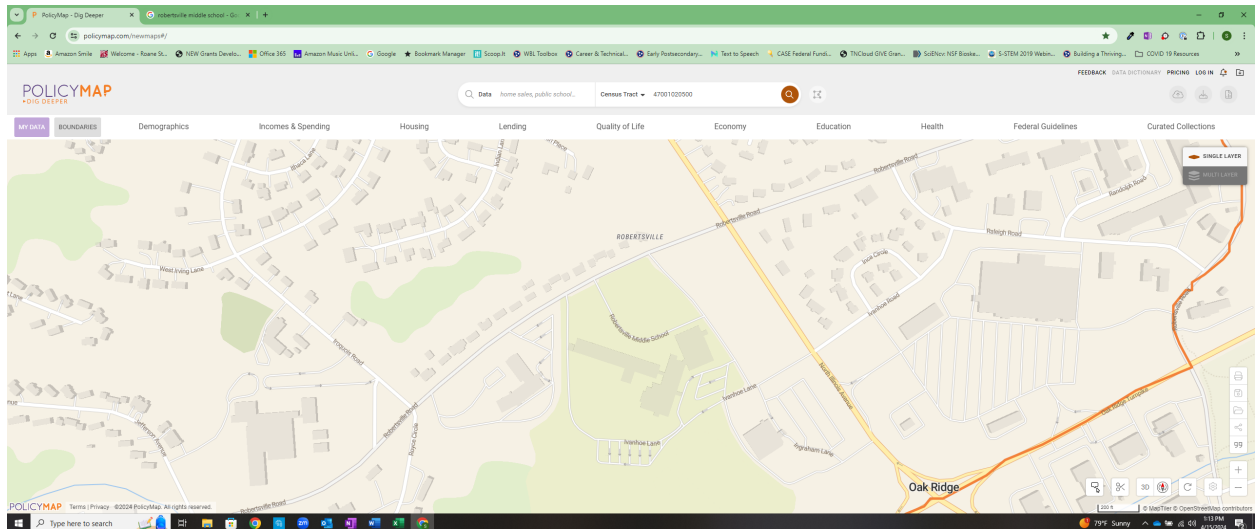
Teletrix Vizrad System (Interactive Rad Training System)	\$84,000
Process Control System (CHET)	\$40,950
Drone System with radiological instrument payload capability	\$78,750
Commercial Reactor Dummy Fuel Assembly or HIFR Dummy Fuel Assembly	\$21,000

Line 20 – Indirect Costs – RSCC has included 8% indirect costs associated with the administration of the grant program. The indirect cost rate has been calculated using Modified Total Direct Cost rate, including direct salaries and wages, applicable fringe benefits, materials and supplies, services, and travel. The indirect rate excludes equipment, capital expenditures, and participant support costs.

APPENDIX C: CENSUS TRACT MAP



Zoomed in to show Robertsville Middle School, located at 245 Robertsville Rd, Oak Ridge, TN 37830:



Roane State Community College / Oak Ridge Chamber of Commerce
State of Tennessee GIVE 3.0 Program Memorandum of Understanding

Vision Statement

Roane State Community College (RSCC) is applying for grant funding through the Governor's Investment in Vocational Education (GIVE) 3.0 program, which will continue to foster and grow long-term regional partnerships between Roane State Community College, specific nuclear industries, economic development/workforce agencies, and select K-12 education systems to identify and address "skills gaps" in local/regional nuclear technician workforce pools.

The increasing demand for alternative clean energy solutions such as nuclear and the need for new technology designs such as Small Modular Reactors (SMRs) has increased the demand for nuclear technicians. If funded, the grant will be a critical pillar in the resources needed to allow RSCC to establish a 2-year Nuclear Technology Program (NTP) tailored to meet industry needs and taught by subject matter experts. The NTP design will also include a laboratory incorporating real-world equipment in a simulated nuclear environment. This grant will also allow us to focus our efforts on developing a program to provide career interest building, outreach and training to K-12 students.

Design

The design of the grant will be to offer the following:

- Create a robust 2-year Nuclear Technology Program aligned with industry standards complete with a laboratory with equipment used in the nuclear industry.
- Support K-12 institutions in crafting engaging programs aimed at fostering student interest in the nuclear industry.
- Serve as a bridge between K-12 and industry to identify students interested in the nuclear industry.
- Work with area industry to identify nuclear workforce needs.
- Coordinate and hold clean energy centric career awareness, exploration and preparation programs with the community and K-12 institutions.
- Provide education and training opportunities such as certifications to fill training gaps identified by regional employers.

The Program will:

- help students engage in learning and participate in postsecondary education,
- help students focus on educational pursuits and improve academic performance,
- give qualified students a head start on college by earning dual enrollment credit toward high school and college graduation,
- help each student acquire skills and knowledge that will lead to graduation and a successful transition to higher education and, ultimately, employment.

Sustainability:

The partners commit to work towards sustaining grant components and ensuring optimal use of grant equipment and components beyond the life of the grant. Success with this grant will position RSCC to expand program offerings and partnerships with additional local school systems in the future. RSCC is actively engaged in further grant and other funding acquisitions to support future growth and sustainability.

The Oak Ridge Chamber of Commerce sees the program as a value add to the region. By signing this MOU, the chamber is agreeing to support RSCC, the partnership and region as needed to successfully implement this program including to:

- work with Roane State Community College to facilitate communication across employers, agencies and local school systems, and
- provide regional nuclear workforce demand data.

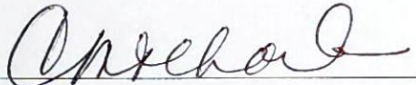
Roane State Community College will provide:

- leadership in the academic program development to ensure post-secondary requirements are met,
- data for the purposes of sharing outcomes of activities funded through the grant,
- provision of equipment detailed in the grant application to facilitate delivery of the training program,
- leadership in the development/expansion of the work-based learning opportunities,
- space, and
- overall grant administration and reporting.

Contract Term

Roane State Community College and the partners will begin working on the further development and implementation of this program across the life of the 4-year grant through September 30, 2028 with the option to extend for another year.

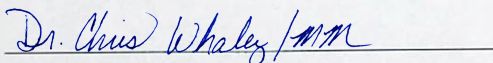
Signatures to the Agreement:



Christine Michaels

Oak Ridge Chamber of Commerce, President

Date Signed: 4/22/24



Dr. Chris Whaley

President, Roane State Community College

Date Signed: 4/24/2024

Roane State Community College / The University of Tennessee
State of Tennessee GIVE 3.0 Program Memorandum of Understanding

This agreement is made as of date of last signature, by and between Roane State Community College (RSCC), a public higher education and instrumentality of the State of Tennessee, having an administrative office at 276 Patton Lane, Harriman, TN 37748 and The University of Tennessee (UTK), a public higher education and instrumentality of the State of Tennessee, having an administrative office at 2240 Sutherland Ave., Suite 2, Knoxville, TN 37919 sets forth the mutual understanding of the parties.

Vision Statement

Roane State Community College (RSCC) is applying for grant funding through the Governor's Investment in Vocational Education (GIVE) 3.0 program, which will continue to foster and grow long-term regional partnerships between Roane State Community College, specific nuclear industries, economic development/workforce agencies, and select K-12 education systems to identify and address "skills gaps" in local/regional nuclear technician workforce pools.

The increasing demand for alternative clean energy solutions such as nuclear and the need for new technology designs such as Small Modular Reactors (SMRs) has increased the demand for nuclear technicians. If funded, the grant will be a critical pillar in the resources needed to allow RSCC to establish a 2-year Nuclear Technology Program (NTP) tailored to meet industry needs and taught by subject matter experts. The NTP design will also include a laboratory incorporating real-world equipment in a simulated nuclear environment. This grant will also allow us to focus our efforts on developing a program to provide career interest building, outreach and training to K-12 students.

Design

The design of the grant will be to offer the following:

- Create a robust 2-year Nuclear Technology Program aligned with industry standards complete with a laboratory with equipment used in the nuclear industry.
- Support K-12 institutions in crafting engaging programs aimed at fostering student interest in the nuclear industry.
- Serve as a bridge between K-12 and industry to identify students interested in the nuclear industry.
- Work with area industry to identify nuclear workforce needs.
- Coordinate and hold clean energy centric career awareness, exploration and preparation programs with the community and K-12 institutions.
- Provide education and training opportunities such as certifications to fill training gaps identified by regional employers.

The Program will:

- help students engage in learning and participate in postsecondary education,
- help students focus on educational pursuits and improve academic performance,
- give qualified students a head start on college by earning dual enrollment credit toward high school and college graduation,
- help each student acquire skills and knowledge that will lead to graduation and a successful transition to higher education and, ultimately, employment.

Sustainability:

The partners commit to work towards sustaining grant components and ensuring optimal use of grant equipment and components beyond the life of the grant. Success with this grant will position RSCC to expand program offerings and partnerships with additional local school systems in the future. RSCC is actively engaged in further grant and other funding acquisitions to support future growth and sustainability.

UTK sees the program as a value add to the region, aligned with similar UTK goals including the provision of STEM opportunities for K-12 and postsecondary students. By signing this MOU, UTK is agreeing to support RSCC, the partnership and region to successfully implement this program including to:

- provide nuclear engineering course curriculums to be used as a guide in developing the new Nuclear Technology Program curriculum,
- provide faculty support for both Nuclear Technology Program curriculum and lab development,
- provide partnership opportunities with governmental agencies in support of postsecondary education;
- provide guest speakers and support for classes, if requested, and
- continue to provide representation on the RSCC Nuclear Technology Program Advisory Board.

UTK's Technical Point of Contact: Wes Hines, jhines2@utk.edu

Roane State Community College will provide:

- leadership in the academic program development to ensure post-secondary requirements are met,
- data for the purposes of sharing outcomes of activities funded through the grant,
- provision of equipment detailed in the grant application to facilitate delivery of the training program,
- leadership in the development/expansion of the work-based learning opportunities,
- space, and
- overall grant administration and reporting.

Contract Term

Roane State Community College and the partners will begin working on the further development and implementation of this program across the life of the 4-year grant through September 30, 2028 with the option to extend for another year.

Signatures to the Agreement:

The University of Tennessee

Roane State Community College

DocuSigned by:

Chelsea Inman

Dr. Chris Whaley /mm

1C4B52F3B8174B4...

Chelsea Inman
Interim Director, Sponsored Program
Contracts & Agreements

Dr. Chris Whaley
President

Date Signed: 4/22/2024 | 14:29:49 EDT

Date Signed: 4/29/2024

Roane State Community College / Oak Ridge Schools
State of Tennessee GIVE 3.0 Program Memorandum of Understanding

Vision Statement

Roane State Community College (RSCC) is applying for grant funding through the Governor's Investment in Vocational Education (GIVE) 3.0 program, which will continue to foster and grow long-term regional partnerships between Roane State Community College, specific nuclear industries, economic development/workforce agencies, and select K-12 education systems to identify and address "skills gaps" in local/regional nuclear technician workforce pools.

The increasing demand for alternative clean energy solutions such as nuclear and the need for new technology designs such as Small Modular Reactors (SMRs) has increased the demand for nuclear technicians. If funded, the grant will be a critical pillar in the resources needed to allow RSCC to establish a 2-year Nuclear Technology Program (NTP) tailored to meet industry needs and taught by subject matter experts. The NTP design will also include a laboratory incorporating real-world equipment in a simulated nuclear environment. This grant will also allow us to focus our efforts on developing a program to provide career interest building, outreach and training to K-12 students.

Design

The design of the grant will be to offer the following:

- Create a robust 2-year Nuclear Technology Program aligned with industry standards complete with a laboratory with equipment used in the nuclear industry.
- Support K-12 institutions in crafting engaging programs aimed at fostering student interest in the nuclear industry.
- Serve as a bridge between K-12 and industry to identify students interested in the nuclear industry.
- Work with area industry to identify nuclear workforce needs.
- Coordinate and hold clean energy centric career awareness, exploration and preparation programs with the community and K-12 institutions.
- Provide education and training opportunities such as certifications to fill training gaps identified by regional employers.

The Program will:

- help students engage in learning and participate in postsecondary education,
- help students focus on educational pursuits and improve academic performance,
- give qualified students a head start on college by earning dual enrollment credit toward high school and college graduation,
- help each student acquire skills and knowledge that will lead to graduation and a successful transition to higher education and, ultimately, employment.

Sustainability:

The partners commit to work towards sustaining grant components and ensuring optimal use of grant equipment and components beyond the life of the grant. Success with this grant will position RSCC to expand program offerings and partnerships with additional local school systems in the future. RSCC is actively engaged in further grant and other funding acquisitions to support future growth and sustainability.

Oak Ridge Schools sees the program as a value add to the region. It will provide for skilled-workers ready to enter the workforce with nuclear technology work-based learning experiences. By signing this

MOU, Oak Ridge Schools is agreeing to support RSCC, the partnership and region as needed to successfully implement this program including to:

- work with Roane State Community College to develop the agreed upon dual enrollment, early college and/or middle college program with the local high school,
- lead the effort to recruit students for the program(s),
- share data for the purposes of sharing outcomes of activities funded through the grant,
- work with the Roane State Community College and local employers and agencies to ensure the development and implementation of these components,
- provide guidance to ensure the program meets secondary school program requirements,
- assist with the delivery, installation and safe keeping of equipment and other components to ensure preparation for successful training delivery,
- support the career development components of the nuclear technology program throughout the K-12 system, and
- in Oak Ridge Schools' Innovation Committee Meetings to increase collaboration between RSCC and ORS in terms of postsecondary academic opportunities.

Roane State Community College will provide:

- leadership in the academic program development to ensure post-secondary requirements are met,
- data for the purposes of sharing outcomes of activities funded through the grant,
- provision of equipment detailed in the grant application to facilitate delivery of the training program,
- leadership in the development/expansion of the work-based learning opportunities,
- space, and
- overall grant administration and reporting.

Contract Term

Roane State Community College and the partners will begin working on the further development and implementation of this program across the life of the 4-year grant through September 30, 2028 with the option to extend for another year.

Signatures to the Agreement:



Dr. Bruce Borchers

Oak Ridge Schools, Superintendent

Date Signed: 4.9.24



Dr. Chris Whaley

President, Roane State Community College

Date Signed: 4/23/2024

Roane State Community College / Anderson County Schools
State of Tennessee GIVE 3.0 Program Memorandum of Understanding

Vision Statement

Roane State Community College (RSCC) is applying for grant funding through the Governor's Investment in Vocational Education (GIVE) 3.0 program, which will continue to foster and grow long-term regional partnerships between Roane State Community College, specific nuclear industries, economic development/workforce agencies, and select K-12 education systems to identify and address "skills gaps" in local/regional nuclear technician workforce pools.

The increasing demand for alternative clean energy solutions such as nuclear and the need for new technology designs such as Small Modular Reactors (SMRs) has increased the demand for nuclear technicians. If funded, the grant will be a critical pillar in the resources needed to allow RSCC to establish a 2-year Nuclear Technology Program (NTP) tailored to meet industry needs and taught by subject matter experts. The NTP design will also include a laboratory incorporating real-world equipment in a simulated nuclear environment. This grant will also allow us to focus our efforts on developing a program to provide career interest building, outreach and training to K-12 students.

Design

The design of the grant will be to offer the following:

- Create a robust 2-year Nuclear Technology Program aligned with industry standards complete with a laboratory with equipment used in the nuclear industry.
- Support K-12 institutions in crafting engaging programs aimed at fostering student interest in the nuclear industry.
- Serve as a bridge between K-12 and industry to identify students interested in the nuclear industry.
- Work with area industry to identify nuclear workforce needs.
- Coordinate and hold clean energy centric career awareness, exploration and preparation programs with the community and K-12 institutions.
- Provide education and training opportunities such as certifications to fill training gaps identified by regional employers.

The Program will:

- help students engage in learning and participate in postsecondary education,
- help students focus on educational pursuits and improve academic performance,
- give qualified students a head start on college by earning dual enrollment credit toward high school and college graduation.
- help each student acquire skills and knowledge that will lead to graduation and a successful transition to higher education and, ultimately, employment.

Sustainability:

The partners commit to work towards sustaining grant components and ensuring optimal use of grant equipment and components beyond the life of the grant. Success with this grant will position RSCC to expand program offerings and partnerships with additional local school systems in the future. RSCC is actively engaged in further grant and other funding acquisitions to support future growth and sustainability.

Anderson County Schools sees the program as a value add to the region. It will provide for skilled-workers ready to enter the workforce with nuclear technology work-based learning experiences. By

signing this MOU, Anderson County Schools is agreeing to support RSCC. the partnership and region as needed to successfully implement this program including to:

- work with Roane State Community College to develop the agreed upon dual enrollment. early college and/or middle college program with the local high school.
- lead the effort to recruit students for the program(s).
- share data for the purposes of sharing outcomes of activities funded through the grant,
- work with the Roane State Community College and local employers and agencies to ensure the development and implementation of these components,
- provide guidance to ensure the program meets secondary school program requirements.
- assist with the delivery, installation and safe keeping of equipment and other components to ensure preparation for successful training delivery, and
- support the career development components of the nuclear technology program throughout the K-12 system.

Roane State Community College will provide:

- leadership in the academic program development to ensure post-secondary requirements are met,
- data for the purposes of sharing outcomes of activities funded through the grant,
- provision of equipment detailed in the grant application to facilitate delivery of the training program,
- leadership in the development/expansion of the work-based learning opportunities,
- space, and
- overall grant administration and reporting.

Contract Term

Roane State Community College and the partners will begin working on the further development and implementation of this program across the life of the 4-year grant through September 30, 2028 with the option to extend for another year.

Signatures to the Agreement:



Dr. Tim Parrott

Anderson County Schools, Director

Date Signed: 4/9/24



Dr. Chris Whaley

President, Roane State Community College

Date Signed: 4/23/2024

Roane State Community College / Morgan County Schools
State of Tennessee GIVE 3.0 Program Memorandum of Understanding

Vision Statement

Roane State Community College (RSCC) is applying for grant funding through the Governor's Investment in Vocational Education (GIVE) 3.0 program, which will continue to foster and grow long-term regional partnerships between Roane State Community College, specific nuclear industries, economic development/workforce agencies, and select K-12 education systems to identify and address "skills gaps" in local/regional nuclear technician workforce pools.

The increasing demand for alternative clean energy solutions such as nuclear and the need for new technology designs such as Small Modular Reactors (SMRs) has increased the demand for nuclear technicians. If funded, the grant will be a critical pillar in the resources needed to allow RSCC to establish a 2-year Nuclear Technology Program (NTP) tailored to meet industry needs and taught by subject matter experts. The NTP design will also include a laboratory incorporating real-world equipment in a simulated nuclear environment. This grant will also allow us to focus our efforts on developing a program to provide career interest building, outreach and training to K-12 students.

Design

The design of the grant will be to offer the following:

- Create a robust 2-year Nuclear Technology Program aligned with industry standards complete with a laboratory with equipment used in the nuclear industry.
- Support K-12 institutions in crafting engaging programs aimed at fostering student interest in the nuclear industry.
- Serve as a bridge between K-12 and industry to identify students interested in the nuclear industry.
- Work with area industry to identify nuclear workforce needs.
- Coordinate and hold clean energy centric career awareness, exploration and preparation programs with the community and K-12 institutions.
- Provide education and training opportunities such as certifications to fill training gaps identified by regional employers.

The Program will:

- help students engage in learning and participate in postsecondary education,
- help students focus on educational pursuits and improve academic performance,
- give qualified students a head start on college by earning dual enrollment credit toward high school and college graduation,
- help each student acquire skills and knowledge that will lead to graduation and a successful transition to higher education and, ultimately, employment.

Sustainability:

The partners commit to work towards sustaining grant components and ensuring optimal use of grant equipment and components beyond the life of the grant. Success with this grant will position RSCC to expand program offerings and partnerships with additional local school systems in the future. RSCC is actively engaged in further grant and other funding acquisitions to support future growth and sustainability.

Morgan County Schools sees the program as a value add to the region. It will provide for skilled-workers ready to enter the workforce with nuclear technology work-based learning experiences. By signing this

MOU, Morgan County Schools is agreeing to support RSCC, the partnership and region as needed to successfully implement this program including to:

- work with Roane State Community College to develop the agreed upon dual enrollment, early college and/or middle college program with the local high school,
- lead the effort to recruit students for the program(s),
- share data for the purposes of sharing outcomes of activities funded through the grant,
- work with the Roane State Community College and local employers and agencies to ensure the development and implementation of these components,
- provide guidance to ensure the program meets secondary school program requirements,
- assist with the delivery, installation and safe keeping of equipment and other components to ensure preparation for successful training delivery, and
- support the career development components of the nuclear technology program throughout the K-12 system.

Roane State Community College will provide:

- leadership in the academic program development to ensure post-secondary requirements are met,
- data for the purposes of sharing outcomes of activities funded through the grant,
- provision of equipment detailed in the grant application to facilitate delivery of the training program,
- leadership in the development/expansion of the work-based learning opportunities,
- space, and
- overall grant administration and reporting.

Contract Term

Roane State Community College and the partners will begin working on the further development and implementation of this program across the life of the 4-year grant through September 30, 2028 with the option to extend for another year.

Signatures to the Agreement:

C. Dan Shoemaker Ed.D.
CTO Director

Morgan County Schools, Title

Date Signed: 4/10/2024

C. Dan Shoemaker Ed.D.

Print Name

Dr. Chris Whaley /mm

President, Roane State Community College

Date Signed: 4/23/2024

Dr. Chris Whaley

Roane State Community College / East Tennessee Economic Council (ETEC)
State of Tennessee GIVE 3.0 Program Memorandum of Understanding

Vision Statement

Roane State Community College (RSCC) is applying for grant funding through the Governor's Investment in Vocational Education (GIVE) 3.0 program, which will continue to foster and grow long-term regional partnerships between Roane State Community College, specific nuclear industries, economic development/workforce agencies, and select K-12 education systems to identify and address "skills gaps" in local/regional nuclear technician workforce pools.

The increasing demand for alternative clean energy solutions such as nuclear and the need for new technology designs such as Small Modular Reactors (SMRs) has increased the demand for nuclear technicians. If funded, the grant will be a critical pillar in the resources needed to allow RSCC to establish a 2-year Nuclear Technology Program (NTP) tailored to meet industry needs and taught by subject matter experts. The NTP design will also include a laboratory incorporating real-world equipment in a simulated nuclear environment. This grant will also allow us to focus our efforts on developing a program to provide career interest building, outreach and training to K-12 students.

Design

The design of the grant will be to offer the following:

- Create a robust 2-year Nuclear Technology Program aligned with industry standards complete with a laboratory with equipment used in the nuclear industry.
- Support K-12 institutions in crafting engaging programs aimed at fostering student interest in the nuclear industry.
- Serve as a bridge between K-12 and industry to identify students interested in the nuclear industry.
- Work with area industry to identify nuclear workforce needs.
- Coordinate and hold clean energy centric career awareness, exploration and preparation programs with the community and K-12 institutions.
- Provide education and training opportunities such as certifications to fill training gaps identified by regional employers.

The Program will:

- help students engage in learning and participate in postsecondary education,
- help students focus on educational pursuits and improve academic performance,
- give qualified students a head start on college by earning dual enrollment credit toward high school and college graduation,
- help each student acquire skills and knowledge that will lead to graduation and a successful transition to higher education and, ultimately, employment.

Sustainability:

The partners commit to work towards sustaining grant components and ensuring optimal use of grant equipment and components beyond the life of the grant. Success with this grant will position RSCC to expand program offerings and partnerships with additional local school systems in the future. RSCC is actively engaged in further grant and other funding acquisitions to support future growth and sustainability.

ETEC sees the program as a value add to the region. By signing this MOU, ETEC is agreeing to support RSCC, the partnership and region as needed to successfully implement this program including to:

- facilitate working group discussions across employers relative to nuclear workforce needs in the region, and
- work with Roane State Community College to facilitate overall communication across employers, agencies and local school systems through continuous networking opportunities.

Roane State Community College will provide:

- leadership in the academic program development to ensure post-secondary requirements are met,
- data for the purposes of sharing outcomes of activities funded through the grant,
- provision of equipment detailed in the grant application to facilitate delivery of the training program,
- leadership in the development/expansion of the work-based learning opportunities,
- space, and
- overall grant administration and reporting.

Contract Term

Roane State Community College and the partners will begin working on the further development and implementation of this program across the life of the 4-year grant through September 30, 2028 with the option to extend for another year.

Signatures to the Agreement:



Tracy Boatner

ETEC, President

Date Signed: 4-15-24



Dr. Chris Whaley

President, Roane State Community College

Date Signed: 4/24/2024

**Roane State Community College / Oak Ridge Associated Universities, Inc. (ORAU)
State of Tennessee GIVE 3.0 Program Memorandum of Understanding**

Vision Statement

Roane State Community College (RSCC) is applying for grant funding through the Governor's Investment in Vocational Education (GIVE) 3.0 program, which will continue to foster and grow long-term regional partnerships between Roane State Community College, specific nuclear industries, economic development/workforce agencies, and select K-12 education systems to identify and address "skills gaps" in local/regional nuclear technician workforce pools.

The increasing demand for alternative clean energy solutions such as nuclear and the need for new technology designs such as Small Modular Reactors (SMRs) has increased the demand for nuclear technicians. If funded, the grant will be a critical pillar in the resources needed to allow RSCC to establish a 2-year Nuclear Technology Program (NTP) tailored to meet industry needs and taught by subject matter experts. The NTP design will also include a laboratory incorporating real-world equipment in a simulated nuclear environment. This grant will also allow us to focus our efforts on developing a program to provide career interest building, outreach, and training to K-12 students.

Design

The design of the grant will be to offer the following:

- Create a robust 2-year Nuclear Technology Program aligned with industry standards complete with a laboratory with equipment used in the nuclear industry.
- Support K-12 institutions in crafting engaging programs aimed at fostering student interest in the nuclear industry.
- Serve as a bridge between K-12 and industry to identify students interested in the nuclear industry.
- Work with area industry to identify nuclear workforce needs.
- Coordinate and hold clean energy centric career awareness, exploration and preparation programs with the community and K-12 institutions.
- Provide education and training opportunities such as certifications to fill training gaps identified by regional employers.

The Program will:

- Help students engage in learning and participate in postsecondary education.
- Help students focus on educational pursuits and improve academic performance.
- Give qualified students a head start on college by earning dual enrollment credit toward high school and college graduation.
- Help each student acquire skills and knowledge that will lead to graduation and a successful transition to higher education and, ultimately, employment.

Sustainability:

The partners commit to work towards sustaining grant components and ensuring optimal use of grant equipment and components beyond the life of the grant. Success with this grant will position RSCC to expand program offerings and partnerships with additional local school systems in the future. RSCC is actively engaged in further grant and other funding acquisitions to support future growth and sustainability.

ORAU's commitment:

ORAU sees the program described in this opportunity as a value add to the region and aligned with many of the organization's goals to provide STEM opportunities for K-12 and postsecondary students. ORAU will be a valuable collaborator to Roane State Community College for the placement of nuclear engineering technicians in work-based learning opportunities. By signing this MOU, ORAU is agreeing to support RSCC, the partnership and region to successfully implement this program including to:

- Use ORAU's network channels to support nuclear industry workforce initiatives in collaboration with ORAU STEM Accelerator's public-private partnerships with government agencies, universities, and corporate entities.
- Increase awareness of RSCC's Nuclear Technology Program across university consortiums and strategic partnerships.
- Act as an intermediary to facilitate and provide internships in practical applications and work-based learning opportunities for nuclear technology program students, as funding is available through various sources.

Roane State Community College will provide:

- Leadership in the academic program development to ensure post-secondary requirements are met.
- Data for the purposes of sharing outcomes of activities funded through the grant.
- Provision of equipment detailed in the grant application to facilitate delivery of the training program.
- Leadership in the development/expansion of the work-based learning opportunities,
- Space.
- Overall grant administration and reporting.

Contract Term


Roane State Community College and the partners will begin working on the further development and implementation of this program across the life of the 4-year grant through September 30, 2028 with the option to extend for another year.

Signatures to the Agreement:



Wanda Gamble
ORAU, Chief Business Development Officer

Date Signed: April 22, 2024


Dr. Chris Whaley
President, Roane State Community College

Date Signed: 4/24/2024

Roane State Community College / TRISO-X
State of Tennessee GIVE 3.0 Program Memorandum of Understanding

Vision Statement

Roane State Community College (RSCC) is applying for grant funding through the Governor's Investment in Vocational Education (GIVE) 3.0 program, which will continue to foster and grow long-term regional partnerships between Roane State Community College, specific nuclear industries, economic development/workforce agencies, and select K-12 education systems to identify and address "skills gaps" in local/regional nuclear technician workforce pools.

The increasing demand for alternative clean energy solutions such as nuclear and the need for new technology designs such as Small Modular Reactors (SMRs) has increased the demand for nuclear technicians. If funded, the grant will be a critical pillar in the resources needed to allow RSCC to establish a 2-year Nuclear Technology Program (NTP) tailored to meet industry needs and taught by subject matter experts. The NTP design will also include a laboratory incorporating real-world equipment in a simulated nuclear environment. This grant will also allow us to focus our efforts on developing a program to provide career interest building, outreach and training to K-12 students.

Design

The design of the grant will be to offer the following:

- Create a robust 2-year Nuclear Technology Program aligned with industry standards complete with a laboratory with equipment used in the nuclear industry.
- Support K-12 institutions in crafting engaging programs aimed at fostering student interest in the nuclear industry.
- Serve as a bridge between K-12 and industry to identify students interested in the nuclear industry.
- Work with area industry to identify nuclear workforce needs.
- Coordinate and hold clean energy centric career awareness, exploration and preparation programs with the community and K-12 institutions.
- Provide education and training opportunities such as certifications to fill training gaps identified by regional employers.

The Program will:

- help students engage in learning and participate in postsecondary education,
- help students focus on educational pursuits and improve academic performance,
- give qualified students a head start on college by earning dual enrollment credit toward high school and college graduation,
- help each student acquire skills and knowledge that will lead to graduation and a successful transition to higher education and, ultimately, employment.

Sustainability:

The partners commit to work towards sustaining grant components and ensuring optimal use of grant equipment and components beyond the life of the grant. Success with this grant will position RSCC to expand program offerings and partnerships with additional local school systems in the future. RSCC is actively engaged in further grant and other funding acquisitions to support future growth and sustainability.

By signing this MOU, TRISO-X agrees to the following:

- provide subject matter expertise to facilitate the development of course curricula including relevant learning scenarios that approximate real-world experiences.

- work with the Roane State Community College, local employers, school systems and agencies to ensure the development and implementation of these components,
- provide work-based learning opportunities or internships,
- provide guest speakers for classes, career fairs and similar components,
- recruiting and hiring graduates of this program in upcoming years, and
- continue to provide representation on the RSCC Nuclear Technology Program Advisory Board.

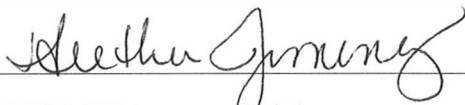
Roane State Community College will provide:

- leadership in the academic program development to ensure post-secondary requirements are met,
- data for the purposes of sharing outcomes of activities funded through the grant,
- provision of equipment detailed in the grant application to facilitate delivery of the training program,
- leadership in the development/expansion of the work-based learning opportunities,
- space, and
- overall grant administration and reporting.

Contract Term

Roane State Community College and the partners will begin working on the further development and implementation of this program across the life of the 4-year grant through September 30, 2028 with the option to extend for another year.

Signatures to the Agreement:



Heather Jimenez

TRISO-X Manager, Training

Date Signed: 4/16/24



Dr. Chris Whaley

President, Roane State Community College

Date Signed: 4/23/2024

Roane State Community College / United Cleanup Oak Ridge, LLC (UCOR)
State of Tennessee GIVE 3.0 Program Memorandum of Understanding

Vision Statement

Roane State Community College (RSCC) is applying for grant funding through the Governor's Investment in Vocational Education (GIVE) 3.0 program, which will continue to foster and grow long-term regional partnerships between Roane State Community College, specific nuclear industries, economic development/workforce agencies, and select K-12 education systems to identify and address "skills gaps" in local/regional nuclear technician workforce pools.

The increasing demand for alternative clean energy solutions such as nuclear and the need for new technology designs such as Small Modular Reactors (SMRs) has increased the demand for nuclear technicians. If funded, the grant will be a critical pillar in the resources needed to allow RSCC to establish a 2-year Nuclear Technology Program (NTP) tailored to meet industry needs and taught by subject matter experts. The NTP design will also include a laboratory incorporating real-world equipment in a simulated nuclear environment. This grant will also allow us to focus our efforts on developing a program to provide career interest building, outreach and training to K-12 students.

Design

The design of the grant will be to offer the following:

- Create a robust 2-year Nuclear Technology Program aligned with industry standards complete with a laboratory with equipment used in the nuclear industry.
- Support K-12 institutions in crafting engaging programs aimed at fostering student interest in the nuclear industry.
- Serve as a bridge between K-12 and industry to identify students interested in the nuclear industry.
- Work with area industry to identify nuclear workforce needs.
- Coordinate and hold clean energy centric career awareness, exploration and preparation programs with the community and K-12 institutions.
- Provide education and training opportunities such as certifications to fill training gaps identified by regional employers.

The Program will:

- help students engage in learning and participate in postsecondary education,
- help students focus on educational pursuits and improve academic performance,
- give qualified students a head start on college by earning dual enrollment credit toward high school and college graduation,
- help each student acquire skills and knowledge that will lead to graduation and a successful transition to higher education and, ultimately, employment.

Sustainability:

The partners commit to work towards sustaining grant components and ensuring optimal use of grant equipment and components beyond the life of the grant. Success with this grant will position RSCC to expand program offerings and partnerships with additional local school systems in the future. RSCC is actively engaged in further grant and other funding acquisitions to support future growth and sustainability.

By signing this MOU, UCOR agrees to the following:

- provide subject matter expertise to facilitate the development of course curricula.

- work with the Roane State Community College, local employers, school systems and agencies to ensure the development and implementation of these components,
- provide work-based learning opportunities or apprenticeships,
- provide guest speakers for classes, career fairs and similar components, and
- continue to provide representation on the RSCC Nuclear Technology Program Advisory Board.


Roane State Community College will provide:

- leadership in the academic program development to ensure post-secondary requirements are met,
- data for the purposes of sharing outcomes of activities funded through the grant,
- provision of equipment detailed in the grant application to facilitate delivery of the training program,
- leadership in the development/expansion of the work-based learning opportunities,
- space, and
- overall grant administration and reporting.


Contract Term

Roane State Community College and the partners will begin working on the further development and implementation of this program across the life of the 4-year grant through September 30, 2028 with the option to extend for another year.

Signatures to the Agreement:


 Title Administrative Services Manager
 Date Signed: 4/11/2024

Charlie Malarkey
 Print Name


 President, Roane State Community College
 Date Signed: 4/23/2024

Dr. Chris Whaley
 Printed Name

MEMORANDUM OF UNDERSTANDING

between

UT-BATTELLE, LLC

and

ROANE STATE COMMUNITY COLLEGE

regarding

State of Tennessee GIVE 3.0 Program

This Memorandum of Understanding (MOU) is between UT-Battelle, LLC (UT-Battelle) and Roane State Community College (RSCC), hereinafter jointly referred to as the "Participants." Oak Ridge National Laboratory (ORNL) is a facility of the Department of Energy (DOE), managed and operated by UT-Battelle, a limited liability company, organized and existing under the laws of the State of Tennessee, pursuant to its Prime Contract DE-AC05-00OR22725 with DOE.

RSCC is a public community college in eastern Tennessee with its main campus in Harriman. It was authorized by the Tennessee General Assembly in 1969, along with two other community colleges, and operates under the authority of the Tennessee Board of Regents.

BACKGROUND/PURPOSE

RSCC is applying for grant funding through the Governor's Investment in Vocational Education (GIVE) 3.0 program, which will continue to foster and grow long-term regional partnerships between RSCC, specific nuclear industries, economic development/workforce agencies, and select K-12 education systems to identify and address "skills gaps" in local/regional nuclear technician workforce pools.

The increasing demand for alternative clean energy solutions such as nuclear and the need for new technology designs such as Small Modular Reactors (SMRs) has increased the demand for nuclear technicians. If funded, the grant will be a critical pillar in the resources needed to allow RSCC to establish a 2-year Nuclear Technology Program (NTP) tailored to meet industry needs and taught by subject matter experts. The NTP design will also include a laboratory; incorporating real-world equipment in a simulated nuclear environment. This grant will also allow us to focus our efforts on developing a program to provide career interest building, outreach, and training to K-12 students.

The design of the grant will be to offer the following:

- The creation of a robust 2-year Nuclear Technology Program aligned with industry standards complete with a laboratory with equipment used in the nuclear industry;
- Support K-12 institutions in crafting engaging programs aimed at fostering student interest in the nuclear industry;

- Serve as a bridge between K-12 and industry to identify students interested in the nuclear industry;
- Work with area industry to identify nuclear workforce needs;
- Coordinate and hold clean energy centric career awareness, exploration and preparation programs with the community and K-12 institutions; and
- Provide education and training opportunities such as certifications to fill training gaps identified by regional employers.

The Intent of the Program is to:

- help students engage in learning and participate in postsecondary education;
- help students focus on educational pursuits and improve academic performance;
- give qualified students a head start on college by earning dual enrollment credit toward high school and college graduation; and
- help each student acquire skills and knowledge that will lead to graduation and a successful transition to higher education and, ultimately, employment.

Sustainability:

The Participants intend to work towards sustaining grant components and ensuring optimal use of grant equipment and components beyond the life of the grant. Success with this grant will position RSCC to expand program offerings and partnerships with additional local school systems in the future. RSCC is actively engaged in further grant and other funding acquisitions to support future growth and sustainability.

Therefore, UT-Battelle and RSCC intend to cooperate in a mutually beneficial manner to pursue these objectives.

ROLES OF THE PARTICIPANTS

Subject to RSCC being awarded a grant from the GIVE 3.0 Program, UT-Battelle intends to:

- provide subject matter expertise to facilitate the development of course curricula, including relevant learning scenarios that approximate real-world experiences;
- work with the Roane State Community College, local employers, school systems and agencies to ensure the development and implementation of these components;
- offer work-based learning opportunities or internships;
- provide guest speakers for classes, career fairs and similar components;
- engage with Roane State Community College in informing graduates of this program on the opportunities in the regional work force; and
- continue to provide representation on the RSCC Nuclear Technology Program Advisory Board.

In the event RSCC is awarded a grant from the GIVE 3.0 Program, RSCC intends to provide:

- leadership in the academic program development to ensure post-secondary requirements are met;
- data for the purposes of sharing outcomes of activities funded through the grant;
- provision of equipment detailed in the grant application to facilitate delivery of the training program;
- leadership in the development/expansion of the work-based learning opportunities, space; and
- overall grant administration and reporting.

GENERAL CONSIDERATIONS

1. **POINTS-OF-CONTACT.** Each Participant should designate a Point-of-Contact for implementation of this MOU. The designated Points-of-Contact are:

UT-BATTELLE, LLC

Name: Michael W. Stafford

Title: Division Director Nuclear & Radiological Protection Div.

Phone: (865) 241-5144

ROANE STATE COMMUNITY COLLEGE

Name: Dr. Chris Whaley

Title: President

Phone: 865-882-4501

2. **FUNDING, INTELLECTUAL PROPERTY RIGHTS, AND OTHER RESOURCES.** The Participants fully intend to work together to meet the objectives of this MOU; however, this MOU does not create any legally binding obligations. Any commitment of funds, protection and allocation of intellectual property rights, disclosure of proprietary information, or commitment of other resources is to be made under a separate agreement and subject to Department of Energy approval.

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UT-Battelle and RSCC

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3. **EXPORT CONTROL.** Each Participant should conduct the activities under this MOU in accordance with the laws and regulations to which it is subject, and applicable international agreements to which its government is party.
4. The Participants intend to begin working on the further development and implementation of this program across the life of the 4-year grant through September 30, 2028, with the option to extend for another year.
5. The Participants may discontinue this MOU at any time by mutual consent in writing. Alternatively, a Participant that wishes to discontinue its participation in this MOU should endeavor to provide at least 60 days advance notice in writing to the other Participant.

Signed in duplicate.

UT-BATTELLE, LLC

ROANE STATE COMMUNITY COLLEGE

By:  _____

By:  _____

Name: John Gearhart

Name: Dr. Chris Whaley

Title: Director ESH&Q

Title: President

Date: 4/29/2024

Date: 4/30/2024

April 29, 2024

Dr. Chris Whaley
Roane State Community College
276 Patton Lane
Harriman, TN 37748

Dear Dr. Whaley:

Consolidated Nuclear Security, LLC (CNS) manages and operates Y-12 National Security Complex (Y-12) in Oak Ridge Tennessee for the Department of Energy. With this letter, CNS supports Roane State Community College's (RSCC) State of Tennessee GIVE 3.0 program proposal.

CNS continues to support the proposal to leverage industry partners, workforce agencies, and select K-12 education systems to fill "skill gaps" in local nuclear technician workforce pools. CNS's support will include:

- Subject matter expertise (SME) to facilitate the development of course curricula
- SME support to implement course curricula in the form of guest speakers for classes, career fairs, and similar components
- Continued representation on the RSCC Nuclear Technology Program Advisory Board
- Working with area industry partners to identify nuclear workforce needs.

Y-12's newly opened Oak Ridge Enhanced Technology and Training Center (ORETTC), a state and federally funded 81-acre campus located in the Roane County portion of Oak Ridge, will also be leveraged to enhance students' understanding of the unique nature and hazards of nuclear technologies.

Y-12 National Security Complex is one of six production facilities in the Department of Energy/National Nuclear Security Administration's Nuclear Security Enterprise (NSE). Further, Y-12 applies unique capabilities ensuring the effectiveness of the U.S. nuclear stockpile, supporting the nation's nuclear deterrent.

This document has been reviewed by a CNS Dual Authority DC/RO and has been determined to be UNCLASSIFIED, not UCNI, and contains no CUI based on current classification guidance. This review does not constitute a review for CUI outside of classification guidance and does not constitute clearance for Public Release.

Name: Mark Richey

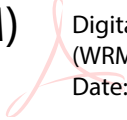
Date: 4/29/2024

CNS eDC/RO ID: 772716

To fulfill its vital mission to national security, Y-12 continues to support initiatives focusing on the next generation of nuclear technician, vocational, and local workforce education and development.

Sincerely,

**Martin R (WRM)
Williamson**

 Digitally signed by Martin R
(WRM) Williamson
Date: 2024.04.29 14:50:32 -04'00'

Dr. Martin R. Williamson
Senior Director, Global Security & Strategic Partnerships
Consolidated Nuclear Security, LLC

c: Ashley Humphrey
Dr. Ashley Stowe