

**FY25 Energy Ingenuity Program
Staff Summaries and Recommendations
January 6, 2025**

The Commission received 17 pre-applications for the November 2, 2024, application deadline of the FY25 Energy Ingenuity Program. 14 applicants were invited to submit full proposals, and thirteen (13) proposals were ultimately received by the December 2, 2024, deadline. Four (4) projects (Edtunity Institute; Appalachian Voices; Brunswick County; Downtown Wytheville Inc.) were tabled from the previous round in September. The four (4) tabled projects were withdrawn by the applicants. Three (3) new applications were also withdrawn by the applicants. The Energy Committee will act on these applications at its meeting scheduled for January 6, 2025, at 12:00 p.m. The applications are grouped by investment category.

Req #	Organization	Project Title	Requested Amount	Staff Recommendation
Energy Catalyst – Planning Grants				
4317	A. L. Philpott Manufacturing Extension Partnership d/b/a GENEDGE Alliance	E-3 Assessment for Industrial Training Assessment Center (ITAC) Implementation Grant Qualification Pilot Program - Southern Region	\$49,250	\$49,250
4311	Commonwealth Center for Advanced Logistics Systems (CCALS)	Understanding Potential Hydrogen and Hydrogen-Hybrid Electric Use-Cases in Southern Virginia.	\$50,000	\$50,000
4322	Commonwealth Center for Advanced Logistics Systems (CCALS)	CCALS & IVDA Developing a UAS (Drone) Energy Center in the TRRC Region	\$49,560	\$49,560
4262	Edtunity Institute	The Next Military EV Education	Withdrawn	Withdrawn
4316	Energy DELTA Lab	Gas Supply for DELTA Lab Deployment	Withdrawn	Withdrawn
4318	Energy DELTA Lab	WiseLink	\$50,000	\$50,000
4319	Energy DELTA Lab	Project Oasis	Withdrawn	Withdrawn
4324	St. Paul Tomorrow, Inc.	Russell County – Russell County Energy Distributed Energy and/or Microgrid Pilot Program	\$50,000	No award
4323	Virginia Ed Strategies	Energy Workforce Needs Assessment	\$50,000	\$50,000

4320	Virginia's Gateway Region	Dinwiddie Energy Innovation Campus Planning Study	\$50,000	\$50,000
TOTAL PLANNING			\$348,810	\$298,810
Energy Execution – Implementation Grants				
4312	Town of Altavista	Altavista Wastewater Treatment Plant Improvement Project	\$750,000	\$250k Loan \$500k Grant
4287	Appalachian Voices	Energy Storage and Electrification Manufacturing (ESEM) Jobs Project	Withdrawn	Withdrawn
4261	Brunswick County	LNG Storage Project	Withdrawn	Withdrawn
4321	Campbell County	Construction of Fuel Fabrication Facility in Campbell County	\$4,000,000	No award
4315	Central Virginia Electric Cooperative	Appomattox Battery Energy Storage System (BESS) Project	\$1,500,000	\$750k loan \$750k Grant
4283	Downtown Wytheville, Inc.	Downtown Heritage Greenway Trail Demonstration EV Charging Station	Withdrawn	Withdrawn
4313	Tazewell County IDA	FIND	Withdrawn	Withdrawn
TOTAL IMPLEMENTATION			\$6,250,000	\$1,000,000 loans \$1,250,000 grants
GRAND TOTAL – 10 projects			\$6,598,810	\$1,548,810

Breakdowns for this grant round:

TOTAL New (10)	\$6,598,810	\$1,548,810 <i>grants</i>
TOTAL Tabled (0)	\$0	\$1,000,000 <i>loans</i>
Grand Total (10)	\$6,598,810	\$2,548,810
TOTAL Southern (7)	\$6,598,810	\$1,448,810 <i>grants</i>
TOTAL Southwest (2)	\$100,000	\$50,000 <i>loans</i>
TOTAL Both (1)	\$50,000	\$50,000
Grand Total (10)	\$6,598,810	\$2,548,810

Breakdowns since program inception:

Total New Applications Received	24
Total Grants Awarded	12
Total Amount, Grant Awards	\$4,648,810
Total Amount, Loan Program Referral	\$3,000,000
Total Planning Grant Applications	12
Total Planning Grants Awarded	8
Total Amount, Planning Grants Awarded	\$398,810
Total Implementation Grant Applications	12
Total Implementation Grants Awarded	4
Total Amount, Implementation Grants Awarded	\$4,250,000
Total Amount, Implementation Loan Program Referrals	\$3,000,000

Breakdowns by Region:

Southern Virginia

Total New Applications Received	13
Total Grants Awarded	8
Total Amount, Grant Awards	\$2,498,810
Total Amount, Loan Program Referral	\$1,000,000
Total Planning Grant Applications	6
Total Planning Grants Awarded	5
Total Amount, Planning Grants Awarded	\$248,810
Total Implementation Grant Applications	7
Total Implementation Grants Awarded	3
Total Amount, Implementation Grants Awarded	\$2,250,000
Total Amount, Implementation Loan Program Referrals	\$1,000,000

Southwest Virginia

Total New Applications Received	11
Total Grants Awarded	4
Total Amount, Grant Awards	\$2,150,000
Total Amount, Loan Program Referral	\$2,000,000
Total Planning Grant Applications	6
Total Planning Grants Awarded	3
Total Amount, Planning Grants Awarded	\$150,000
Total Implementation Grant Applications	5
Total Implementation Grants Awarded	1
Total Amount, Implementation Grants Awarded	\$2,000,000
Total Amount, Implementation Loan Program Referrals	\$2,000,000

Energy Catalyst – Planning Grants

A.L. Philpott Manufacturing Extension Partnership d.b.a. GENEDGE Alliance E-3 Assessment for Industrial Training Assessment Center (ITAC) Implementation Grant Qualification Pilot Program – Southern Region (#4317) \$49,250.00 Requested

Project Summary: The industrial sector consumes approximately 35% of U.S. energy, with manufacturing accounting for approximately 76% of that total. Rising energy costs and growing regulatory demands challenge small and medium-sized manufacturers (SMMs), particularly in Virginia’s Tobacco Region. GENEDGE, approved as an ITAC-equivalent by the U.S. Department of Energy, proposes a pilot project funded by the Tobacco Region Revitalization Commission (TRRC) to help three (3) SMMs reduce energy costs, improve efficiency, and achieve sustainability goals through capital projects and energy utilization investment. The project will provide each participating manufacturer E-3 assessments and grant application support for DOE’s ITAC Implementation Program. This initiative will enhance manufacturers’ competitiveness and promote decarbonization by enabling access to application for up to \$300,000 in match grant funding per identified energy efficiency project. Additionally, a market study is planned to identify high energy use manufacturing across the Southern portion of the Tobacco Region Revitalization Commissions service area for potential expansion of this pilot project and to identify potential participants in future TRRC Energy Ingenuity program proposals.

Matching Funds:

- \$47,500, Participating Companies, cash, application intended
- \$1,750, GENEDGE Alliance, In-kind

Project Outputs:

- An ITAC E-3 assessment to be performed for three selected manufacturers
- Technical assistance to three manufactures to access federal funding to implement identified improvements
- Market study to identify additional high energy users in the Southern Region for future expansion of the program

Staff Comments:

GENEDGE, approved as an ITAC-equivalent by the U.S. Department of Energy, is requesting \$49,250 from the Commission to pilot a program to assist three SMMs to reduce energy costs, improve efficiency, and achieve sustainability goals. An ITAC is an Industrial Training and Assessment Center, which uses best practices “in workforce development to train participants for in-demand clean energy and manufacturing jobs by providing hands-on technical assistance.” The project will provide E-3 (energy efficiency and enhancement) assessments and support for DOE’s ITAC Implementation Program grant applications.

This pilot project would select three manufacturers for a qualified ITAC equivalent assessment (called E-3 for energy efficiency and enhancement) which include facility walkthroughs, equipment

evaluations, and identification of energy-saving opportunities. Selection would be made through an application (to be accessed by interested SMMs on the GENEDGE website) and committee review process.

GENEDGE would then assist the companies in navigating the DOE ITAC Implementation grant program application process. Support includes identifying prime energy savings opportunities and defining viable projects with the best ROI.

GENEDGE aims to market the program for 90 days following the project award. Applications would be solicited and received during this time through a to-be-developed portal, which would also offer ongoing information regarding potential sources of grants, loans, and other forms of capital assistance. The intent is to execute two E3 assessments at this time to demonstrate the viability of the program for the Commission's intent. A third assessment will be held in reserve for "emergent demands" that would be initiated at the direction of the TRCC, based on the need to assist a company which has risen to critical attention in the region(s).

In addition, a market study will be conducted to identify high energy users in the manufacturing sector across the southern TRRC region. The primary source of data would include direct inquiries with utility companies, with publicly available calculators that estimate business energy consumption levels, as a secondary source. The findings will inform potential expansion of the pilot and future TRRC Energy Ingenuity program proposals.

The project has the potential for substantial impact, offering participating companies access to up to \$300,000 in match grant funding per identified energy efficiency project. This could lead to significant improvements in energy efficiency and competitiveness for the region's manufacturers.

Financial Viability Assessment:

The proposal provides a comprehensive budget breakdown and a clear timeline for project implementation. This level of detail demonstrates thorough planning and realistic expectations for project execution. Because this project is a pilot, long-term sustainability plans were not considered as part of this review, however, the proposed market study could identify additional sources of funding to expand the program if it proves to be successful.

Staff Recommendation: Staff recommends a grant award of \$49,250, contingent on cash match amounts to be supplied by participating companies.

Commonwealth Center for Advanced Logistics Systems (CCALS) (#4311)
***Understanding Potential Hydrogen and Hydrogen-Hybrid Electric Use-Cases
in Southern Virginia***
\$50,000.00 Requested

Project Summary: This project explores the transformative potential of hydrogen and hybrid hydrogen-electric solutions, including those powered by future MMR/SMR nuclear reactors, to revolutionize rural infrastructure in Southern Virginia. By focusing on critical sectors such as surface transportation, aviation, freight logistics, and data centers, the initiative will define innovative use cases and scope demonstration projects that align with the Commonwealth's priorities. Emphasizing energy resilience, cybersecurity, and sustainable economic growth, the project aims to establish Southern Virginia as a model for the consideration of deploying hydrogen technologies. Funding from the Tobacco Region Revitalization Commission (TRRC) will be used to support the requisite research, stakeholder engagement, report compilation, and presentations necessary to develop an initial roadmap and provide actionable insights to stakeholders.

Matching Funds:

- \$37,500 – CCALS, cash in hand
- \$12,500 – CCALS, in-kind

Project Outputs:

- Inventory of potential use cases/applications for hydrogen/hybrid hydrogen-electric solutions and associated logistics (production, delivery, storage) including:
 - Identification of potential demonstration projects for future consideration
 - Alignment with Commonwealth Priorities (Economic, Energy, Innovation)
 - Proposed initial framework for prioritization of opportunities
 - Definition of desirable incentives to encourage energy infrastructure development for business-ready sites
 - Presentation(s) of findings to build awareness of hydrogen and hydrogen electric opportunities
- Monthly activity reports (based on milestones) to the Commission including activities, stakeholder engagement, as well as identification of any areas of concern related to the successful, on-time completion of the project.
- Information related to potential demonstration projects that may qualify for funding outside the parameters of the project

Staff Comments:

The Commonwealth Center for Advanced Logistics Systems (CCALS) in Virginia is requesting \$50,000 to spearhead a project to explore potential hydrogen and hydrogen-hybrid electric use cases in Southern Virginia, aiming to enhance energy resilience and economic development in the region. This initiative aligns with Virginia's energy goals and seeks to establish a foundational understanding of hydrogen applications, while identifying opportunities for demonstration projects and infrastructure development, as well as economic opportunities across various industries from transportation to manufacturing.

CCALS is a collaboration between five Virginia universities, industry, and government, which provides a solid foundation for conducting this study. A team of qualified CCALS fellows, who will be hired specifically for the project, make up the bulk of the TRRC funding request.

The adoption of hydrogen and hydrogen-electric solutions in Southern Virginia is projected to generate significant economic benefits and job opportunities. By 2050, the International Renewable Energy Agency (IRENA) projects that the global hydrogen market could reach a value of \$600 billion, with green hydrogen value chains representing an \$11.7 trillion investment opportunity over the next three decades. In the United States, the hydrogen sector is estimated to create 675,000 jobs by 2035, spanning various economic sectors.

Several key industries in Southern Virginia stand to benefit significantly from hydrogen technology adoption:

- Transportation and logistics, including maritime operations, long-haul freight, and aviation, could leverage hydrogen for cleaner fuel alternatives.
- Manufacturing and heavy industry, particularly steel, cement, and chemical production, could use hydrogen to reduce carbon footprints.
- The energy sector could transform through hydrogen-based power generation and energy storage solutions.
- Data centers, a growing industry in Virginia, could utilize hydrogen for sustainable backup power and potentially as a primary energy source.
- Agriculture could benefit from clean hydrogen in the production of low-carbon fertilizers, supporting the region's farming sector.

These applications align with the state's goals for economic growth and sustainability, positioning Southern Virginia as a potential leader in the emerging hydrogen economy.

The project has defined specific outputs, including an inventory of potential use cases, identification of demonstration projects, and a framework for prioritizing opportunities. By defining incentives for energy infrastructure development and raising awareness of hydrogen technologies, the initiative seeks to catalyze future developments in hydrogen applications and potentially positioning the region as a leader in clean energy innovation.

The data gathering process will begin with identifying, gathering and analyzing data from available sources such as Virginia Geographic Information Network, Virginia Economic Development Partnership, ARC-GIS data layers, and the Virginia Open Data Portal. Once the initial analyses are completed, data gaps (if any) will be identified along with potential sources for the missing data (including stakeholder engagement). Prior to launching efforts to collect data directly from stakeholders, CCALS will contact Commission staff to determine if any relevant data has been collected (or is being collected) and determine a process for accessing/obtaining the data. If no data exists, a process for contacting stakeholder sources will be developed and shared with Commission Staff.

Financial Viability Assessment:

Overall, this is a well-conceived proposal that addresses an important area of energy innovation for Southern Virginia. The budget is reasonable and matched appropriately.

Staff Recommendation: Staff recommends a grant award of \$50,000.

Commonwealth Center for Advanced Logistics Systems (CCALS)
CCALS & IVDA Developing a UAS (Drone) Energy Center in the TRRC
Region (#4322)
\$49,560.00 Requested

Project Summary: CCALS will collaborate with the Inland Valley Development Agency (IVDA) on the project entitled “Planning for the Launch of the Unmanned Aircraft Systems (UAS) Energy Center: A Drone Testing and Training Center Focused on the Energy Sector in Virginia” seeks to build upon Virginia’s vibrant drone industry, and the growing needs for UAS (Drone) technologies in the energy sector by planning for the launch of a new UAS Energy Center in the Tobacco Region footprint. Leveraging an already successful UAS center in San Bernadino, California as a model, the CCALS – IVDA will use Commission and matching funds to build a solid foundation for a UAS Energy Center by engaging with regional stakeholders, conducting market research, assessing training needs, identifying a suitable location, developing facility requirements, creating a funding strategy, and hosting “in-region” community information sessions. The final deliverable will be a plan for a vibrant UAS energy center that not only meets the needs of the energy sector but also enhances economic development (jobs, research, capital investment) in the region.

Matching Funds:

- \$54,300 – CCALS-IVDA, cash in hand

Project Outputs:

- A comprehensive plan for the establishment of a physical UAS-Energy Center (East Coast Hub) in the TRRC footprint.

Staff Comments:

The Commonwealth Center for Advanced Logistics Systems (CCALS) and Inland Valley Development Agency (IVDA) request \$49,650 to perform a comprehensive study about establishing an Unmanned Aerial Systems (UAS) Energy Center in the Tobacco Region of Virginia. This six-month planning project intends to lay the groundwork for a future UAS testing and training facility specifically designed to serve the energy sector. This initiative aligns with Virginia Economic Development Partnership’s identification of unmanned aerial systems as a key industry, positioning the Tobacco Region as a leader in UAS-energy sector innovation.

The project seeks to explore and leverage the region’s assets and capitalize on the growing adoption of drones in the energy sector. There is currently no dedicated facility for energy-specific UAS training and testing in Virginia, despite growing adoption of drones in the energy sector. This project would fill a critical gap in the industry.

The UAS-Energy Center in the Tobacco Region to be studied by this planning grant could serve as a centralized hub for UAS training and testing, specifically designed for the energy sector. These specialized services include 3-D mapping, thermal imaging, and advanced data analytics to support energy infrastructure management. There is growing adoption of drones for essential tasks in the energy sector, such as energy site inspections, maintenance and other critical tasks in the energy sector. Other capabilities for the center could include being a testing ground for drone experimentation, simulations, and safety and operational protocols.

The training to be considered in this study would cultivate a highly skilled workforce tailored to meet the energy sector's needs. This would include customized training programs and curriculum models developed in collaboration with institutions of higher education in the region. Additionally, FAA certification courses and hands-on training opportunities would be explored.

The study for this proposed center would consider its potential to create diverse job opportunities, from administrative roles to technical positions in drone operation, maintenance, and data analysis. It could also attract companies to the area, further diversifying the local economy. The influx of students attending training programs at such a center can be expected to contribute to local businesses, including lodging, food services, and retail, creating a ripple effect on the local economy as well.

Site selection for the UAS-Energy Center will be based on a number of factors including (but not limited to): presence/access to energy assets and employers, availability of appropriate airspace, availability of existing facilities, accessibility and accommodations for students, teachers, industry partners, etc.), proximity to potential partners, customers, and other training providers. Community acceptance will be key. The list of qualifying attributes and sites will be refined, documented, and the final evaluation, selection criteria, and proposed location provided to Commission Staff as part of the final project deliverable.

The data gathering process will begin with identifying, gathering and analyzing data from available sources such as Virginia Geographic Information Network, Virginia Economic Development Partnership, ARC-GIS data layers, and the Virginia Open Data Portal. Once the initial analyses are completed, data gaps (if any) will be identified along with potential sources for the missing data (including stakeholder engagement). Prior to launching efforts to collect data directly from stakeholders, CCALS will contact Commission staff to determine if any relevant data has been collected (or is being collected) and determine a process for accessing/obtaining the data. If no data exists, a process for contacting stakeholder sources will be developed and shared with Commission Staff.

Financial Viability Assessment:

The proposal presents a well-structured plan to address a clear market need and aligns closely with the Commission's objectives for the Energy Ingenuity Fund. The potential economic and technological benefits for the Tobacco Region are significant. The applicant should also consider long-term sustainability for the proposed center. Overall, this project has strong potential to position the Tobacco Region as a leader in UAS-Energy innovation and warrants serious consideration for funding

Staff Recommendation: Staff recommends a grant award of \$49,560.

Edtunity Institute

The Next Military EV Education (#4262)

~~\$50,000.00 Requested~~ Withdrawn

Project Summary: As a result of the landmark federal Inflation Reduction Act (IRA) and the Infrastructure Investment and Jobs Act of (IIJA), the federal government is investing over \$7 Billion dollars in EV charging infrastructure. The states and regions that will benefit most from this massive investment will be the ones with an EV-ready workforce that has the skills to design, install and repair the battery charging stations on which electric vehicles depend. TRRC Energy Innovation Fund Applicant Edtunity Institute is a nonprofit training organization that certifies transitioning military, reservists, National Guard and other underserved populations for technical jobs in telecommunications and media fields. Edtunity just started a pilot training program for EV technicians. In this proposal, Edtunity will assess the EV charging skills needed by transitioning military personnel in Southern and Southwest Virginia to qualify for jobs in infrastructure installation, maintenance and repair. The Needs Assessment will include an Implementation Plan that will lay out the curriculum, institutional partnerships and resources needed to create a local, skilled EV charging infrastructure workforce.

Staff Recommendation: Previously tabled proposal withdrawn at the request of the applicant. No action is needed.

Energy DELTA Lab

WiseLink (#4318)

\$50,000.00 Requested

Project Summary: The WiseLink initiative is a transformative infrastructure and economic development project led by Energy DELTA Lab in partnership with Wise County and a robust coalition of public and private stakeholders. WiseLink directly addresses the need for modernized electrical transmission infrastructure to unlock the DELTA Lab's portfolio of more than \$10 billion in clean energy investments in Southwest Virginia's coalfield region. With a strategic focus on underutilized reclaimed mine lands, WiseLink serves as a gateway to revitalize the region's economy, support energy transition goals, and create a sustainable path forward for communities long reliant on coal production. By leveraging the Virginia Tobacco Commission's Energy Ingenuity Catalyst Grant, the WiseLink project team will deliver critical research and financing strategies to facilitate the deployment of clean energy projects and catalyze long-term economic growth.

Matching Funds:

- \$50,000 Congressionally Directed Spending award, application approved.

Project Outputs:

- Comprehensive ownership and financing strategy report

Staff Comments:

The WiseLink initiative, spearheaded by Energy DELTA Lab in collaboration with Wise County and various stakeholders, aims to transform Southwest Virginia's coalfield region by modernizing its

energy infrastructure and fostering economic revitalization. This study will address critical challenges to the region, including outdated transmission systems, economic decline from reduced coal production, and underutilized reclaimed mine lands. Current systems cannot handle the scale of clean energy projects and limit access to the PJM market. Reclaimed mine lands remain idle despite their potential for clean energy projects and data centers. The project emphasizes equitable development by benefiting historically disadvantaged coalfield communities and aligning with federal Justice40 objectives (a federal government-wide goal that 40 percent of the overall benefits of certain Federal investments flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution).

The study will research and develop ownership and financing strategies for transmission infrastructure, analyze potential ownership structures, and assess funding mechanisms. The deliverable is a comprehensive feasibility study, cost-benefit analyses, and recommendations for ownership and financing frameworks. This information is intended to help the region attract significant private capital investment, namely data centers. The project has the potential to create over 1,650 jobs in renewable energy and related sectors and enhance regional grid resilience. Other expected outcomes include unlocking nearly one gigawatt of clean energy capacity on reclaimed mine lands, reducing carbon emissions, and establishing a stable tax base for local communities.

Financial Viability Assessment:

A review of key viability criteria reveals a relatively straightforward project to study ways to transform the economy in the coalfield region by repurposing former mine land to suit new industry investments. The budget is reasonable for projects of this type but was not accompanied by cost estimates with delineated scopes of work from identified contractors. A contingency to complete this step will be required prior to disbursing any funding. The match is not a clear cost share of the planning work however the applicant explains that the work being done by the contractor of the match source is integral to the overall project. The source of match is Congressionally directed spending to build the Oasis cooling demonstration at Data Center Ridge.

Staff Recommendation: Staff recommends a grant award of \$50,000 with contingency that cost estimates be submitted prior to the first disbursement.

St. Paul Tomorrow, Inc.

Russell County – Russell County Energy Distributed Energy and/or Microgrid Pilot Program (#4324)

\$50,000.00 Requested

Project Summary: The scope of this project will be to originate a community energy plan, identify an optimal town pilot site to simultaneously integrate digital, distributed energy to provide long-term affordable, reliable, and secure energy resources in community locations close to where the energy is consumed. Showcasing the capability and benefits of distributed energy projects to the people, businesses, and greater community of Russell County will allow for direct education and greater adoption of these energy resources to our citizens and business community. The immediate learnings of a pilot and corresponding energy plan will enable greater understanding of how new, digital energy solutions can lead to long-lasting energy decisions and transformation for the county and region.

Matching Funds:

- \$50,000, cash from area towns and counties, to be requested
- Unspecified in-kind match

Project Outputs:

- Community Energy Action Plan for Town of St. Paul and Russell County

Staff Comments:

St. Paul Tomorrow Inc. is requesting \$50,000 from the Commission for an energy planning and demonstration project for St. Paul, VA, aimed at developing energy resiliency, affordability, security, and sustainability for Russell County.

The project has two primary objectives: first, to conduct an assessment and create an energy plan for the downtown area, and second, to provide funding for a pilot demonstration site, potentially at a community theater or emergency services facility in St. Paul's downtown. The energy plan will cover town-owned properties and outline immediate, moderate, and long-term actions needed to transition to local, efficient, and reliable energy sources. The implementation project will potentially feature a downtown microgrid demonstration that utilizes cost-effective distributed energy sources such as solar panels, battery storage systems, or fuel cells.

In the planning for this project, the applicant has focused on establishing key partnerships and gaining valuable insights into modern energy solutions for rural communities. Discussions with energy consultancies and private funding entities, specifically Four-D Energy and TESIAC, have been initiated. These conversations have provided crucial education on behind-the-meter energy strategies tailored for rural areas.

The proposal's strengths include a comprehensive approach addressing both energy efficiency and distributed energy, an educational component to inspire public understanding, and alignment with TRRC's vision for energy resource development. The dual outcomes of an energy plan and a pilot demonstration site offer immediate and long-term benefits. However, weaknesses are evident in the lack of a specific timeline, unclear budget allocation for the \$50,000 grant request, and uncertainty regarding the demonstration site selection. These factors may impact planning and implementation effectiveness.

Financial Viability Assessment:

The project's dual objectives of planning and implementation are ambitious for the limitations of the Energy Catalyst planning program. At this time there are no matching funds committed to the project. The budget is not detailed and is not supported with cost estimates from contractors or vendors. Staff believes that the project's viability would be improved by scaling back and completing the planning process before seeking funds for implementation. Data derived from the plan would inform site selection, the funding needs, and potential sources for project capital.

Staff Recommendation: Staff recommends no award.

Virginia Ed Strategies

Energy Workforce Needs Assessment (#4323)

\$50,000.00 Requested

Project Summary: Energy demand is growing across the country, and in Virginia, specifically, there are plans underway for a great amount of infrastructure development in the Southside and Southwest regions to meet these demands. There is not currently a trained workforce prepared to fill all of the roles that will be needed to successfully meet these demands. The Energy Workforce Needs Assessment would address this issue with two major studies to be conducted by a contractor in consultation with Virginia Ed Strategies, the Virginia Energy Workforce Consortium, and other key partners across the Southside and Southwest regions of the Tobacco Commission footprint: (1) to study the forecasted demand for energy generation and capacity and how that demand will impact talent pipeline needs and (2) to study the current and anticipated workforce needs for energy companies along with the existing and planned training and education that would prepare future employees in the region for these jobs. Funding from the Tobacco Commission would cover a contractor, travel expenses, and miscellaneous expenses such as data or license fees. The studies conducted with the planning grant will yield concrete data and recommendations for the projects and partnerships that are critical to best meet those needs in the most efficient, economical way.

Matching Funds:

- \$45,000, Virginia Ed Strategies, cash in hand
- \$5,000, Virginia Ed Strategies, in-kind

Project Outputs:

- Energy Workforce Needs Assessment Report

Staff Comments:

Virginia Ed Strategies, in partnership with the Virginia Energy Workforce Consortium (VEWC), requests \$50,000 in funding for an Energy Workforce Needs Assessment of the Southern and Southwest regions of Virginia. The project aims to address the growing energy demand and the lack of a trained workforce to meet future industry needs in these areas.

The proposal highlights significant growth in Virginia's energy sector, with 191,851 energy workers statewide in 2023, representing 2.3% of all U.S. energy jobs. From 2022 to 2023, energy jobs in the state increased by 5,532, or 3% growth. Employers in Virginia reported 43.4% overall hiring difficulty, with 20.2% finding it very difficult to hire qualified employees.

To address these challenges, the project aims to conduct two major studies across the Southside and Southwest regions of the Tobacco Commission footprint, focusing on forecasted energy demand and its impact on talent pipeline needs, as well as current and anticipated workforce requirements for energy companies. Various routes to energy workforce preparation will be investigated, from K-12 to community college to apprenticeships. The final needs assessment report will strive to identify strategic partnerships and provide recommendations for tackling energy workforce challenges.

Financial Viability Assessment:

Overall, this proposal presents a well-conceived plan to address a critical need in Virginia’s energy sector. The budget is reasonable and the estimate and scope of work for the contractor is thorough. Match is appropriate and in hand. The project objectives are clearly outlined, with specific questions to be answered through the assessment. The methodology includes two major studies, focusing on energy demand forecasts and workforce needs, which are well-aligned with the project’s goals. It is staff’s opinion that the project is viable and has strong potential to provide valuable insights for workforce development in the Southside and Southwest regions.

Staff Recommendation: Staff recommends a grant award of \$50,000.

Virginia’s Gateway Region

Dinwiddie Energy Innovation Campus Planning Study (#4320)

\$50,000.00 Requested

Project Summary: Virginia’s Gateway Region and the Dominion Energy Innovation Center are requesting a \$50,000 Energy Catalyst Planning Grant to explore two specific opportunities. First, we will work to understand the viability of creating an energy-focused innovation campus in Dinwiddie County, located in close proximity to the Dominion Energy Locks Campus and other nearby energy-related assets. Second, we will explore possibilities of siting a pilot project for clean hydrogen/electricity production on the property as a tenant of the Energy Innovation Campus. TRRC funds will be used to develop a strategic plan, perform high-level site work, understand project economics, and identify potential tracts for the pilot project.

Matching Funds:

- \$27,500, US Department of Energy or National Renewable Energy Lab, application filed
- \$10,000, Virginia’s Gateway Region, cash in hand
- \$12,500, Dominion Energy Innovation Center, in-kind

Project Outputs:

- Overall strategy outline: goals and objectives, differentiation points, keys to success, targets
- Site analysis: scope tenant requirements, identify prospect parcels, evaluate cost/timeline to deliver requirements.
- Resource modeling report: benefits outline, company/jobs numbers, estimated tax revenues and economic impact
- Metal Fuels site list

Staff Comments:

Virginia’s Gateway Region (VGR) and the Dominion Energy Innovation Center (DEIC) are seeking a \$50,000 Energy Catalyst Planning Grant to explore the creation of an energy-focused innovation campus in Dinwiddie County, Virginia, aiming to capitalize on the region’s growing clean energy sector and leverage existing assets.

The proposed Energy Innovation Campus aims to address the increasing energy demands driven by data center growth, with projections indicating a 40% rise in PJM Interconnection grid loads by 2039,

primarily in the Dominion Zone covering Eastern Virginia. This initiative aligns with Dominion Energy's \$43 billion capital investment plan through 2029, focusing on zero-carbon generation and power delivery infrastructure. Notably, the Coastal Virginia Offshore Wind project, costing \$9.8 billion, is expected to power 660,000 homes, showcasing the region's commitment to clean energy advancements.

Dinwiddie County's strategic location near major highways and its potential acquisition of the 293-acre Central State Hospital property further enhance its suitability for this innovation hub. The county's proximity to Dominion Energy Locks Campus and other assets provides an ideal foundation for fostering clean energy projects, including pilot initiatives like hydrogen/electricity production.

The collaboration between Virginia's Gateway Region (VGR) and the Dominion Energy Innovation Center (DEIC) forms the backbone of this project. Their partnership brings together expertise in economic development and energy innovation, strengthening the proposal's credibility. Key stakeholders include:

- Dominion Energy, a major player investing in clean energy infrastructure
- PJM Interconnection, the largest U.S. grid operator coordinating wholesale electricity in the region
- Dinwiddie County
- Potential industry partners and local communities, whose engagement will be crucial for the project's long-term success

This diverse group of stakeholders positions the Energy Innovation Campus to potentially establish an energy-focused innovation cluster in the Tobacco Region.

The proposal for the study will include a long-term vision for the Energy Innovation Campus beyond the initial planning phase, including potential economic impacts and job creation estimates to provide a more compelling case for the grant's long-term value.

Financial Viability Assessment:

The \$50,000 grant request would be allocated across various project aspects, including site planning, strategy and economic impact studies, administrative costs, legal fees, and grant writing. The project's viability relies on pending grant applications for a significant portion of the matching funds. A contingency on receipt of full match would be necessary in order for TRRC grant funding to be disbursed.

Staff Recommendation: Staff recommends a grant award of \$50,000, contingent on receiving full matching funds for the project.

Energy Execution – Implementation Grants

Town of Altavista

Altavista Wastewater Treatment Plant Improvement Project (#4312)

\$750,000.00 Requested

Project Summary: The proposed Wastewater Treatment Plant (WWTP) upgrade project in Altavista offers significant benefits in terms of energy efficiency, environmental impact, and economic stability. By implementing modern technology and control mechanisms, the town can achieve substantial improvements in its wastewater treatment process. The installation of High-Speed Turbo Blowers (HSTBs) and dissolved oxygen (DO) control equipment is expected to reduce energy usage by 40-50%. This significant reduction in energy consumption will be achieved through:

- Precise aeration control, eliminating over-aeration of digesters and aeration basins.
- High-efficiency equipment operation, including HSTBs with magnetic bearings.
- Implementing a Supervisory Control and Data Acquisition (SCADA) system for automated monitoring and control.

The current Wastewater Treatment Plant (WWTP) operation does not utilize energy efficient control mechanisms such as dissolved oxygen (DO) control. Since the existing controls and instrumentation are no longer functioning, operations regularly over-aerate the digesters and aeration basins to eliminate the potential to under-aerate and upset the treatment process. The upgrade will contribute to a reduced carbon footprint through elimination of oil usage (55 gallons per year) for blowers, more efficient treatment of high-concentration wastewater from the town's largest employer Abbott Nutrition, and better management of biochemical oxygen demand (BOD) loading, which ranges from 450 to 750 mg/L due to industrial discharge. The normal household biochemical oxygen demand loading on a domestic plant is normally 180 to 250 milligrams per liter of BOD loading.

The project will support the maintenance of lower treatment rates for the town's industrial base, help retain jobs at Abbott Nutrition, and ensure the WWTP can meet stringent federal standards, particularly for treating Abbott's high-concentration discharge.

Matching Funds:

- \$7,564,888 = Loan from Virginia Clean Water Revolving Loan Fund (application approved)
- \$3,000,000 = U.S. Economic Development Administration grant (application intended)

Project Outputs:

- Engineering Design Plans and Specifications
- Permits to Construct from DEQ & Campbell County Building Department
- Award Bid to Contractor
- Purchase, Rebuild/Retrofit all new equipment in WWTP
- Fully Functioning Wastewater Facility

Staff Comments:

The Town of Altavista, Virginia, is embarking on an ambitious \$11.3 million upgrade to its Wastewater Treatment Plant, aiming to restore full capacity, improve energy efficiency, and enhance treatment processes. This comprehensive project, set to begin design in 2025 and complete construction by 2027, seeks funding from multiple sources to address critical infrastructure needs and support future economic growth in the region. \$750,000 is requested from the TRRC Energy Ingenuity Fund to help finance the project.

The upgrade aims to address three key objectives: restoring the plant’s full 3.6 MGD capacity, enhancing energy efficiency, and refurbishing treatment processes for improved reliability and performance. These improvements are necessitated by significant changes in inflowing wastewater characteristics since the plant’s 1996 re-engineering, coupled with aging and inoperable equipment. Upon completion, the project is expected to yield substantial energy savings, improve industrial waste treatment capacity, and create opportunities for expansion of both industrial and residential developments in the service area, which includes 1,565 customers across Altavista, part of Campbell County, and the Town of Hurt.

Financial Viability Assessment:

Overall, this is a well-structured and comprehensive proposal that addresses a critical infrastructure need with clear objectives, a detailed budget, and a realistic implementation plan. It effectively outlines anticipated benefits, including significant energy savings and expanded industrial and residential opportunities. Match sources are appropriate, although one (U.S. Economic Development Administration) is still pending. However, the approved loan from the Virginia Clean Water Revolving Loan Fund provides more than sufficient match for the TRRC funding request. The proposal could be improved by incorporating providing measurable outcomes to evaluate long-term impact.

Staff Recommendation: Staff recommends a grant award of \$500,000 and a \$250,000 loan from the Commission’s Lending Partnership Program, contingent on loan approval by the Virginia Small Business Financing Authority.

Appalachian Voices

Energy Storage and Electrification Manufacturing (ESEM) Jobs Project (#4287)

~~\$2,825,000.00 Requested~~ Withdrawn

Project Summary: This TRRC proposal seeks funding for the innovative partnership between the Energy Storage and Electrification Manufacturing (ESEM) Program and GenEdge’s ITAC assessment process, representing a powerful and synergistic collaboration poised to transform the advanced manufacturing landscape across the entire TRRC footprint. This collaboration, comprising two parallel and coordinated initiatives, shares a common objective of revitalizing Southwest Virginia’s manufacturing sector by supporting the transition from historically coal-centric operations to emerging markets in Energy Storage and Electrification Manufacturing.

The ESEM Program, backed by state funding through GO Virginia and federal support from the US Economic Development Administration (EDA), has laid a strong foundation by providing critical planning and technical assistance to six multigenerational, family-owned manufacturers in far Southwest Virginia. Delivery of these services has already begun to diversify operations and increase production capacity, with documented and measurable results, preparing these companies to enter new energy market sectors.

In parallel, and within the same overall collaboration, the GenEdge ITAC project aims to expand industrial energy efficiency and decarbonization by offering comprehensive technical assessments and support to manufacturers across the entire TRRC service region. Through targeted energy efficiency assessments, strategic market analysis, and the introduction of advanced manufacturing practices, GenEdge will equip up to 50 companies with the data, analysis and tools they need to reduce energy consumption, enhance operational efficiency, and qualify for capital funding through the US DOE ITAC Implementation Grant Program.

Together, these two parallel initiatives administered under a single collaboration will create a stronger, more resilient manufacturing ecosystem that not only sustains existing businesses but also attracts new investment and innovation. By leveraging the combined expertise and resources of ESEM and GenEdge, this partnership will serve as a catalyst for advanced manufacturing, driving economic growth, job creation, and environmental sustainability throughout Southern and Southwestern Virginia.

Staff Recommendation: Previously tabled proposal withdrawn at the request of the applicant. No action is needed.

Brunswick County
LNG Storage Tank Project (#4261)
~~\$1,000,000 Requested~~ - Withdrawn

Executive Summary:

Dominion Energy Virginia plans to construct a liquified natural gas (LNG) storage facility to support Brunswick and Greenville Power Stations with backup fuel. Mecklenburg Cooperative, the local distribution company at the proposed construction site, will build a new substation to provide power to the LNG facility. Brunswick County is seeking funding from the Tobacco Region Revitalization Commission on behalf of Dominion Energy to support the purchase of equipment installed in the electric substation.

Staff Recommendation: Previously tabled proposal withdrawn at the request of the applicant. No action is needed.

Campbell County

Construction of Fuel Fabrication Facility in Campbell County (#4321)

\$4,000,000.00 Requested

Project Summary: BWXT Advanced Technologies is constructing a 10,000-square-foot nuclear fuel fabrication facility in Campbell County that will support Nuclear Thermal Propulsion (NTP) technology for government programs funded by Defense Advanced Research Projects Agency (DARPA) and National Aeronautics and Space Administration (NASA). It will produce the nuclear fuel required to meet the Demonstration Rocket for Agile Cislunar Operations (DRACO) program objectives. This will be a key component of the world's first spacecraft using nuclear thermal propulsion. This research and development project is expected to create 26 full-time jobs with an average annual salary of \$150,000.

Matching Funds:

- \$6,700,000 – BWXT Advanced Technologies LLC, funds in hand.

Project Outputs:

- A 10,000-square-foot nuclear fuel fabrication facility to be owned and operated by BWXT Advanced Technologies.

Staff Comments:

Campbell County is requesting \$4,000,000 on behalf of BWXT Advanced Technologies to construct a 10,000 square foot fuel fabrication facility. The project involves a \$200 million contract for BWXT over three years, with the company investing an additional \$20.8 million in the nuclear fuel fabrication facility. The spacecraft is scheduled to launch in 2027, with the reactor being activated once it reaches a suitable location above low Earth orbit. This technology is expected to enable faster travel times for astronauts, reducing the risk of injury during long-duration missions, such as those to Mars.

The new facility, for which construction has been underway since July 2024, represents a major capital investment that is expected to boost the economic base of Campbell County and the surrounding region. The line item budget for TRRC funding is broken down as follows:

- \$650,000 – Facility Construction
- \$2,000,000 – Unspecified equipment to build Nuclear Thermal Propulsion components and fuel
- \$1,350,000 – Unspecified equipment installation and facility preparation and start up.

If grant-funded, these capital expenses would be subject to the TRRC's security interest policy. The TRRC has no history of supporting real property acquisition costs or facility expansions for private businesses via its grant programs, although the TRRC's loan program could possibly be used to those ends. This project would not qualify for an incentive from the Tobacco Region Opportunity Fund, since construction is underway and therefore not competing with other states for site selection.

Financial Viability Assessment:

A review of key viability criteria reveals an ambitious request for significant levels of investment in private sector property and equipment. This scale of cost-sharing is unprecedented in past TRRC projects. There appears to be no match committed by the applicant locality. The project’s budget lacks details on the specific features of construction, equipment, installation and facility preparation/start-up to be supported. There are no quotes accompanying the request, and staff would need those to substantiate the requested budget amounts. The expected annual taxes to be delivered to Campbell County is \$116,000. The cost benefit of the project for the region/locality seems low, given the request for a \$4MM investment from TRRC. While this is an exciting and laudable project for both BWXT and Campbell County, it does not appear to be a good candidate for grant funding from TRRC but could be considered for a loan.

Staff Recommendation: Staff recommends no award.

Central Virginia Electric Cooperative
Appomattox Battery Energy Storage System (BESS) Project (#4315)
\$1,500,000.00 Requested

Project Summary: CVEC and Lightshift Energy (formerly Delorean Power) are very pleased to submit this grant application in response to TRRC’s FY 2025 Energy Ingenuity Fund Request for Proposals. We propose jointly developing a 6-megawatt advanced battery energy storage system (“BESS”) in Appomattox, Virginia that will be used to reduce peak load for CVEC and will in turn save millions of dollars over the life of the project. These savings will be directly passed through to the commercial, industrial, and residential customers of CVEC, helping ensure lower electricity costs for current and future residents as well as attract new businesses to the Tobacco Region in southern Virginia. The project will also enable workforce training for the emerging BESS industry in Virginia which has been catalyzed by the Virginia Clean Economy Act, and the project will provide emissions reductions benefits and reduced transmission and generation requirements for the regional grid, as well as a clean source of local power for CVEC.

Matching Funds:

- \$4,177,402 – LightShift Energy, Applications Intended

Project Outputs:

- Battery energy storage containers with integrated BMS, thermal management and fire protection service; Battery Container e-STORAGE SolBank 3.0
- Power Conversion systems (PCS) consisting of inverter and medium voltage transformer units PCS Power Electronics
- Energy Management System (EMS)

Staff Comments:

Central Virginia Electric Cooperative, a member-owned nonprofit electric utility, is requesting \$1.5MM to offset the capital cost of the equipment to develop a six- megawatt advanced battery storage system (BESS) in Appomattox with LightShift Energy. The proposed BESS aims to reduce peak load for CVEC, lower electricity costs for current and future residents, reduce emissions, reduce

transmission and generation requirements for the regional grid, and offer a clean source of local power for the cooperative.

The system would be constructed on an 11+/- acre owned by the Appomattox County Economic Development Authority, which strongly supports the project. TRRC funding would be used to purchase battery containers. Matching funds would support additional equipment (transformers, power conversion systems, medium voltage switchgear, and a site communications cabinet) and interconnection to existing distribution circuits along Industrial Park Lane, with a point of interconnection at a new Appomattox Substation. Lightshift and CVEC plan to use local project partners and contractors as much as possible, providing direct investment into the community.

Tobacco Commission funding significantly enhances the project's financial performance, accelerating the break-even point from 12.4 years to 10.6 years, and increasing overall net benefits. The project appears to offer substantial long-term cost savings for CVEC and its members, aligning with the CVEC's stated objective of reducing electricity costs and attracting businesses to the region. However, it has historically been the practice of the Commission to refer revenue-generating projects to its loan program.

Financial Viability Assessment:

A feasibility study submitted with the application projects the BESS project to be highly effective in reducing peak loads, especially in the first five years of operation. The project demonstrates long-term economic viability, with benefits outweighing costs over the 20-year period.

Staff Recommendation: Staff recommends a grant award of \$750,000 and a \$750,000 loan from the Commission's Lending Partnership Program, contingent on loan approval by the Virginia Small Business Financing Authority.

Downtown Wytheville, Inc. (#4283)

Downtown Heritage Greenway Trail Demonstration EV Charging Station
~~\$15,000.00 Requested~~ Withdrawn

Project Summary: Downtown Wytheville, Inc. and the Town of Wytheville are applying for an Energy Implementation Grant from the Tobacco Region Revitalization Commission's Energy Ingenuity Fund to install electric vehicle (EV) chargers in the heart of Wytheville's historic and walkable downtown district. This project will leverage a prior utility infrastructure investment and strategically place EV chargers near local businesses, the Millwald Theatre, and the Wytheville Farmers Market, promoting tourism, economic development, and sustainable energy use. By drawing EV travelers into the downtown area, this initiative will create new opportunities for local businesses while supporting the region's broader economic diversification and energy resiliency goals. The chargers will also serve as a key feature of the Heritage Walk Greenway system, connecting the town's parks, museums, and natural beauty, further encouraging foot traffic and enhancing quality of life.

Staff Recommendation: Previously tabled proposal withdrawn at the request of the applicant. No action is needed.