Southwest Virginia Energy Research and Development Authority

2021-22 Annual Report

SWVA Energy

Issued December 13, 2022

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Introduction

Southwest Virginia has a legacy of driving energy production and manufacturing with its key role in the extractive economy. Metallurgical coal helped build America, while wells drilled over 60 years ago still produce natural gas today. As the United States moves toward carbon-neutral energy and our traditional industries decline as a result, Southwest Virginia has the opportunity to continue to be a leader in energy. We will get there by leveraging the region's valuable assets and competing nationwide for entrepreneurs while focusing on innovative, clean and renewable projects.

These "big idea" projects will help maintain Southwest Virginia's leadership position and support a public-private approach in the pursuit of investment-rated opportunities — sustainable, renewable models that can generate returns and ultimately deliver jobs and investment for the region:

- *Project Energizer* employs pumped-storage hydro technology on a small, affordable scale and provides an opportunity for Southwest Virginia to leverage its topography and be an innovator in renewable resources.
- *Evolve Central Appalachia is exploring harvesting the industrial, environmental and economic potential of rare earth elements, critical minerals and high-value, nonfuel, carbon-based products – all out of waste coal.*
- *Project Veer* is leveraging the advanced manufacturing legacy of Southwest Virginia to explore entry points for the region's manufacturers into the onshore and offshore wind supply chains.
- *Project Oasis* validates Southwest Virginia as a location of choice in the Commonwealth for data centers based on power and broadband infrastructure as well as the use of innovative energy applications unique to our region. Building on the region's competitive advantage, Southwest Virginia boasts the use of 52-degree mine pool water for HVAC cooling as a significant cost and energy-saving tool.
- *Project Innovation* determined a business model to accelerate innovative energy research moving at the speed of business while directing funds to the implementation of projects, not excessive overhead. As a result, Governor Youngkin announced the Energy DELTA Lab as a driver of the 2022 Virginia Energy Plan's goals — a public-private multi-site energy testbed located in Southwest Virginia leveraging previously-mined land as a proving ground for the commercialization and deployment of energy technologies.

With each of these projects, this Authority's work can help change the world, and we'll do that with Southwest Virginia leadership and ingenuity. Of course, our work would not be possible without the support, expertise and funding from key education, public and private sector partners.

Purpose

The Southwest Virginia Energy Research and Development Authority was established in 2019 for the purposes of promoting opportunities for energy development in Southwest Virginia, creating jobs and economic activity in the region consistent with the Virginia Energy Plan, and positioning Southwest Virginia and the Commonwealth as a leader in energy workforce and energy technology research and development.

Delegate Terry Kilgore and the late Senator Ben Chafin patroned legislation during the 2019 General Assembly session creating the Authority. Their plan called for a project-focused entity that would show quick progress toward identifying a vision for the region and taking concrete steps toward capitalizing on the opportunity for Southwest Virginia to redefine itself in the new energy economy.

The enabling legislation had the following six goals in mind:

1. Leverage the strength in energy research and workforce development of Virginia's public and private institutions of higher education;
2. Support the development of pump storage hydropower in Southwest Virginia and energy storage generally;
3. Promote the development of renewable energy generation facilities on brownfield sites, including abandoned mine sites;
4. Promote energy workforce development;
5. Assist energy technology research and development by promoting the development of a Southwest Virginia Energy Park; and
6. Identify and work with the Commonwealth’s industries and nonprofit partners in advancing efforts related to energy development in Southwest Virginia.

Who We Are

Membership

The Authority is composed of 11 non-legislative citizen members, who reside in VA:

- 4 members appointed by the Governor
- 4 members appointed by the Speaker of the House
- 3 members appointed by the Senate Committee on Rules

Members are subject to the standards of conduct set forth in the State and Local Government Conflict of Interests Act and the provisions of the Virginia Freedom of Information Act.

Term

Appointments are for terms of 4 years each. No member is eligible to serve more than 2 successive terms. After expiration of initial terms of 3 years or less, 2 additional 4-year terms may be served. Any appointment to fill vacancy of unexpired term does not constitute a term in determining eligibility for reappointment.

Members

- Mr. Mike Quillen — Chair
- Dr. Kris Westover — Vice Chair
- Mr. Steve Breeding
- Ms. Amanda Cox
- Mr. Jasen Eige
- Dr. March Hernick
- Dr. Mike Karmis
- Mr. Brad Kreps
- Mr. Duane Miller
- Mr. Dan Poteet
- Ms. Lydia Sinemus

Authority Director: Mr. Will Payne — Managing Partner, Coalfield Strategies, LLC

Meetings

September 14, 2021

Mountain Empire Community College
Kline Foundation Boardroom (Dalton-Cantrell Hall)
3441 Mountain Empire Road, Big Stone Gap, VA 24219

Agenda

10:00 – 10:02	Call to Order
10:02 – 10:05	Approval of Minutes from June 8, 2021
10:05 – 10:15	Annual Report
10:15 – 10:30	Wind Energy Industry Supply Chain • Jennifer Palestrant, Chief Deputy, Virginia Energy
10:30 – 10:45	Evolve CAPP • Dr. Mike Karmis
10:45 – 10:55	Other Project Updates – Open Session • Project Energizer • Project Innovation
10:55 – 11:00	Project Updates – Closed Session (if necessary)
11:00 – 11:10	Public Comments
11:10 – 11:15	Other Business / Announcements • Next meeting: Tuesday, December 14, 2021 at 10:00 a.m. (Southwest Virginia Higher Education Center)
11:15 – 11:16	Adjournment

Minutes

Authority members present: Mr. Michael Quillen (Chair), Dr. Kristen Westover (Vice Chair), Mr. Steven Breeding, Ms. Amanda Cox, Mr. Jasen Eige, Dr. Marcy Hernick, Dr. Michael Karmis, Mr. Brad Kreps, Mr. Duane Miller, Mr. Dan Poteet and Ms. Lydia Sinemus.

Authority members not present: N/A

Advisors present: Mr. Will Clear and Mr. Will Payne

Speakers present: Ms. Jennifer Palestrant (Chief Deputy – Virginia Energy).

On September 14, 2021, the Authority convened a quorum at 10:01 a.m. in person at Mountain Empire Community College and via Zoom.

Mr. Quillen requested a motion to approve the draft minutes from the June 8, 2021 meeting. The motion to approve was made by Mr. Miller, seconded by Dr. Karmis and approved unanimously by a roll call vote of the Authority.

Mr. Quillen called attention to the draft annual report due on October 15, 2021. Mr. Quillen requested any input to be shared with Mr. Payne by September 30, 2021 in order for the report to be submitted on time to the House, Senate and Governor. Mr. Quillen then requested a motion to approve the annual report pending further necessary changes. The motion to approve was made by Mr. Miller, seconded by Dr. Westover and approved unanimously by a roll call vote of the Authority.

Mr. Quillen introduced Ms. Palestrant, Chief Deputy of Virginia Energy. Ms. Palestrant updated Authority members on the agency's work relative to the offshore wind energy supply chain.

Mr. Payne indicated that InvestSWVA has submitted a GO Virginia Region One enhanced capacity building grant application, with matching support from the Virginia Tobacco Region Revitalization Commission, for Project Veer. This project will engage wind energy industry expert Xodus to perform a market analysis relative to the opportunity for manufacturers in Virginia's Southwest to participate in the onshore and offshore wind supply chains. This project complements efforts currently underway in the Hampton Roads region.

Dr. Karmis updated Authority members on the status of the multi-state Evolve Central Appalachian project regarding critical mineral extraction from coal byproducts.

Mr. Clear updated Authority members on Project Energizer, which is working to prove a new pumped-storage hydro technology. Mr. Clear then offered an update on Project Innovation, which is developing a first-of-its-kind energy research park in the United States that will host companies interested in studying, perfecting and eventually commercializing their ideas. The park will provide land, labs and scientific assistance to innovators in the energy industry. It will also be a facility that allows middle and high school students in Southwest Virginia to see STEM-related energy projects in action. Mr. Clear reported that the sustainability planning and site identification components of this project will be complete by October 1.

Mr. Quillen recognized Dr. Karmis for an overview of Project Evolve CAPP, a multi-state partnership looking at the viability of critical mineral extraction from coal byproducts.

During the public comment portion of the meeting, Keena Mullins of Nitro Construction Services in West Virginia indicated the availability of the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers, AFL-CIO/CLC for renewable energy projects.

Mr. Quillen notified Authority members of the final meeting of the 2021 calendar year meeting is coming up on Tuesday, December 14, 2021 at 10:00 a.m.

There being no further business, Mr. Quillen adjourned the meeting at 11:09 a.m.

December 14, 2021

Southwest Virginia Higher Education Center (Rooms 103-104)
1 Partnership Circle, Abingdon, VA 24210

Agenda

10:00 – 10:02 Call to Order
- Mr. Mike Quillen, Chair

10:02 – 10:05 Approval of Minutes (September 14, 2021 Meeting)

10:05 – 10:15 Election of Officers
- Mr. Duane Miller, Chair, Nominating Committee

10:15 – 10:20 Updates

- Conflict of Interest Training
- Financial Disclosure Statement
- 2022 Meeting Dates (for consideration):
  - March 8, 2022 at 10:00 a.m.
  - June 14, 2022 at 10:00 a.m.
  - September 13, 2022 at 10:00 a.m.
  - December 13, 2022 at 10:00 a.m.

10:20 – 10:30 Public Comment

10:30 – 11:15 Project Veer

- Mr. Jeff Tingley, Head of Strategy & Market Development, Xodus

11:15 – 11:16 Adjournment

Minutes

Authority members present: Mr. Michael Quillen (Chair), Dr. Kristen Westover (Vice Chair), Mr. Steven Breeding, Ms. Amanda Cox, Dr. Marcy Hernick, Dr. Michael Karmis, Mr. Brad Kreps, Mr. Duane Miller, Mr. Dan Poteet and Ms. Lydia Sinemus

Authority members not present: Mr. Jasen Eige

Advisors present: Mr. Will Clear and Mr. Will Payne

Speakers present: Mr. Jeff Tingley (Head of Strategy, Xodus Group)

On December 14, 2021, the Authority convened a quorum at 10:02 a.m. in person at the Southwest Virginia Higher Education Center.

Mr. Quillen requested a motion to approve the draft minutes from the September 14, 2021 meeting. The motion to approve was made by Mr. Breeding, seconded by Mr. Poteet and approved unanimously by a voice vote of the Authority.

Mr. Quillen called on Mr. Miller to present the Nominating Committee's officer slate for the next two years. Mr. Miller proposed that Mr. Quillen and Dr. Westover continue to serve in their respective Chair and Vice Chair roles and indicated there were no other nominations. The motion to approve the

officer slate was made by Mr. Breeding, seconded by Mr. Kreps and approved unanimously by a voice vote of the Authority.

Mr. Quillen asked Mr. Payne to offer administrative updates. Mr. Payne discussed the annual Financial Disclosure Statement process, Conflict of Interest training and the proposed 2022 meeting dates.

Mr. Quillen asked for any comments from the public. None were made.

Mr. Quillen asked Mr. Payne to introduce Project Veer. Mr. Payne indicated that InvestSWVA was partnering with the GO Virginia Region One Council and the Virginia Tobacco Region Revitalization Commission on an enhanced capacity building project to explore entry points for the region's manufacturers into the onshore and offshore wind supply chains. Private partners include Appalachian Power and Dominion Energy.

Mr. Jeff Tingley, Head of Strategy & Market Development for the Xodus Group, joined the meeting to give an overview of the project, which complements efforts currently underway in the Hampton Roads region. Mr. Tingley discussed the project's timeline and three major priorities. The first is to help the region's economic developers determine the available market and pathways for companies to participate in the regional renewable energy industry. The second priority is to create employment opportunities for the regional workforce, at all levels. The third and final priority is to recommend actions that promote Southwest manufacturers as key members of the wind energy supply chain.

There being no further business, Mr. Quillen adjourned the meeting at 11:29 a.m.

March 8, 2022

Southwest Virginia Higher Education Center (Room 103)
One Partnership Circle, Abingdon, VA 24201

Agenda

10:00 – 10:02	Call to Order
10:02 – 10:05	Approval of Minutes from December 14, 2021
10:05 – 10:15	Legislative Update

- Mike Skiffington – Director of Policy & Planning, Virginia Department of Energy

10:15 – 10:25 Public Comments

10:25 – 10:55 Project Updates (Closed Session)

10:55 – 11:00 *Break (set up Zoom for Project Veer update)*

11:00 – 11:40 Project Veer Update

- Delia Warren – Lead Renewables Consultant, Xodus Group

11:40– 11:45 Other Business / Announcements

- 2022 Meeting Schedule (SWVA Higher Education Center)
  - June 14, 2022 at 10:00 a.m.
  - September 13, 2022 at 10:00 a.m.
  - December 13, 2022 at 10:00 a.m.

11:45 – 11:46 Adjournment

Minutes

Authority members present: Mr. Michael Quillen (Chair), Dr. Kristen Westover (Vice Chair), Mr. Steven Breeding, , Dr. Marcy Hernick, Mr. Brad Kreps, Mr. Duane Miller, Mr. Dan Poteet (virtual) and Ms. Lydia Sinemus

Authority members not present: Ms. Amanda Cox and Dr. Michael Karmis

Advisors present: Mr. Will Clear and Mr. Will Payne

Speakers present: Mr. Mike Skiffington (Director of Policy & Planning, Virginia Department of Energy)

On March 8, 2022, the Authority convened a quorum at 10:03 a.m. in person at the Southwest Virginia Higher Education Center.

Mr. Quillen requested a motion to approve the draft minutes from the December 14, 2021 meeting. The motion to approve was made by Mr. Breeding, seconded by Dr. Hernick and approved unanimously by a voice vote of the Authority.

Mr. Quillen called on Mr. Skiffington to deliver an update on legislative actions taken by the General Assembly.

Mr. Quillen asked for any comments from the public. None were made.

Mr. Quillen asked Mr. Clear and Mr. Payne to offer updates on Project Energizer (small-scale pumped-storage hydro), Project Innovation (energy testbed) and Project Evolve CAPP (critical mineral extraction from waste coal). Following open session updates on these projects, Dr. Westover made a motion to go into closed session to discuss confidential elements of these projects related to ongoing economic development initiatives. The motion was seconded by Dr. Hernick and approved unanimously by a voice vote of the Authority. After closed session discussion, Dr. Westover made a motion certifying that the topics discussed were in compliance with the motion used to go into closed session. The motion was seconded by Dr. Hernick and approved unanimously by a voice vote of the Authority.

Mr. Quillen introduced Ms. Warren to deliver an interim report on Project Veer. The Xodus team identified nearly 200 companies in Virginia's Southwest as potential suppliers to the burgeoning offshore wind industry supply chain. While major component manufacturing (nacelle, blades, towers, etc.) is not possible in the region due to scale and mass of structures, because water access is necessary for transportation, the region is well-positioned geographically and experientially to participate in the production of other, smaller components that can be delivered over roadways and railways.

The interim report also outlines the next steps for creating a regional infrastructure:

1. Small manufacturers will need support in pivoting their operations to meet the requirements and timelines of global manufacturing partners.
2. The companies assessed as having the ability to participate must be surveyed and enlisted to join the initiative.
3. A workforce analysis must be performed to determine existing workforce availability, willingness, and specific training requirements.
4. An industrial hub is essential to enable the clustering of industrial activities around specific opportunities. Among the necessary actions of such a hub: regional coordination around opportunities, communication and partnerships.

The Xodus team is expected to deliver a final report on March 30, 2022.

There being no further business, Mr. Quillen adjourned the meeting at 11:29 a.m.

June 14, 2022

Southwest Virginia Higher Education Center (Room 103)
One Partnership Circle, Abingdon, VA 24201

Agenda

10:00 – 10:02	Call to Order
10:02 – 10:04	Approval of Minutes from March 8, 2022
10:04 – 10:34	Speaker: Secure Futures • Matt McFadden – Business Development Associate and Project Coordinator
10:34 – 10:44	Public Comments
10:44 – 10:54	Project Updates (Closed Session if necessary)

10:54– 10:56	Other Business / Announcements
	• 2022 Meeting Schedule (SWVA Higher Education Center)
	  ○ September 13, 2022 at 10:00 a.m.
	  ○ December 13, 2022 at 10:00 a.m.
	  ○ Move June meeting to May in future

10:56 – 10:58	Adjournment

Minutes

Authority members present: Mr. Michael Quillen (Chair), Dr. Kristen Westover (Vice Chair) (virtual), Ms. Amanda Cox, Dr. Marcy Hernick, Mr. Brad Kreps and Mr. Duane Miller

Authority members not present: Mr. Steven Breeding, Mr. Jasen Eige, Dr. Michael Karmis, Mr. Dan Poteet and Ms. Lydia Sinemus

Advisors present: Mr. Will Payne

Speakers present: Mr. Matt McFadden (Secure Futures – Business Development Associate and Project Coordinator)

On June 14, 2022, the Authority convened a quorum at 10:05 a.m. in person at the Southwest Virginia Higher Education Center.

Mr. Quillen requested a motion to approve the draft minutes from the March 8, 2022 meeting. The motion to approve was made by Dr. Hernick, seconded by Mr. Kreps and approved unanimously by a voice vote of the Authority.

Mr. Quillen called on Mr. McFadden to introduce Secure Futures and discuss the company's work developing solar and engagement in supporting workforce development.

Mr. Quillen asked for any comments from the public. None were made.

As a follow up to Mr. McFadden's presentation, Mr. Quillen kicked off a conversation about solar throughout the region. Dr. Westover discussed the partnership that Mountain Empire Community College has with Secure Futures to train the future workforce in solar installation. Mr. Kreps discussed The Nature Conservancy's work with AEP/APCo, Dominion Energy and Sun Tribe Solar related to utility-scale solar deployment. Authority members discussed land use considerations related to solar and how Southwest Virginia's use of reclaimed mine lands alleviate pressure on prime farmland as well as wildlife.

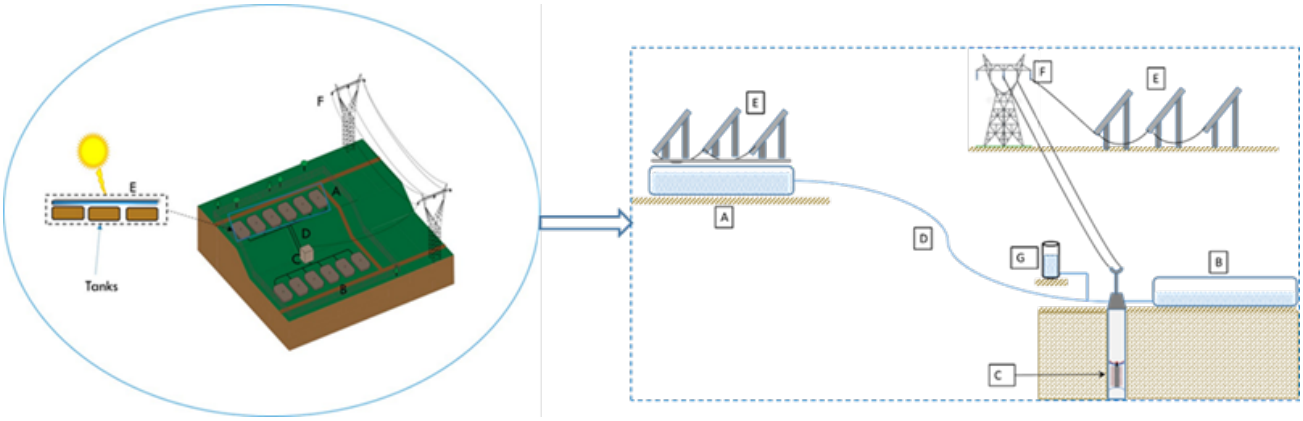
Mr. Quillen asked Mr. Payne to offer updates on Project Veer (offshore wind supply chain for Southwest Virginia's manufacturers) and the partnership with Emory & Henry College regarding a 'Foundations in Blockchain Technology' certification course this summer. Following open session updates on these projects, Mr. Miller made a motion to go into closed session to discuss confidential elements of projects related to the Authority's ongoing economic development initiatives. The motion was seconded by Dr. Hernick and approved unanimously by a voice vote of the Authority. After closed session discussion, Mr. Miller made a motion certifying that the topics discussed were in compliance with the motion used to go into closed session. The motion was seconded by Dr. Hernick and approved unanimously by a voice vote of the Authority.

Mr. Quillen indicated that the 2023 meeting dates would be announced at the next meeting and that the June meeting would be moved to May for subsequent years as well.

There being no further business, Mr. Quillen adjourned the meeting at 11:31 a.m.

Project Highlights

Pumped Storage Hydro



Project Energizer, an InvestSWVA initiative, is taking a disruptive approach to an older technology. Traditional pumped storage hydro (PSH) projects have always been large scale and required significant civil works and land disturbance. Even though the technology is proven and often more affordable per unit than battery technology, overcoming scale for deployment particularly with more distributed generation is problematic. Dr. Thomas Eldredge and Dr. Hector Medina, both professors at Liberty University, have developed a small-scale, modular PSH system that can be deployed with very little land disturbance made from off-the-shelf components. By pairing this system with wind and solar power generation, GO Virginia Region One has the potential of deploying a small-scale, affordable and proven base-load renewable energy solution for local high-tech and industrial applications.

PSH was originally developed to allow power shifting from low-demand times to high-demand times. The concept is simple. During times of low-power demand, excess electricity is used to pump water from a water source located at a lower altitude point to storage in a reservoir at a higher altitude point. When power demand begins to peak, water is released from the reservoir down through a power house and back to the original water source, generating electricity along the way. The action can be repeated daily depending on power demand.

Drs. Eldridge and Medina have developed an idea of creating a self-contained system that can be constructed on the surface to contain the same PSH action without civil disturbance. The system will incorporate off-the-shelf containment bladders that will be used as upper and lower reservoirs. Standard high-density polyethylene piping will be connected above ground to move water up and

down the device. A bi-directional pump house will be installed at the base of the system that will not only pump water up but also generate power as the water is released. The system is completely scalable up to 10 megawatts and offers a relatively low cost of approximately $2,400 per kilowatt of installed capacity. The design provides an exciting opportunity to affordably complement this technology with other renewable energy generation in a base-load solution.

Southwest Virginia is uniquely positioned to take advantage of this technology. There is one asset that Region One has that is necessary for effective deployment of these systems: topography relief. In order for the technology to generate power, 700 feet of drop, or head, is required to create the necessary force to generate power. Southwest Virginia has many locations that meet this critical site characteristic. Furthermore, the region has an inventory of previously disturbed properties that have been reclaimed from surface mining and could serve as locations for the PSH system. These sites also offer co-location opportunities for wind and solar. Region One has the necessary assets to be a leader in the deployment of this technology, which would be a significant tool to attract high-tech business prospects seeking affordable renewable power.

The project team, which includes: Liberty University School of Engineering, LENOWISCO Planning District Commission, Virginia Department of Mines, Mineral and Energy (DMME), U.S. Department of Energy, Coalfield Strategies and Dominion Energy, seeks to validate this opportunity for Southwest Virginia by researching two topics: Identifying optimal areas within the region that can serve as locations for deployment of these systems and performing materials testing and analysis. The team will draw on recent DMME-led research that identified areas for renewable deployment by extending that search to include areas with viable relief. That will ensure the ability to co-locate other renewable generation assets. Additionally, because the proposed materials that will be used to build the system were not made specifically for PSH, testing has to be completed prior to deployment in order to ensure that the materials will hold up to operating stress.

Furthermore, this disruptive technology would help define Southwest Virginia as a hotbed for energy innovation for a number of reasons, including its ease of deployment, minimal land disturbance, low cost relative to other competitive battery applications and ability to pair with other renewable energy sources.

This project is funded with support from Coalfield Strategies via Dominion Energy funds ($10,000), DMME via U.S. Department of Energy funds ($37,500), GO Virginia ($50,000), the National Renewable Energy Laboratory ($100,000). The LENOWISCO Planning District Commission serves as the fiscal agent.

In August 2020, OnPoint Development Strategies was awarded the contract to perform location vetting and will partner with DMME. The teams kicked off their respective tasks beginning in September 2020 and completed their work by February 2022. For more information, visit: https://www.energydeltalab.org/project-energizer.

Critical Mineral Extraction

A team of nearly 50 public, private, academic and business professionals announced an initiative on March 16, 2022 to identify a path to the creation of a brand-new industry in central Appalachia, rooted in Virginia's southwest region. Evolve Central Appalachia (Evolve CAPP) focuses on harvesting the industrial, environmental and economic potential of rare earth elements (REE), critical minerals (CM) and high-value, nonfuel, carbon-based products – all out of waste coal. It launched today from its new laboratory in the Virginia Highlands Small Business Incubator in Abingdon, Virginia, provided for by the Washington County Industrial Development Authority.

Managed principally by Virginia Tech, through the Virginia Center for Coal and Energy Research (VCCER), Evolve CAPP has assembled academic, industry and policy experts in processing, geology, mining, infrastructure, waste and impoundments, carbon products, environment and economic development. The participants seek to leverage a decades-long legacy of Appalachian leadership in energy to generate a new industry and to create better environmental conditions in the Appalachian basin by accelerating waste coal clean up. Additional benefits include economic growth and job creation. Evolve CAPP will initiate the harvesting and processing of REE and CM from coal, coal sediments, coal ash, coal refuse and impoundments, acid mine drainage and other basin-specific resources in central Appalachia. At the same time, the initiative will connect these processes to the advancement of American competitive strength in the manufacturing, energy and climate sectors.

The initiative has identified *seven* objectives in this regard:

- Determine the quantity and distribution of resources in the region.
- Formulate strategies to utilize coal waste streams to produce useful fuels and materials.
- Evaluate regional infrastructure and identify industries that may benefit from REE and CM production.

- Develop strategies to encourage business development.
- Guide research and development of new technologies.
- Frame plans to establish technology innovation centers.
- Implement stakeholder outreach and education initiatives.

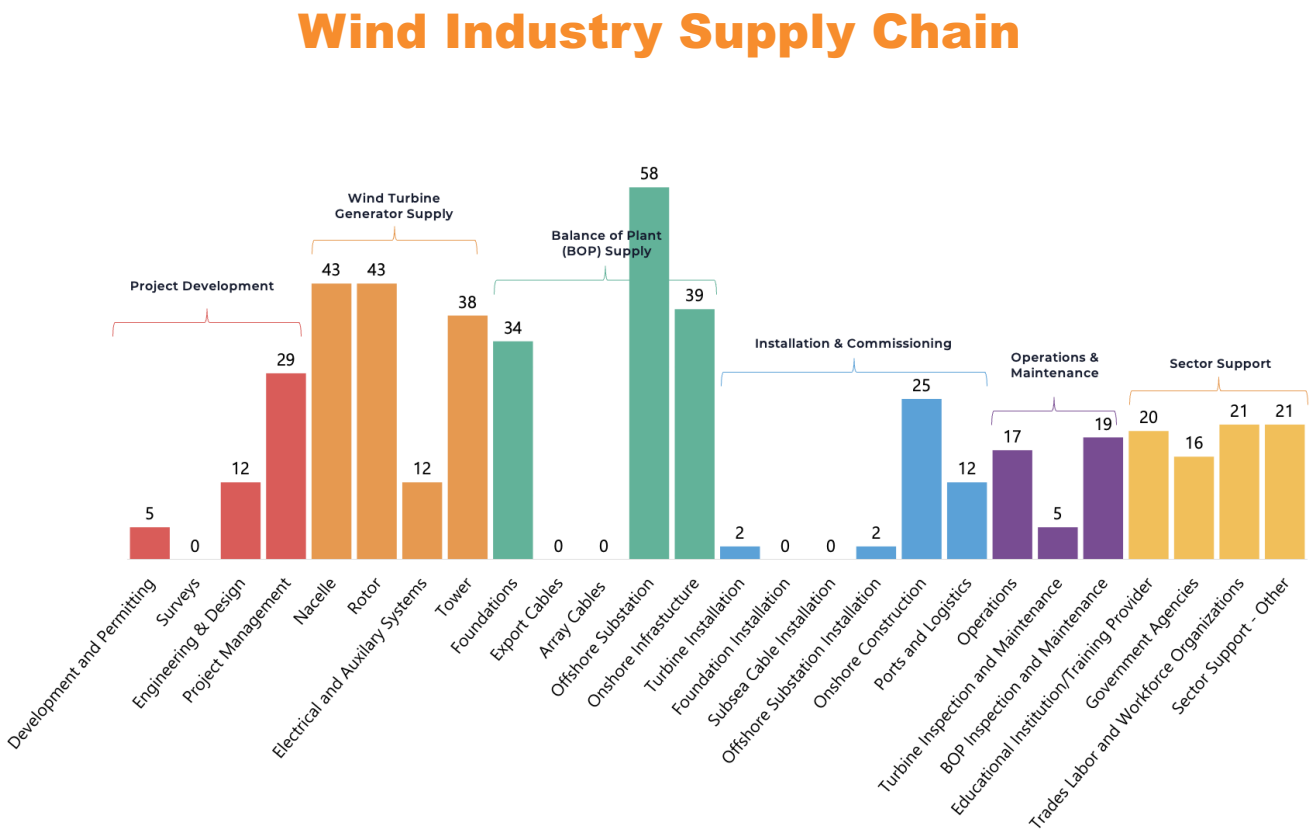
The Team

The U.S. Department of Energy provided the initial funding of $1.499 million to VCCER, and the Virginia Department of Energy provided a contract geologist to serve as an administrator of the project. The Virginia Tech team is led by Richard Bishop and Dr. Michael Karmis, and it includes Wencai Zhang (processing), Kevin Andrews and Gus Janson (geology), Nino Ripepi and Zach Agioutantis (mining), Danny Gray (waste and impoundments), Parans Paranthaman (carbon products), and Will Clear (economic development).

- Academic partners: West Virginia University, the University of Kentucky and Virginia's Mountain Empire Community College.
- Government research partners: the Virginia Department of Energy, the U.S. Geological Survey and Oak Ridge National Laboratory.
- Private research partners: Marshall Miller & Associates, Advanced Resources International, Crescent RI, Gray Energy Technologies and Southern States Energy Board.
- Economic development partners: InvestSWVA, Coalfield Strategies, LENOWISCO Planning District, Southwest Virginia Energy Research and Development Authority, the Virginia Highlands Small Business Incubator, the Industrial Development Authority of Washington County, Virginia, and Wise County, Virginia.
- Private technology partners: Ramco Carbon, Separation Technologies, Carbon Technology Company and Alios Pty Ltd.
- Power producing partners: Dominion Energy, Tennessee Valley Authority and American Electric Power.
- Energy producing partners: Alpha Metallurgical Resources, American Consolidated Natural Resources, Blackhawk Mining, Consol Energy, Coronado-Buchanan Minerals, EnerVest, Metinvest-United Coal Company, Ramaco Resources, Natural Resource Partners, Harrison-Wyatt & Buchanan Energy and Kentucky River Properties.
- Stakeholder advisors: Leon Boyd of Rocky Mountain Elk Foundation, Jason De La Cruz of Dominion Energy, Kevin Elkins of Buchanan Minerals, Joseph Fawbush, Mayor of the City of Norton, Frank B. Harrington of Alpha Metallurgical Resources, Neil Mosely of Blackhawk Mining, LLC, Will Payne of Coalfield Strategies, and Thomas Pruitt of Mineral Owners.

The Landscape

Today, it is actually less expensive to insource critical minerals than to produce them in the U.S. Countries that do not have the environmental or worker safety regulations, or may not be aligned with U.S. interests, still can get the minerals into the U.S. at less cost. Getting to critical minerals stateside is clearly an industrial priority, and because it will require facilities, a transportation network and a skilled workforce, a significant investment is warranted. The research already shows that the collateral benefit of cleaning up waste coal is a key aspect of a return on any investment extracting critical minerals from it. Besides satisfying the need to clean up waste coal, otherwise known as "gob", Southwestern Virginia's location in central Appalachia is perfect for domestic sourcing and shipment by rail and road to ports on the U.S. eastern seaboard.



Project Veer is leveraging the advanced manufacturing legacy of Southwest Virginia to explore entry points for the region's manufacturers into the onshore and offshore wind supply chains. The project team, which includes global energy consulting firm Xodus Group, is collaborating with industry experts, utilities Appalachian Power and Dominion Energy, public sector partners and GO Virginia Region One's economic and workforce development organizations as well as local companies poised

to enter this new market. Region One is the only GO Virginia region with energy and minerals as a target industry in its Growth and Diversification Plan. Project Veer builds on this priority by connecting the new energy economy to Southwest Virginia's manufacturers in search of ways to expand their businesses. In addition, Project Veer complements robust efforts currently underway by the Commonwealth of Virginia and the Hampton Roads Alliance to develop the U.S. East Coast offshore wind supply chain.

Background

While the project addressed both onshore and offshore wind supply chain needs, the offshore wind industry remains the priority, given the pipeline of projects in place along the East Coast. For this burgeoning industry, the American Wind Energy Association estimates up to 30,000 MW of capacity, 83,000 jobs, and $25 billion of annual economic output by 2030.

When fully constructed in 2026, Dominion Energy's Coastal Virginia Offshore Wind (CVOW) project off the cost of Virginia Beach will deliver up to 9.5 million megawatt hours per year of clean, renewable energy to the grid, powering up to 660,000 Virginia homes and avoiding as much as 5 million tons of carbon dioxide annually. The 2.6-gigawatt wind farm will be the largest offshore wind project in the United States. It will include up to 176 turbines and builds off of the current two-turbine pilot project which serves as the first installed in federal waters and the only one developed and owned by an electric utility.

The CVOW project also serves as a catalyst for a new domestic supply chain that will serve the U.S. East Coast wind industry, creating hundreds of good-paying clean energy jobs, millions in tax revenues and hundreds of millions in economic benefits. Additionally, Avangrid's 2.5-gigawatt Kitty Hawk Wind project off the cost of North Carolina helps create critical mass for Virginia's Hampton Roads region to serve as a strategic hub.

Furthermore, the Commonwealth of Virginia has set a goal of 30% by 2030 and 100% by 2050 for its electric energy to be provided by renewable sources. This creates a generational opportunity for Virginia to create a new workforce to support this industry. As the renewable energy goals will displace traditional sources of energy, the opportunity to upskill the workforce, drive diversity, equity and inclusion and create economic opportunity in GO Virginia Region One is paramount. Understanding the supply chain for renewable energy, where the gaps are and how to close those gaps will drive this development. Focused, organizationally-sound initiatives will come out of Project Veer's analysis to serve as an economic development roadmap.

Renewable energy developers need local partners to build out the industry and support projects. Developers and original equipment manufacturers look to local suppliers for a wide range of products and services, from highly technical components to services such as transportation in support of project delivery. There is a willingness by developers and their major suppliers to help local companies enter the industry and work with stakeholders to implement workforce development programs. Local support lowers risk and helps ensure the timely delivery of projects. It is important to note that inclusion in the supply chain may result in a local partner being involved in numerous projects, not just those in the Commonwealth.

Funding for Project Veer was made possible with funding from the GO Virginia Region One Council, the Virginia Tobacco Region Revitalization Commission and Coalfield Strategies with support from Appalachian Power and Dominion Energy.

Potential Identified

Xodus Group kicked off its work in December 2021 and delivered an interim report to the Authority on March 8, 2022 that offerered positive news for the region. The firm identified nearly 200 companies in Southwest Virginia as potential suppliers to the burgeoning offshore wind (OSW) industry supply chain. While major component manufacturing (nacelle, blades, towers, etc.) is not possible in the region due to scale and mass of structures, because water access is necessary for transportation, the region is well-positioned geographically and experientially to participate in the production of other, smaller components that can be delivered over roadways and railways.

Recommendations

Xodus Group presented its final report to the Authority on March 30, 2022. Detailed information can be found here: https://www.investswva.org/project-veer. Chief recommendations include the following:

1. Identify a major tier company to act as an anchor and an exemplar of the region, helping pave the way to relationships with global original equipment manufacturers (OEMs).
2. Launch a firm collaboration between the region's community colleges to focus on worker training and upskilling.
3. Form a partnership with the Hampton Roads Alliance (HRA), a Virginia entity and one of the nation's most prominent OSW business and investment attractors.
4. Designate a regional entity for positioning Virginia's Southwest and for acting as a single point of entry for the OSW opportunity.
5. Coordinate an approach for retaining the next generation of workers, including building awareness of the career potential in OSW.

Workforce Development Coalition

The presidents of four community colleges in Southwest Virginia today signed a memorandum of understanding (MOU) to collaborate on training and development actions in the offshore wind energy (OSW) manufacturing supply chain. This agreement fulfills one of the recommendations presented to the region by the Xodus Group, which performed research commissioned by InvestSWVA.

The MOU signifies that Mountain Empire Community College, Southwest Virginia Community College, Virginia Highlands Community College and Wytheville Community College will work together to promote, develop and expand the preparation of workers to enter the employ of regional supply chain manufacturers in the offshore wind energy generation sector.

Geothermal Cooling

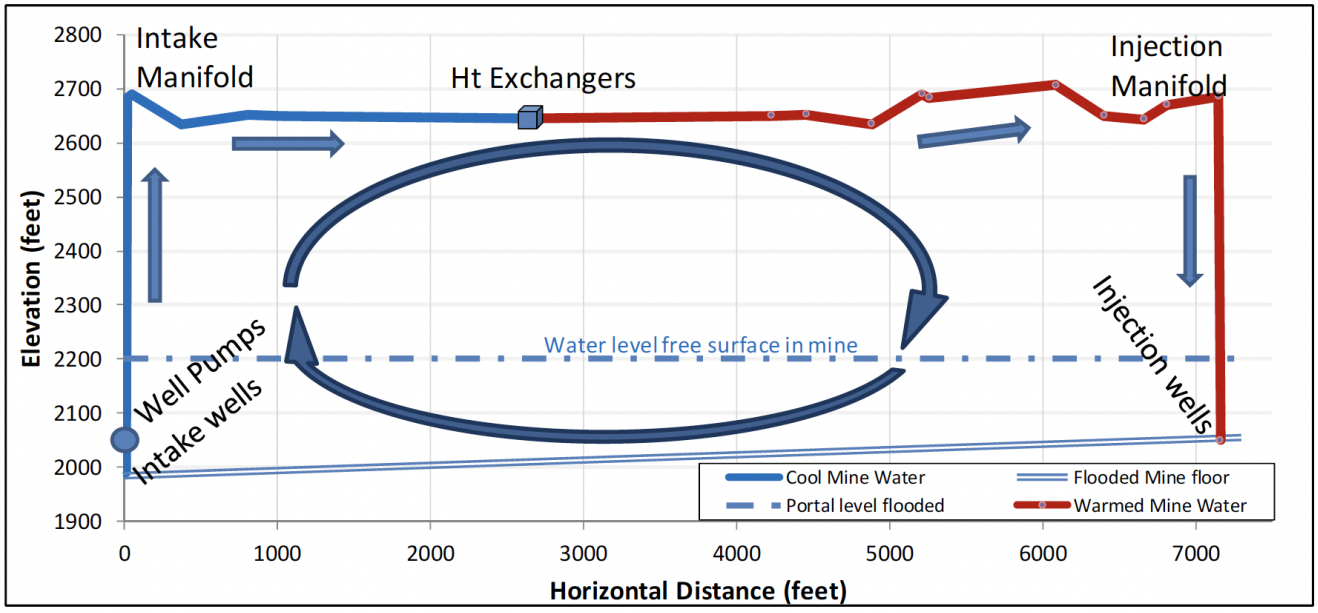


Figure 10: The hydraulically-closed system requires less pumping head

First introduced at an August 2019, Project Oasis identified and studied data center opportunities across GO Virginia Region One, particularly on previously mined land. The purpose of this InvestSWVA initiative was to provide third-party validation for the region to become the location of choice in the

Commonwealth for data centers based on power and broadband infrastructure as well as the use of innovative energy applications unique to Southwest Virginia.

The Virginia Department of Mines, Minerals and Energy played a strategic role in helping study the use of 51-degree mine pool water for HVAC cooling as a significant cost and energy-saving tool. We had the country's foremost geothermal experts on our team — PCCI out of Alexandria, Virginia — validating that concept along with the engineering firm, Marshall Miller & Associates.

This project assembled a data center "Dream Team" of Virginia experts with extensive backgrounds in site readiness, power assets, broadband, economic analysis and resiliency:

- Kent Hill of On Point Development Strategies was the project lead working with InvestSWVA. Hill is well known in the industry, having led Dominion Energy's economic development efforts many years;
- Fletcher Mangum and David Zorn of Mangum Economics;
- Vinay Nagpal of InterGlobix, our fiber expert; and
- Phillip Sandino of Data Energy Consulting, who served as Virginia's point person for COVID-19 response measures for the data center industry.

The Northern Virginia Technology Council and the Data Center Coalition offered guidance throughout the analysis. Furthermore, many other public and private organizations throughout the region stepped up in significant ways, including Appalachian Power, Dominion Energy, Old Dominion Power, Point Broadband, Scott County Telephone Cooperative, Tennessee Valley Authority and our regional and local economic developers.

This project was funded with support from DMME via non-state generated dollars ($50,000) and GO Virginia ($50,000). The LENOWISCO Planning District Commission served as the fiscal agent.

OnPoint Development Strategies was awarded the contract to perform a market analysis as well determine ideal locations in which to site projects with the assistance of DMME. PCCI partnered with Marshall Miller & Associates to determine the feasibility of mine pool water circulation used to augment data center cooling and calculate the impact of water circulation stress on mine stability. The team kicked off their respective tasks beginning in October 2019 and announced their findings on October 5, 2020.

Senators Mark Warner and Tim Kaine secured $1.5 million in the U.S. Senate Appropriations spending bill in 2022 to assist in accelerating this concept. An update will be provided at a later date.

Summary

The Project Oasis study found that Southwest Virginia is well-positioned for data centers because of land availability, geothermal cooling opportunities unique to the region, and workforce readiness and development. It also outlined policy and infrastructure changes that could be made by the region and state to make Southwest Virginia more attractive for data centers. The full report can be downloaded here: https://www.energydeltalab.org/project-oasis. Highlights from the study's executive summary are below:

Economic Impact

The economic and fiscal impact analysis that was conducted for Project Oasis estimated that a large data center locating in the region would result in over 2,000 jobs created during construction, 40 direct and 59 additional permanent jobs, $233 million in economic activity during construction, and over $50 million in economic activity annually once operations begin.

Land and Geothermal Cooling

As data center suitable real estate becomes increasingly scarce and extremely expensive in Northern Virginia, other parts of the state with abundant power and fiber infrastructure have seen increased interest from data center developers.

Data centers have unique site and infrastructure requirements. There are multiple sites within GO Virginia Region One that could be suitable for a large data center. An assessment of available publicly controlled sites in the region of 25 acres or larger was conducted utilizing current data center industry site selection criteria.

Six sites met the general criteria for a large 36 MW hyperscale data center, and four additional sites could be suitable for a smaller data center of up to 10 MW. Two of the sites have opportunities for geothermal cooling through utilization of 51-degree mine water contained in vast pools below the surface of previously mined properties. An additional site has underground space that provides a consistent 55-degree temperature. Both conditions maximize water utilization and make data center operations more sustainable.

The annual savings for a geothermal cooling system would be over $1 million annually in reduced electric costs and municipal water purchases. Factoring in savings for avoided maintenance and other costs for a conventional system, the mine water system would provide a favorable return on investment and result in net annual savings for the data center operator. Coalfield Strategies,

InvestSWVA's project development team, is currently working on a pilot project with the Southwest Virginia Energy Research and Development Authority utilizing available grant funding that could be presented to data center companies with significant sustainability goals.

The region provides a low-risk option from natural and man-made disasters and meets distance requirements for disaster recovery and back up from primary data center locations such as Ashburn, Richmond, and Boydton, VA (Microsoft). The electric transmission network that supplies the region has three transmission providers and is electrically diverse from data center hubs in Northern Virginia, Richmond, and North Carolina.

Sustainability

Most new renewable energy projects for data centers in the current market utilize solar energy, which requires a large land area (6-10 acres per MW). Southwest Virginia has ample previously mined properties suitable for solar development.

The availability of solar development potential, cost-effective geothermal cooling, and the region's desire to transform itself from a coal producing area to an innovative renewable energy hub, provides a compelling case for data centers who are increasingly mandating new facility locations that allow sustainability goals to be met.

Workforce

There is a reasonable pool of workers in the region with skills and training that are potentially transferrable to a data center environment. Wages for IT workers such as network architects and information security analysts are 17% less in GO Virginia Region One than the national average. Strong IT training programs and resources exist with the community colleges in the region and the University of Virginia at Wise.

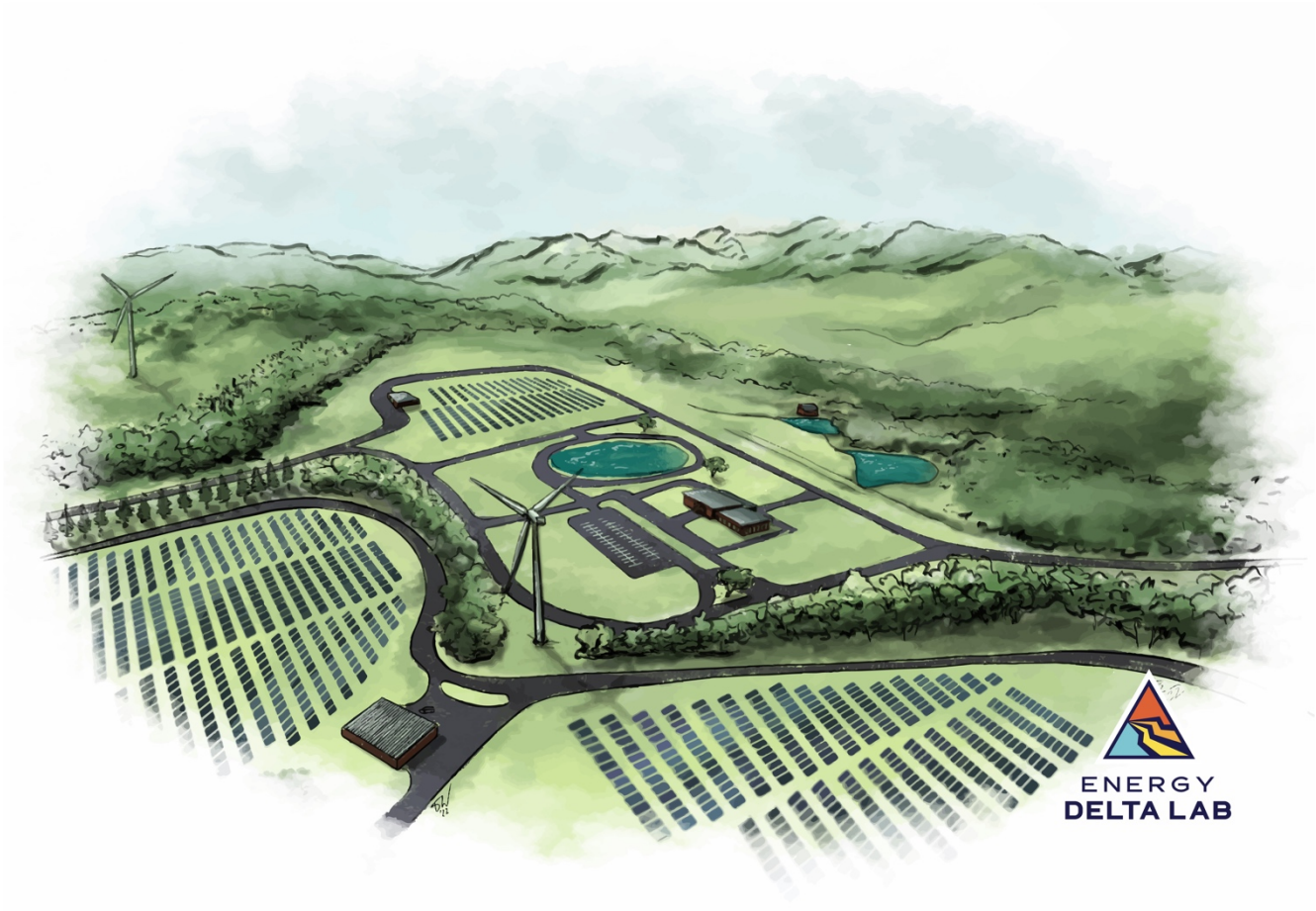
State and Local Incentives

In addition to Virginia's competitive statewide incentives, the Commonwealth allows a separate property tax rate to encourage investment (i.e. property tax on data center equipment). Prior to this analysis, no localities in GO Virginia Region One had a data center specific taxation class. However, discussions with local government officials in the region indicated a strong willingness to review tax structure for potential future changes that would make them more competitive. A tax rate and depreciation schedule that is competitive with localities such as Henrico County and Chesterfield County was deemed necessary to make the region a cost-effective alternative for this capital-

intensive industry. As a result, the Southwest Virginia member localities of the Lonesome Pine Regional Industrial Facilities Authority (Lonesome Pine RIFA), including Dickenson County, Lee County, City of Norton, Scott County, and Wise County, announced on March 2, 2021 an agreement on what is the Commonwealth of Virginia's lowest regional property tax rate on data center equipment. The regional partnership implemented a tax rate of $0.24 per $100 of assessed value with a favorable depreciation schedule, taking into account the capital cost of equipment and frequency of server replacement. This unified approach strengthens the region's business case and opens up the opportunity for revenue sharing.

A Construction Employment Tax Credit of 20% of wages paid for construction workers for a data center or similar capital-intensive project located in underserved and rural areas should be evaluated.

Innovative Energy Testbed



The Energy Discovery, Education, Learning and Technology Accelerator Lab, or Energy DELTA Lab (DELTA Lab), is a multi-site energy testbed over four years in the making that was introduced in the Virginia Energy Plan on October 3, 2022. The initiative, led by Authority chair Mike Quillen, is a collaborative effort by the Virginia Department of Energy, the Southwest Virginia Energy Research and Development Authority and its business development partner InvestSWVA. Lead private partners include Appalachian Power and Dominion Energy Virginia.

Background

The DELTA Lab's initial concept was designed by Dr. Michael Karmis, former director of the Virginia Center for Coal and Energy Research. Further study of the "lab" concept under the codename Project Innovation, including operations and site planning, was made possible by the LENOWISCO Planning District Commission via grants provided by the GO Virginia Region One Council and the U.S. Economic Development Administration.

With more than 100,000 acres of previously mined property, more than 9,000 gas wells, numerous mine cavities, and boundless water supplies, the region's diverse terrain, mineral and underground resources provide the ideal setting for the research and development as well as commercialization and deployment of new, burgeoning energy technologies, including hydrogen, mine-based geothermal, small modular reactors, innovative solar generation and advanced energy storage, including pumped-storage hydro.

At its core, the DELTA Lab is an economic development strategy to drive growth and diversify Southwest Virginia's economy. In the role of a broker, the Lab is working on $2B worth of projects, connecting energy companies with private landowners, assisting with siting and due diligence. The work that goes into these projects and the resulting energy assets will bring new opportunities to a region that has been significantly impacted by the downturn of fossil fuel production. This activity will ultimately create new career pathways for the region's workforce.

The DELTA Lab's initial testbed site in Wise County, which received a $975K AMLER grant, will be located on property currently owned by the Cumberland Forest Limited Partnership and managed by The Nature Conservancy. Governor Youngkin announced the Lab's second site in Wise County near the Town of Appalachian in October 2022 as part of a $2M AMLER grant.

Origin Story

During the 2019 General Assembly session, Delegate Terry Kilgore and the late Senator Ben Chafin patroned legislation creating the Southwest Virginia Energy Research and Development Authority.

The Authority was established for the purposes of promoting opportunities for energy development in Southwest Virginia, to create jobs and economic activity in Southwest Virginia consistent with the Virginia Energy Plan and to position Southwest Virginia and the Commonwealth as a leader in energy workforce and energy technology research and development. The Authority's enabling legislation included six goals, including: "Assist energy technology research and development by promoting the development of a Southwest Virginia Energy Park." (Virginia Code: 67-1600 – 67-1607).

Business Model Analysis

The "Energy Park" referenced in the Authority's enabling legislation — now referred to as the "Energy DELTA Lab" — has been incubating for several years thanks to the vision and leadership of internationally known energy scientist Dr. Michael Karmis, Authority member and former director of the Virginia Center for Coal and Energy Research.

Building on the work of Dr. Karmis and given the mission of the Authority, InvestSWVA worked with the Virginia Department of Energy and the LENOWISCO Planning District Commission in 2020 to undertake 'Project Innovation' in order to determine a sustainable operational model and identify lab sites around the region. The U.S. Economic Development Administration provided $100K in matching dollars to the GO Virginia Region One Council's $100K commitment.

The team set out to determine a business model that demands flexibility, accountability and lean operations. University research parks/labs in Virginia can and do charge a ~65% fee on grants for administration. That practice is wrong and counter to the goals of the DELTA Lab. For model to be successful, the team must accelerate research moving at the speed of business while directing funds to the implementation of projects, not excessive overhead.

Therefore, the team concluded that the DELTA Lab, set up as a 501c3 nonprofit organization, allows for a model that leverages strategic partnerships with minimal overhead in order to conduct business with expediency and appropriate oversight. There would be no bloat or long-term liabilities that would otherwise exist in a public body. As a 501c3, the DELTA Lab is governed by board of directors. The operations team includes:

- As chair of the board of directors, Mike Quillen provides strategic director and lends credibility and expertise, given his storied energy and educational legacy in the Commonwealth.
- Will Payne, managing partner of Coalfield Strategies, LLC, serves as Executive Director, leading operations and business development.
- Dr. Michael Karmis, former director of the Virginia Center for Coal and Energy Research, serves as senior technical advisor.

- Will Clear, Deputy Director of the Virginia Department of Energy, serves in an advisory capacity. His extensive private industry background in accounting, finance and business development in the natural gas industry has proved invaluable. Simply put, Will Clear is essential to the DELTA Lab's success.

For more information, visit: https://www.energydeltalab.org/.

Appendix A — Code of Virginia

Chapter 16. Southwest Virginia Energy Research and Development Authority.

§ 67-1600. (Expires July 1, 2029) Definitions.
As used in this chapter, unless the context requires a different meaning:

"Authority" means the Southwest Virginia Energy Research and Development Authority created pursuant to this chapter.

"Developer" means any private developer of an energy development project in Southwest Virginia.

"Energy development project" means an electric generation facility located within Southwest Virginia and includes interests in land, improvements, and ancillary facilities.

"Southwest Virginia" means the region of the Commonwealth designated as Southwest Virginia in § 22.1-350.

2019, cc. 555, 556.

§ 67-1601. (Expires July 1, 2029) Authority created; purpose.
The Southwest Virginia Energy Research and Development Authority is created as a body corporate and a political subdivision of the Commonwealth and as such shall have, and is vested with, all of the politic and corporate powers as are set forth in this chapter. The Authority is established for the purposes of promoting opportunities for energy development in Southwest Virginia, to create jobs and economic activity in Southwest Virginia consistent with the Virginia Energy Plan prepared pursuant to Chapter 2 (§ 67-200 et seq.), and to position Southwest Virginia and the Commonwealth as a leader in energy workforce and energy technology research and development. The Authority may also consult with research institutions, businesses, nonprofit organizations, and stakeholders as the Authority deems appropriate. The Authority shall have only those powers enumerated in this chapter.

2019, cc. 555, 556.

§ 67-1602. (Expires July 1, 2029) Membership; terms; vacancies; expenses.
A. The Authority shall be composed of 11 nonlegislative citizen members appointed as follows: Four members shall be appointed by the Governor, four members shall be appointed by the Speaker of the

House of Delegates, and three members shall be appointed by the Senate Committee on Rules. All members of the Authority shall reside in the Commonwealth.

B. Except as otherwise provided herein, all appointments shall be for terms of four years each. No member shall be eligible to serve more than two successive four-year terms. After expiration of an initial term of three years or less, two additional four-year terms may be served by such member if appointed thereto. Appointments to fill vacancies, other than by expiration of a term, shall be made for the unexpired terms. Any appointment to fill a vacancy shall be made in the same manner as the original appointment. The remainder of any term to which a member is appointed to fill a vacancy shall not constitute a term in determining the member's eligibility for reappointment.

C. The Authority shall appoint from its membership a chairman and a vice-chairman, both of whom shall serve in such capacities at the pleasure of the Authority. The chairman, or in his absence the vice-chairman, shall preside at all meetings of the Authority. The meetings of the Authority shall be held on the call of the chairman or whenever a majority of the members so request. A majority of members of the Authority serving at any one time shall constitute a quorum for the transaction of business.

D. Members shall serve without compensation. However, all members may be reimbursed for all reasonable and necessary expenses incurred in the performance of their duties as provided in §§ 2.2-2813 and 2.2-2825. Such expenses shall be paid from such funds as may be appropriated to the Authority by the General Assembly.

E. Members of the Authority shall be subject to the standards of conduct set forth in the State and Local Government Conflict of Interests Act (§ 2.2-3100 et seq.) and may be removed from office for misfeasance, malfeasance, nonfeasance, neglect of duty, or misconduct in the manner set forth therein.

F. Except as otherwise provided in this chapter, members of the Authority shall be subject to the provisions of the Virginia Freedom of Information Act (§ 2.2-3700 et seq.).

2019, cc. 555, 556.

§ 67-1603. (Expires July 1, 2029) Powers and duties of the Authority.
In addition to such other powers and duties established under this chapter, the Authority shall have the power and duty to:

1. Adopt, use, and alter at will an official seal;

2. Make bylaws for the management and regulation of its affairs;

3. Maintain an office at such place or places within the Commonwealth as it may designate;

4. Accept, hold, and administer moneys, grants, securities, or other property transferred, given, or bequeathed to the Authority, absolutely or in trust, from any source, public or private, for the purposes for which the Authority is created;

5. Make and execute contracts and all other instruments and agreements necessary or convenient for the exercise of its powers and functions;

6. Employ, in its discretion, consultants, attorneys, architects, engineers, accountants, financial experts, investment bankers, superintendents, managers, and such other employees and agents as may be necessary and fix their compensation to be payable from funds made available to the Authority;

7. Invest its funds as permitted by applicable law;

8. Receive and accept from any federal or private agency, foundation, corporation, association, or person grants, donations of money, or real or personal property for the benefit of the Authority, and receive and accept from the Commonwealth or any state, and from any municipality, county, or other political subdivision thereof and any other source, aid or contributions of either money, property, or other things of value, to be held, used, and applied for the purposes for which such grants and contributions may be made;

9. Enter into agreements with any department, agency, or instrumentality of the United States or of the Commonwealth and with lenders and enter into loans with contracting parties for the purpose of planning, regulating, and providing for the financing or assisting in the financing of any project;

10. Do any lawful act necessary or appropriate to carry out the powers herein granted or reasonably implied;

11. Leverage the strength in energy workforce and energy technology research and development of Virginia's public and private institutions of higher education;

12. Support the development of pump storage hydropower in Southwest Virginia and energy storage generally;

13. Promote the development of renewable energy generation facilities on brownfield sites, including abandoned mine sites;

14. Promote energy workforce development;

15. Assist energy technology research and development by, among other actions, promoting the development of a Southwest Virginia Energy Park; and

16. Identify and work with the Commonwealth's industries and nonprofit partners in advancing efforts related to energy development in Southwest Virginia.

2019, cc. 555, 556.

§ 67-1604. (Expires July 1, 2029) Annual report.
On or before October 15 of each year, beginning in 2020, the Authority shall submit an annual summary of its activities and recommendations to the Governor and the Chairmen of the House Appropriations Committee, the Senate Finance Committee, and the House and Senate Commerce and Labor Committees.

2019, cc. 555, 556.

§ 67-1605. (Expires July 1, 2029) Confidentiality of information.
A. The Authority shall hold in confidence the personal and financial information supplied to it, or maintained by it, concerning the siting and development of energy projects.

B. Nothing in this section shall prohibit the Authority, in its discretion, from releasing any information that has been transformed into a statistical or aggregate form that does not allow the identification of the person who supplied particular information.

C. Information supplied by or maintained on persons or entities applying for or receiving allocations of federal loan guarantees, as well as specific information relating to the amount and identity of recipients of such distributions, shall be subject to disclosure in accordance with the Virginia Freedom of Information Act (§ 2.2-3700 et seq.).

2019, cc. 555, 556.

§ 67-1606. (Expires July 1, 2029) Declaration of public purpose; exemption from taxation.

A. The exercise of the powers granted by this chapter shall be in all respects for the benefit of the citizens of the Commonwealth and for the promotion of their welfare, convenience, and prosperity.

B. The Authority shall be performing an essential governmental function in the exercise of the powers conferred upon it by this chapter, and the property of the Authority and its income and operations shall be exempt from taxation or assessments upon any property acquired or used by the Authority under the provisions of this chapter.

2019, cc. 555, 556.

§ 67-1607. (Expires July 1, 2029) Sunset.
The provisions of this chapter shall expire on July 1, 2029.

2019, cc. 555, 556.

Appendix B — Bylaws

SOUTHWEST VIRGINIA ENERGY RESEARCH AND DEVELOPMENT AUTHORITY

BYLAWS

Approved 9/30/19

ARTICLE I. APPLICABILITY

Section 1. General.

The provisions of these Bylaws are applicable to all proceedings of the Southwest Virginia Energy Research and Development Authority (the Authority) to the extent that the same are not inconsistent with the Code of Virginia or Executive Orders applicable to these proceedings. Whenever the provisions of these Bylaws are in conflict with the provisions of the Code of Virginia or an applicable Executive Order, the latter shall control.

Section 2. Authority and Limitations.

The Authority is constituted under Section 67-1601 of the Code of Virginia as a body corporate and a political subdivision of the Commonwealth of Virginia. The Authority is specifically charged with the duties and responsibilities set forth in Title 67, Chapter 16, of the Code of Virginia, primarily for the purposes of promoting opportunities for energy development in Southwest Virginia, to create jobs and economic activity in Southwest Virginia consistent with the Virginia Energy Plan prepared pursuant to Chapter 2 (§ 67-200 et seq.), and to position Southwest Virginia and the Commonwealth as a leader in energy workforce and energy technology research and development.

ARTICLE II. MEMBERS

Section 1. Membership.

The Authority shall be composed of 11 nonlegislative citizen members appointed as follows: Four members shall be appointed by the Governor, four members shall be appointed by the Speaker of the House of Delegates, and three members shall be appointed by the Senate Committee on Rules. All members of the Authority shall reside in the Commonwealth.

Section 2. Terms.

Except as otherwise provided herein, all appointments shall be for terms of four years each. No member shall be eligible to serve more than two successive four-year terms. After expiration of an initial term of three years or less, two additional four-year terms may be served by such member if appointed thereto.

Section 3. Vacancies.

Vacancies arising in the Authority shall be made in the same manner as the original appointment. The remainder of any term to which a member is appointed to fill a vacancy shall not constitute a term in determining the member's eligibility for reappointment.

Section 4. Reimbursement.

Members shall serve without compensation. However, all members may be reimbursed for all reasonable and necessary expenses incurred in the performance of their duties as provided in §§ 2.2-2813 and 2.2-2825. Such expenses shall be paid from such funds as may be appropriated to the Authority by the General Assembly.

ARTICLE III. OFFICERS

Section 1. Election of Chair and Vice-Chair.

The Authority shall elect a Chair and Vice-Chair at the beginning of its first meeting to serve for two-year terms.

Section 2. Vacancies.

Vacancies in the position of Chair or Vice-Chair shall be filled for the remainder of the term by voice vote or roll call vote of the Authority at the next meeting following the resignation of the former incumbent.

ARTICLE IV. MEETINGS

Section 1. Meetings.

The Authority shall meet three times per calendar year and may meet more frequently at the call of the Chairman. No business requiring a vote or final decision of the Authority may be conducted in the absence of a quorum, as defined below.

Section 2. Annual Meetings.

The regular meeting held in the fourth quarter of the calendar year shall be designated as an annual meeting. Elections of officers shall be held at the Annual Meeting.

Section 3. Committee Meetings.

The Authority may establish committees from time to time as needed to carry out the work of the Authority; provided, however, that all meetings of a committee consisting of more than two members of the Authority are open to the public and be preceded by the notice requirements set forth in Va. Code Section 2.2-3707 of the Virginia Freedom of Information Act, Va. Code Sections 2.2-3700 *et seq*.

Section 4. Special Meetings.

The Chair or any three members of the Authority may call a special meeting for specific purpose or purposes. No business shall be transacted at such special meeting except that expressly sent out in the notice of the special meeting.

Section 5. Notice of Meetings.

In all cases, the public shall be notified of meetings of the Authority at a time and in a manner consistent with the requirements of the current Freedom of Information Act, Va. Code Section 2.2-3707.

Section 6. Quorum.

For any meeting of the Authority, a majority of the members of the Authority shall constitute a quorum. If a quorum has not been achieved, the meeting of the Authority may proceed; provided, however, that voting on matters before the Authority shall be postponed until a meeting of the Authority at which a quorum is present.

Section 7. Conduct of Meetings.

The Chair of the Authority shall conduct the meetings of the Authority and shall rule on the interpretation and application of the Va. Code and these by-laws.

The Vice-Chair of the Authority shall preside over meetings of the Authority in the absence of the Chair. In the event that neither the Chair nor the Vice-Chair of the Authority shall be in attendance at a meeting where a quorum is nonetheless present, any member of the Authority may call the meeting to order, and the members present shall elect a Chair *pro tempore* to preside over the meeting.

All actions and decisions of the Authority shall be made upon the motion of a member, duly seconded by another member and approved by a majority of the members who are present and voting.

The Chair shall put the question submitted to the Authority for a voice vote and shall call for a vote only after determining that there are no more Authority members who wish to speak or upon approval of a motion to close debate.

Any member who may not participate in the Authority's consideration of a matter under the Virginia Conflict of Interest Act must comply with the disclosure requirements of the Act and not participate in the discussion or vote on the matter.

If it appears to the Chair, upon the voice vote being taken, that the members of the Authority are divided on any question, the Chair shall determine the vote of the members by roll call. A tie vote on any matter defeats the motion or issue upon which the vote is taken. At the conclusion of the vote on the motion, the Chair shall announce whether the motion has been adopted or defeated.

Section 8. Agenda.

The proposed agenda for any meeting shall be determined by the Chair in consultation with the Authority's staffing entity. In addition, any members of the Authority may suggest items to be included on the agenda.

The agenda for regular meetings of the Authority will normally include the following: (1) review and approval of the last minutes of the Authority; (2) a status report on the work plan and action items agreed to by the Authority; (3) a status report on projects; and (4) other information of interest to the Authority.

An opportunity shall be provided at each meeting of the Authority for public comment. Any person who desires to speak will be asked to provide his or her name and the matter to be addressed prior to each meeting at which the public is able to comment.

Section 9. Authority Requests for Staff Assistance.

Any Authority member may request assistance from the Authority's staffing entity, provided the request has been coordinated through the Chair or Vice-Chair of the Authority.

Section 10. Amendments.

The by-laws of the Authority may be amended at any regular meeting of the Authority at which a quorum is present by a majority vote.

ARTICLE V. BYLAWS

Section 1. Effective Date.

These Bylaws shall take effect immediately upon adoption by the Authority.

Appendix C — In the News

The Authority and its work appeared in the following news stories
(listed chronologically with full articles below)

Study Examines How Southwest Va. Can Be Part of Offshore Wind Supply Chain
By Sarah Vogelsong, *Virginia Mercury*, December 14, 2021

InvestSWVA Launches Project Veer to Connect Equipment Manufacturers with Partners
By Catherine Schulte, *Virginia Business*, December 14,2021

Study Will Look at Potential for Southwest Virginia Role in Wind Energy Business
By Megan Schnabel, *Cardinal News*, December 14, 2021

Southwest Virginia Looking to Join Wind Energy Supply Chain
WCYB, December 14, 2021

Catching The Wind: Project Veer Studies Ways SW Va. Can Get Into Offshore Wind Energy Business
By Mike Still, *Kingsport Times-News*, December 14, 2021

Project to Bring Wind Energy Manufacturers to Virginia Kicks Off
By David McGee, *Bristol Herald Courier*, December 14, 2021

Could Southwest Virginia Be a Center for Wind Turbine Manufacturing
By Dwayne Yancey, *Cardinal News*, December 21, 2021

Data Center Recruitment Continues in Southwest Virginia
By Mike Still, *Kingsport Times-News*, February 25, 2022

Project Veer Update: 'Now is the Time' for Southwest to Look at Offshore Wind Energy
By Megan Schnabel, *Cardinal News*, March 9, 2022

Evolve CAPP to Explore Critical Mineral Production in SW Virginia
By David Ongie, *The Business Journal of Tri-Cities TN/VA*, March 15, 2022

Group Works to Identify Area's Mineral Assets
By David McGee, *Bristol Herald Courier*, March 16, 2022

Coal Waste Project Launches in SW Va.
Katherine Schulte, *Virginia Business*, March 16, 2022

Can Waste Coal Help Build Cellphones and Rechargeable Batteries
By Megan Schnabel, *Cardinal News*, March 16, 2022

Recycling Coal: E-CAPP Looks at Coal Waste for Strategic Minerals Supply
By Mike Still, *Kingsport Times-News*, March 17, 2022

Community Colleges of Southwestern Virginia Force Agreement to Prepare Regional Workers for Wind Energy Manufacturing Supply Chain
InvestSWVA Press Release, March 30, 2022

Former Mine Sites in Southwest Virginia to be Labs for Energy Technology Testbed
By Susan Cameron, *Cardinal News*, October 4, 2022

New Energy Innovation Project coming to Wise County
By David McGee, *Bristol Herald Courier*, October 4, 2022

Energy Technology Testbed Will be Developed in SW Virginia
By Pat Thomas, *WDBJ 7*, October 4, 2022

Energy Demonstration Sites Slated for Wise County
By Mike Still, Kingsport *Times-News*, October 6, 2022

Study Examines How Southwest Va. Can Be Part of Offshore Wind Supply Chain

By Sarah Vogelsong
Virginia Mercury
December 14, 2021

A Southwest Virginia public-private partnership is launching a study to see how the historically coal-dependent region can become part of the supply chain for the offshore wind industry as it takes root in Hampton Roads and up and down the East Coast.

“This is one of those rare moments when you have a new market opportunity, and why should we sit on the sidelines because we’re on the opposite side of the state here?” said Will Payne, director of InvestSWVA, the initiative spearheading the study.

The study, christened Project Veer, will be carried out with energy consulting firm Xodus, which also conducted a detailed 142-page supply chain analysis for the Hampton Roads Alliance.

In total, Project Veer is expected to cost $92,500. More than half of that, $49,750, will be funded by a grant from the regional arm of GO Virginia, a state economic development program. The remainder will come from the Tobacco Region Revitalization Commission and Payne’s consultancy, Coalfield Strategies.

The study will examine how local equipment manufacturers, developers and service providers can fit into the burgeoning wind energy industry, and particularly offshore wind. Payne said it would also focus on transportation infrastructure — “Rail is going to be key,” he said — and workforce availability.

“Don’t think just because you’re not on the coast there’s not an opportunity,” Xodus Head of Strategy and Market Development Jeff Tingley told the Southwest Virginia Energy Research and Development Authority Tuesday. “I’ve talked to the major wind turbine manufacturers, foundation manufacturers, et cetera, and they are very open to looking across a whole state.”

President Joseph Biden has set a target for U.S. offshore wind development of 30 gigawatts by 2030, which government estimates say will result in $12 billion of capital spending annually and more than 44,000 direct industry jobs.

Virginia, like many other East Coast states, has been racing to develop those wind resources. The 2020 Virginia Clean Economy Act requires the state’s power grid to be 100 percent carbon-free by 2050 and

sets a goal of developing 5.2 gigawatts of offshore wind by 2034. Dominion Energy, the state's largest electric utility, already has plans underway to build the 2,600 megawatt Coastal Virginia Offshore Wind project off the coast of Virginia Beach.

The state's push has reaped some immediate results. This October, Spanish-German wind manufacturer Siemens Gamesa chose the Portsmouth Marine Terminal as the location for the United States' first turbine blade facility.

However, Payne said, "the supply chain won't be exclusive to Hampton Roads, and there are likely components that our manufacturers could make."

Large industrial mining operations "understand the scale of the kind of components we're talking about for on- or offshore wind turbines," he added. "I don't think they will shy away from doing something big."

Project Veer's timeline calls for the study to be finalized by the end of March. Partners include the Hampton Roads Alliance, Dominion and Appalachian Power.

https://www.virginiamercury.com/blog-va/study-to-look-at-how-southwest-va-can-be-part-of-offshore-wind-supply-chain/

InvestSWVA Launches Project Veer to Connect Equipment Manufacturers with Partners

By Katherine Schulte
Virginia Business
December 14, 2021

Public-private campaign InvestSWVA announced Tuesday the launch of an economic development initiative designed to help Southwest Virginia manufacturers find entry points in the supply chain for wind energy equipment components.

The initiative, called Project Veer, will connect Southwest Virginia manufacturers with industry experts, public sector partners, the Hampton Roads Alliance, Dominion Energy Inc., Appalachian Power and GO Virginia Region One's economic and workforce development organizations.

Construction on Dominion's 2.6-gigawatt Coastal Virginia Offshore Wind (CVOW) project will begin in 2024. Dominion plans to build the 180 wind-turbine farm 27 miles off the coast of Virginia Beach. Two turbines have been built as pilots.

"Dominion Energy Virginia is actively engaging business communities to bring offshore wind supply chain economic opportunities to all regions of the commonwealth," John Larson, Dominion Energy director of public policy and economic development, said in a statement. "We look forward to working with Project Veer to tap into the strong manufacturing legacy of Southwest Virginia to help the region capitalize on the growing wind energy industry."

Project Veer builds on recommendations from a study conducted by the Hampton Roads Alliance that exposed gaps in the supply chain and defined how manufacturers could fill them. The alliance worked with Aberdeen, Scotland-based energy consulting firm Xodus Group Ltd., which is part of the project team, and Carlsbad, California-based BW Research Partnership to assess the offshore wind supply chain and conduct a gap analysis for the Hampton Roads metropolitan area and Southern Virginia.

"Renewable energy developers and original equipment manufacturers (OEMs) need partners who produce quality components and deliver them on time," Will Payne, managing partner of Coalfield Strategies and project lead for InvestSWVA, said in a statement. "We have partners who fit this bill in Virginia's Southwest. Now we have some infrastructure to help them explore their entry into the burgeoning wind energy market, while leveraging the energy industry experience many of them already possess."

The project received funding from the GO Virginia Region One Council, the Virginia Tobacco Region Revitalization Commission and Coalfield Strategies.

InvestSWVA is a public-private business research, attract and marketing campaign launched under the umbrella of the Virginia Tobacco Revitalization Commission, a 28-member body created by the General assembly in 1999 to promote economic growth and development in tobacco-dependent communities using proceeds of the national tobacco settlement.

https://www.virginiabusiness.com/article/southwest-va-project-will-help-manufacturers-enter-wind-energy-supply-chain/

Study Will Look at Potential for Southwest Virginia Role in Wind Energy Business

By Megan Schnabel

Cardinal News
December 14, 2021

Can Southwest Virginia capture any of the economic benefits from the massive wind farms that are being built hundreds or even thousands of miles away?

A project announced Tuesday is designed to find out.

Project Veer will examine whether, and how, manufacturers in the state's far southwest corner can become part of the wind energy supply chain, as large wind farms take shape in the U.S. and off its shores, driving a growing need for turbine components.

"This is one of those rare moments where you have a new market for manufacturers to jump in, and if we aren't aggressive, we're going to miss it," said Will Payne, director of InvestSWVA, which designed the project.

"No one in this region today knows really what the opportunities are," he said.

According to the U.S. Department of Energy, the average utility-scale wind turbine is made up of roughly 8,000 parts. While some of those components have to be made as close as possible to the wind installation – turbine blades, for instance, are too large to be transported long distances over land – other pieces could be manufactured pretty much anywhere, Payne said. So why not Southwest Virginia?

"If we aren't aggressive, we're going to miss it," he said.

The project, which was announced at a meeting of the Southwest Virginia Energy Research and Development Authority, will follow on work done earlier this year by the Hampton Roads Alliance, whose similar study found gaps in the wind energy supply chain and looked at how manufacturers could fill them.

Between now and March, Xodus, an energy consulting firm, will examine wind energy supply chain needs and Southwest Virginia's region's existing manufacturing infrastructure. It will meet with economic development and workforce officials in the region and will put out a call for manufacturers that might want to diversify.

Payne said he expects initial interest will come from companies that work with the coal industry; because they already manufacture large pieces of equipment, they'll understand the scale of this kind of infrastructure, he said.

Project backers hope to come out of the study phase with a sense of where Southwest Virginia should focus its efforts.

"We want to manage expectations, but we believe that this market analysis will identify green lights here for the region for certain components," Payne said.

The study will be funded by $49,750 from GO Virginia, $30,000 from the state Tobacco Commission and $12,750 from Coalfield Strategies, Payne's economic development consulting firm.

Other project team members include the Hampton Roads Alliance, Appalachian Power Co. and Dominion Energy, which is building a utility-scale wind farm 27 miles off the coast of Virginia Beach that's expected to be operational by 2026. It will include up to 180 turbines. (Dominion is a major donor to Cardinal News; donations have no influence on editorial policy.)

Dominion and Appalachian both are facing a state mandate to move away from fossil fuel-fired electricity production and toward alternatives such as wind and solar: The state's 2020 Clean Economy Act requires that all electricity consumed in Virginia must be generated from renewable sources by 2050.

The growth and diversification plan for GO Virginia Region One, which includes 16 localities in Southwest Virginia, cites energy and minerals as a target industry.

Another effort to harness Southwest Virginia's coal manufacturing legacy for a new economy industry is already in progress. The Energy Storage and Electrification Manufacturing Jobs project, headed by Appalachian Voices, is working with four Tazewell-area companies to pivot from manufacturing for the coal industry to producing components for the clean energy sector, such as electric vehicles.

https://cardinalnews.org/2021/12/14/study-will-look-at-potential-for-southwest-virginia-role-in-wind-energy

Southwest Virginia Looking to Join Wind Energy Supply Chain

WCYB

December 14, 2021

Southwest Virginia officials are looking for ways to join the wind energy supply chain.

Invest Southwest Virginia announced a partnership with consulting firm Xodus on Tuesday, to study how potential manufacturers in the region could begin work in the alternative energy source.

The firm formerly worked with the Hampton Roads region to develop an off-shore wind energy assessment.

Leaders from our region are hoping experience from large coal mining operations will lead to success in future wind energy projects, which are transitioning from Europe to the United States.

The study is expected to be completed by March.

It is funded by Go Virginia and The Tobacco Commission, in addition to private contributions.

https://wcyb.com/news/local/southwest-virginia-looking-to-join-wind-energy-supply-chain

Catching The Wind: Project Veer Studies Ways SW Va. Can Get Into Offshore Wind Energy Business

By Mike Still
Kingsport Times-News
December 14, 2022

Southwest Virginia economic development officials hope to get a better idea early next year how the region's businesses can become suppliers to offshore wind energy projects in the next decade.

Southwest Virginia Energy Research and Development Authority members heard about the opening stage of Project Veer, an initiative among economic development partnership InvestSWVA, the Virginia Tobacco Commission, state economic development organization GO Virginia, and marketing firm Coalfield Strategies.

Coalfield Strategies managing partner Will Payne said Veer is similar to Invest SWVA's earlier Project Oasis, an assessment of potential data center sites in the region based on availability of underground mine cooling water resources or site potential for solar power arrays.

Jeff Tingley, strategy and marketing chief for energy consulting firm Xodus, came to the Southwest Virginia Higher Education Center to explain the broader opportunities for the region's manufacturing and education sectors.

Tingley showed authority members via a slide presentation that 11 offshore wind turbine power projects are either in development or being planned now. Federal energy agencies hope to see 30 gigawatts of electric power production from those sources by 2030, he said, but the projects he mentioned could produce as much as 40 gigawatts of energy.

Project Veer begins with a four-month study of how Southwest Virginia businesses, education/training resources and stakeholders can grasp opportunities to supply skilled labor and components for wind turbines and generation equipment. Tingley said Xodus will handle the study.

Tingley said Project Veer stems from another study requested by the Hampton Roads Alliance, a Tidewater region economic development organization seeking details of supply chain gaps for Virginia offshore wind energy projects. Southwest Virginia has good, direct road and rail links to port facilities in Norfolk from decades of shipping coal to Norfolk ports, he said, and those transportation links give the region's manufacturers an advantage if they can produce components needed for turbines and associated machinery and power systems.

"We can either jump in early or sit and let it go by us," Tingley said.

A typical wind energy project takes about 10 years from initial planning to construction, Tingley told the authority, and that means setting up training programs and manufacturers' planning time frames to mesh properly with those projects.

Much of the technology and labor classification for wind energy projects in the U.S. comes from European technology and energy firms, Tingley said. An electrician under U.S. labor standard classifications may not be the kind of electrician needed to install turbine equipment and transmission systems, he said, and welders for those projects will need higher standards of training.

Some East Coast community colleges have developed training programs to meet wind energy project requirements, Tingley said, and those programs can be adapted by Southwest Virginia colleges.

"They are dying to find a local supply chain," Tingley said of European firms working on U.S. wind energy projects.

"We are building a new industry in this country from the ground up," said Virginia Department of Energy Chief Deputy Director Jennifer Palestrant, joining the meeting remotely.

Tingley said the Veer study will involve matchmaking between colleges and businesses in the region and energy project contractors to see what the region can supply.

Tingley said the study schedule calls for three sections: a market analysis of the region by mid-January 2022, identifying the region's available supply chain by February, identifying stakeholders in the effort by early March, and a draft and final report to the authority by late March.

"This may be a wakeup call in some areas and you may be pleasantly surprised in others," Tingley added.

https://www.timesnews.net/news/local-news/catching-the-wind-project-veer-studies-ways-sw-va-can-get-into-offshore-wind-energy/article_165d9ff6-5d23-11ec-b4bd-ff4cdd1e457b.html

Project to Bring Wind Energy Manufacturers to Virginia Kicks Off

By David McGee
Bristol Herald Courier
December 14, 2021

A project designed to help Southwest Virginia manufacturers become part of the expanding wind energy industry kicked off Tuesday.

Labeled Project Veer, it will begin with a study discussed during Tuesday's meeting of the Southwest Virginia Energy Research and Development Authority, held at the Southwest Virginia Higher Education Center in Abingdon.

The project is being run by InvestSWVA with funding from the GO Virginia Region One Council, Virginia Tobacco Region Revitalization Commission and Coalfield Strategies.

"As you know, the supply chain is focused in Europe, but as we see development of 30 to 40 gigawatts of wind along the East Coast, that supply chain will move to the United States," said Will Payne, project lead for InvestSWVA. "This is one of those unique times where you have a new industry coming to America, and we can either jump in early, or we can sit and watch it go by us."

Dominion Energy, for example, is engaging business expansion opportunities as part of its efforts to establish offshore wind power production off the Virginia coast.

In a written statement, John Larson, Dominion's director of public policy and economic development, said the company hopes to work with all regions of Virginia.

"We look forward to working with Project Veer to tap into the strong manufacturing legacy of Southwest Virginia to help the region capitalize on the growing wind energy industry," Larson said in the statement.

Jeff Tingley, head of strategy and market development for Xodus Group — the energy consultancy firm retained for this project — told the authority the opportunities are substantial.

"The current studies by the government say the 30 gigawatts of off-shore winds the federal government has set as a goal by 2030 will result in $80 billion of capital expenditures and 70,000 jobs," Tingley said. "So this is not a short-term opportunity, and it is a marathon not a sprint. These projects go out to 2030, 2040 and beyond, so it really is a generational opportunity."

And each wind turbine is composed of 8,000 separate parts, he said.

Earlier this year, Xodus worked with the Hampton Roads Alliance on a similar study for that area. It provided in-depth offshore wind supply chain assessment for Hampton Roads and southern Virginia, showing requirements of companies, identified key sectors, assessed strengths and weaknesses of that market and helped develop a plan.

Tingley is embarking on a similar study that he plans to present in March.

"The goal is to really look at the pathway your area can take to participate in this industry. It's all about creation of jobs, creation of employment; it's the building of industry," Tingley said.

Authority Chairman Mike Quillen, a former, longtime mining executive, said, "The purpose of this work is that we get a plan to go forward and not everybody is out in their silos spinning their wheels. It's going to take coordination, and that's what this plan does. … We recognize we're not going to be all things to all people. We need to figure out what we would be good at."

This effort is expected to show who and what would be a good fit because many area businesses and workers already have the basic capabilities.

"I think what it's going to take is the identification of where in the supply chain you fit and how to meet those goals — not for a project but the industry, so you can supply over multiple projects," Tingley told the Bristol Herald Courier after his presentation.

Businesses in this region will compete with other parts of the country and the world to capture a share of this market.

Some components will have to be assembled at the coast — such as the massive blades and towers — but the components that go into them could be made elsewhere.

"There is not a single area of the country or a single economic region that has everything," Tingley said. "For Southwest Virginia, the goal of the study is to identify those gems and make sure they are connected to the proper people whom those goods and services are valuable to.

"Europe is probably 25 years ahead of the U.S., but we're going to catch up within 10. So there is a desire for European countries looking for U.S. partners," Tingley said. "They would much rather have it here than ship it over. … If I have a vendor down the street, I have a lot more control over when I can get things and limit my risks."

https://heraldcourier.com/business/local/project-to-bring-wind-energy-manufacturers-to-virginia-kicks-off/article_4e6f0be2-5d5e-11ec-bf2f-93de0313098b.html#tracking-source=home-top-story-1

Could Southwest Virginia Be a Center for Wind Turbine Manufacturing

By Dwayne Yancey
Cardinal News
December 21, 2021

In 1957, Austin, Texas, was smaller than the Roanoke Valley is today and, like much of the rest of Texas, saw its economy go boom and bust depending on oil prices.

Austin, at least, had the state capital to rely on – government never goes out of business – but this was an unsatisfactory situation for some community leaders. That year the Austin Area Economic Development Foundation commissioned a study that said the region should focus on attracting manufacturers of electric and scientific equipment. Manufacturing of any kind was not a major force in Austin at the time, so this recommendation might have struck some as unusual – or futuristic. A decade later, IBM opened a factory for electric typewriters in Austin. Then came a Texas Instruments

plant in 1969 – the company was cutting-edge then, having just invented a revolutionary device known as a handheld calculator. Motorola arrived in 1974. Fast forward to today: Austin now is a recognized global technology capital.

That did not happen accidentally. Austin's status as the Silicon Hills, as some call this part of the Texas Hill Country, can all be traced back to that 1957 study and the actions that flowed from it.

Why does this matter to us? Because last week it was announced that a study is underway to determine whether Southwest Virginia could become a center for manufacturing wind turbines or any of their 8,000 (!) parts. (For all the details, see this story by Cardinal's Megan Schnabel.)

Soon after we published her story, I heard from someone who pooh-poohed the whole idea. The world is full of critics. However, we know one thing for certain: These wind turbines will be made somewhere. Why not here? The U.S. Department of Energy says that "more wind energy was installed in 2020 than any other energy source, accounting for 42% of new U.S. capacity." The department also forecasts that the amount of wind energy will double by 2030 and nearly quadruple by 2050. We in Virginia don't have a good sense of this because we are one of the few states that doesn't have any on-shore wind – Grace Mamon reported on that here. However, in Iowa, 57% of the state's power now comes from wind. In four other states – Oklahoma, Kansas, South Dakota and North Dakota – the figure tops 30%. (If you're scoring this politically, notice that all those states are quite Republican so their conversion to wind energy isn't the result of green energy politics, just good, old-fashioned practicality.) Virginia's not in Wind Alley like those states are, but the Center for the Advancement of Sustainable Energy at James Madison University says parts of western Virginia have sufficient wind to be economically feasible.

Whether Virginia ever has on-shore wind or not (we already have off-shore wind, with the promise of more), other states will have wind and we come back to the essential question that the Southwest Virginia study will address: What would it take to get some of that wind turbine manufacturing here? There's already one wind turbine manufacturer headed to Portsmouth. What about a little further west? The skeptic who emailed me suggested Southwest Virginia doesn't have enough natural gas to be a major manufacturing center. Don't know. Not my area of expertise. Presumably that's something the study will tell us, eh?

Instead of jumping ahead to conclusions that haven't been reached yet, I'd like to focus on something else, something that communities beyond Southwest Virginia could benefit from: the intentionality of Southwest even asking the question. Maybe there's no particular reason why these parts should be manufactured there, but, as Woody Allen once said, 80% of life is simply showing up. Southwest

Virginia here is showing up which, if it winds up pursuing this, will give it an advantage over all the places that aren't showing up.

That, of course, raises the question of why they're not. Future generations will suffer from their inaction.

Many economies – even many strong ones – have happened accidentally. Silicon Valley is the prime example. Nobody mapped that out or planned it. Silicon Valley just happened, the confluence of a lot of happy accidents dating back to the late 1800s when the port at San Francisco made it a western center for the telegraph industry. Others, though, are more intentional. In the 1980s, Pittsburgh saw its signature steel industry collapse. "In an eight-year span, from 1979 to 1987, the Pittsburgh region lost 133,000 manufacturing jobs," the Pittsburgh Post-Gazette reports. Community leaders set out to change that – not by trying to bring back steel, which was gone, but by creating a new economy. Today, Pittsburgh is regarded as something of a poster child for cities trying to create a new economy – in Pittsburgh's case, health care and technology. Pittsburgh, of course, has a lot of similarities to Virginia's coalfields – both in Appalachia, both having seen traditional industries wither away. The only difference is one of scale – and Pittsburgh having a lot more universities. And Pittsburgh started its rebuilding work a lot earlier.

Closer to home, Danville is another community that has been very intentional about building a new economy. It hit rock bottom just after the turn of the 21st century when textiles collapsed. More recently, it's been trying to establish itself as a center for advanced manufacturing. (Amy Trent had a story about that here.) We see the Roanoke and New River valleys becoming very intentional about life sciences, and the New River Valley becoming very intentional about autonomous vehicles. Not all those were created out of someone's imagination; they built upon some foundation already there. Building a wind turbine manufacturing industry in Southwest Virginia might seem fantastical but it's not: A lot of skills and trades that were involved in coal mining might well be transferable – coal mining isn't about hacking at rock with a pick-axe, it's about mechanics and electricians and welders and fabricators and you name it. That's one reason why those jobs were so well-paid and why they are so difficult to replace as coal goes away.

Last year, the outgoing mayor of Pittsburgh looked even further down the road: He and a coalition of other mayors in the Ohio River Valley, all the way to Louisville, proposed that the region try to establish itself as a manufacturing center for the renewable energy industry. The mayors saw the likely loss of 100,000 jobs in the region that are tied to fossil fuels; why not get ahead of things and try to make sure the growing renewable energy industry is based there? I suggested then that localities on this side of the Appalachians should take their cue from that and try to do the same thing; I proposed a summit of localities from Lynchburg to Lee County. I heard nothing. I still think that's a

good idea. At least, here's part of that region that's already doing something. A side note: Here's a golden, or perhaps green, opportunity for our new governor-to-be. Glenn Youngkin says he wants a "rip-roaring" Virginia economy; he's also politically indebted to this part of the state, where turnout surged on his behalf. He could convene such a summit and more formally, and emphatically, declare that the region is open for business, specifically the renewable energy business.

There's a moral case to be made here, of course: The economy, left to its own devices, is already undermining coal as renewables become cheaper but through our policies (such as the Clean Economy Act), we are intentionally – there's that word again – accelerating its demise. To me, that's an argument for making sure that the jobs that replace coal are in coal country, otherwise we're telling a whole section of the country there's no longer a place for them in the economy, which is another way of saying there's no place for them in society. That's a fine argument for an opinion writer to make; it's far harder to make happen in the real world where companies make decisions based on the bottom line. Acme Wind Turbine Inc. has to satisfy its shareholders, who probably care a lot more about their dividends than whether out-of-work coal miners in some place they've never been can easily transition to another job. But as governor, Youngkin will soon become responsible for trying to make that happen. Best of all, here's somebody with a plan.

Is it a good plan? It seems so to me but the important part is that there's a plan at all. I am reminded of the advice laid down by Gen. George Patton: "A good plan violently executed now is better than a perfect plan executed next week."

The real question is how many communities don't have plans at all and why not?

https://cardinalnews.org/2021/12/21/could-southwest-virginia-be-a-center-for-wind-turbine-manufacturing/?

Data Center Recruitment Continues in Southwest Virginia

By Mike Still
Kingsport Times-News
February 25, 2022

Southwest Virginia economic development officials are still pitching the region as a prime locale for date centers.

LENOWISCO Planning District Executive Director Duane Miller says a study completed two years ago by economic development marketer InvestSWVA is helping recruitment efforts for data center operations.

The study — Project OASIS — inventoried six potential sites that can provide seven advantages for locating centers in the three westernmost Virginia planning districts:

- Access to relatively low-cost and redundant electric power networks;
- Proximity to telecommunications and Internet connection hubs;
- Low risk of weather events or other natural disasters;
- Favorable business/taxation conditions;
- Ability to be developed rapidly;
- Quality of life for employees.

Two of the sites are in the LENOWISCO district, said Miller: Lonesome Pine Technology Park in Wise County and the Sunbright Mine site in Scott County. Another site — Dickenson County's Red Onion mine site — is near Wise County and falls within the Lonesome Pine Regional Industrial Facilities Authority's area.

"What's made us competitive in the recruitment that's happening right now is, because of the efforts of LPRIFA, the reduced tax amount on data centers," said Miller.

Since the OASIS study appeared, the Virginia General Assembly passed legislation lowering sales taxes on equipment purchased for new data center projects.

Miller said one data center already exists in the Lonesome Pine Technology Park. The Mineral Gap center also demonstrates part of the electric power redundancy aspect from the OASIS study, with a solar power array built on part of the former surface mined land on which the park is built.

"Mineral Gap is something that OASIS and our region's recruitment efforts can point to for our suitability for data center locations," noted Miller.

While Russell County in the early 2000s developed data center and software projects in cooperation with the Commonwealth of Virginia and Northrop Grumman, Miller said the OASIS study has helped bring new attention to the area.

While former surface mine lands have helped with the Mineral Gap location, Miller said former underground mines provide another advantage with underground water supplies for cooling.

Those water supplies can mean less power used for mechanical cooling plants.

"There's also an advantage to being surrounded by mountains and other features in terms of security and protection and those kinds of things," Miller said.

"All of our localities are looking really hard on data center recruitment."

https://www.timesnews.net/news/data-centers-recruitment-in-southwest-virginia/article_8886a234-966d-11ec-a7c2-53691422f090.html

Project Veer Update: 'Now is the Time' for Southwest to Look at Offshore Wind Energy

By Megan Schnabel
Cardinal News
March 9, 2022

Nearly 200 companies in Southwest Virginia have the potential to play a role in the growing offshore wind industry, a regional analysis has found.

Figuring out whether they're interested – and whether the existing workforce can support that kind of pivot – is a crucial next step for Project Veer, an effort launched late last year to investigate whether Southwest Virginia should try to stake a claim in the industry sector that supports offshore wind energy.

Delia Warren with Xodus, the energy consulting firm that is conducting analysis for Project Veer, on Tuesday said her firm's work to date has identified some strengths for the region to tout – and some areas where it will face challenges.

"This is really, really early in the development of a massive industry," she said, speaking to the Southwest Virginia Energy Research and Development Authority. "So now is the time for Southwest Virginia to identify potential supply chain opportunities and prepare to enter the industry."

While the U.S. has been slow to embrace offshore wind compared to some other countries, the White House last year announced a federal goal of 30 gigawatts of offshore wind by 2030.

Virginia has set a target of 5.2 gigawatts by 2034; the combined Virginia-North Carolina-Maryland region has a goal of 14.8 gigawatts by 2040, Warren said.

The first two U.S. commercial-scale offshore wind projects are under construction in New York (800 megawatts) and Massachusetts (130 megawatts). Dominion Energy plans to build a 2.6-gigawatt wind farm 27 miles off the coast of Virginia Beach that's expected to be operational by 2026. (Dominion is a major donor to Cardinal News.)

Estimates predict that U.S. capital expenditures on offshore wind infrastructure will reach $100 billion by 2030, Warren said.

With that much capacity coming online so quickly, Warren predicted supply chain bottlenecks – and opportunities for companies to get into the industry.

"I don't want to oversell this," she said. "This is a huge opportunity, but it has to be intentional. If your region really wants to benefit, it's not going to happen by accident."

While some turbine components must be manufactured as close as possible to the shore – blades, for instance, are simply too large and heavy to be transported long distances over land – other parts could be built inland. A U.S. Department of Energy reported that the average utility-scale wind turbine is made up of roughly 8,000 parts.

Southwest Virginia has a rich history of heavy-duty and precision manufacturing, thanks to decades of providing equipment for the coal industry and for farming. About 12% of the region's workforce is in manufacturing, Warren said.

Xodus evaluated 385 companies across the 13 counties and three cities of GO Virginia's Region 1 – what they make, where they're located, what their capacity is – and found that 195 of them have the potential to work with the offshore wind industry, in roles including building parts for substations and for rotors and towers.

A next step will be to survey those companies to determine whether they're interested in shifting to the offshore wind industry.

It's not necessarily an easy sector to break into, especially for smaller companies, because of the long timelines involved – a supplier might bid for a project and not do any work for two years, Warren said. It will be critical, she said, to make sure that companies understand both the opportunities and the challenges of getting involved with what she called a "very complex" industry.

In an interview later Tuesday, she said that financial incentives, like bridge financing to tide over a manufacturer involved in a long-term project, could encourage companies to explore the wind industry.

Budget amendments currently being considered by the General Assembly also could help the sector, said Will Payne, director of InvestSWVA, which designed Project Veer. Xodus also has worked with the Hampton Roads region on identifying offshore wind supply chain opportunities, and out of the work on both ends of the state came the idea for a fund that would support smaller companies with equipment or workforce development.

Collaboration among companies, and broader regional coordination, will be critical, Warren told the authority. Many of the major contracts for wind turbine manufacturing already have been awarded, she said, but there's an opportunity for smaller manufacturers to work with those companies and with their suppliers.

Another key question that Project Veer will be trying to answer: What does the potential workforce for this industry look like? Xodus will be looking at how many workers would be available, what skills they already have, and what kind of training would be needed.

A potential hurdle for the region is that it lacks an obvious industrial hub for this kind of work, Warren noted. Industrial centers tend to attract other companies, she said, because they can offer improved logistics and economies of scale, and it can be easier for a manufacturer to do business when suppliers are close by.

But Hampton Roads is establishing itself as a hub for offshore wind energy, she said – the only offshore wind turbine blade facility planned in the U.S. so far will be in Portsmouth – and Southwest Virginia should work to piggyback off of that
And Virginia also offers lower labor costs, corporate tax rates and electricity rates than states that might be competing for this work, she said.

The study is being funded by GO Virginia, the state Tobacco Commission and Coalfield Strategies, an economic development consulting firm headed by Payne. He said he expects that the final report and recommendations will be presented at the end of the month.

https://cardinalnews.org/2022/03/09/project-veer-update-now-is-the-time-for-southwest-to-look-at-offshore-wind-industry/

Evolve CAPP to Explore Critical Mineral Production in SW Virginia

By Dave Ongie
The Business Journal of Tri-Cities TN/VA
March 15, 2022

Evolve Central Appalachia (Evolve CAPP) focuses on harvesting the industrial, environmental and economic potential of rare earth elements (REE), critical minerals (CM) and high-value, nonfuel, carbon-based products – all out of waste coal. It launched today from its new laboratory in the Virginia Highlands Small Business Incubator in Abingdon, Virginia.

"Everyday products from appliances to cell phones require critical minerals to manufacture," said John Warren, Virginia Energy Director. "We need to reverse course on our reliance on global suppliers and Evolve CAPP represents an important step in proving Southwestern Virginia can do it and do it right."

Managed principally by Virginia Tech, through the Virginia Center for Coal and Energy Research (VCCER), Evolve CAPP has assembled academic, industry and policy experts in processing, geology, mining, infrastructure, waste and impoundments, carbon products, environment and economic development. The participants seek to leverage a decades-long legacy of Appalachian leadership in energy to generate a new industry and to create better environmental conditions in the Appalachian basin by accelerating waste coal clean up.

Additional benefits include economic growth and job creation. Evolve CAPP will initiate the harvesting and processing of REE and CM from coal, coal sediments, coal ash, coal refuse and impoundments, acid mine drainage and other basin-specific resources in central Appalachia. At the same time, the initiative will connect these processes to the advancement of American competitive strength in the manufacturing, energy and climate sectors.

"We have an opportunity to take an environmental liability and turn it into an environmental asset," said Dr. Michael Karmis, who initiated and led this project and has recently retired from Virginia Tech. "We also must realize – the general public as well as scientists, industrialists and regulators – that, at this moment, our use of critical minerals in all types of products and processes makes it imperative that the U.S. enter the supply chain sooner rather than later."

The U.S. Department of Energy provided the initial funding of $1.499 million to VCCER, and the Virginia Department of Energy provided a contract geologist to serve as an administrator of the project.

Today, it is actually less expensive to insource critical minerals than to produce them in the U.S. Countries that do not have the environmental or worker safety regulations, or may not be aligned with U.S. interests, still can get the minerals into the U.S. at less cost. Getting to critical minerals stateside is clearly an industrial priority, and because it will require facilities, a transportation network and a skilled workforce, a significant investment is warranted.

Southwestern Virginia's location in central Appalachia is perfect for domestic sourcing and shipment by rail and road to ports on the U.S. eastern seaboard.

"A mineral is critical when it is necessary for continuing our way of life – and when its scarcity is such that supply can be jeopardized," said Will Payne, Managing Partner of Coalfield Strategies, LLC, and InvestSWVA Project Lead. "If Southwestern Virginia can offer itself to the nation as a domestic sourcing center of critical minerals for manufacturing, it will help the U.S. avoid reliance upon nations that do not share our policy priorities or our legal structure. We believe that the work of this project will alleviate supply chain disruptions and, at the same time, make American companies the major players in the manufacture and distribution of critical mineral-based components."

https://bjournal.com/evolve-capp-to-explore-critical-mineral-production-in-sw-virginia/

Group Works to Identify Area's Mineral Assets

By David McGee
Bristol Herald Courier
March 16, 2022

A public-private project designed to assess the region's critical mineral assets and apply them toward economic development was unveiled Wednesday.

Evolve Central Appalachia, or Evolve CAPP, brings together a university-led research effort with public, private and academic interests in hopes of creating new industrial opportunities for Southwest Virginia, eastern Kentucky, West Virginia and portions of Tennessee.

It was announced Wednesday at the Virginia Highlands Small Business Incubator in Abingdon as a project that aims to harvest the industrial, environmental and economic potential of rare earth elements, critical minerals and nonfuel, carbon-based products — all out of waste coal.

It is designed to generate a new industry and to create better environmental conditions in the Appalachian basin by accelerating waste coal cleanup, according to a statement.

The research coalition includes Virginia Tech, the University of Kentucky and West Virginia University.

“We have a very large, diverse team with a lot of different backgrounds on the economic side, engineering, processing, community engagement, workforce development. We have all these different players, so my role is to facilitate their expertise and put everything together,” Richard Bishop, a Virginia Tech professor and the project’s principal investigator, said.

The project has received $1.49 million from the U.S. Department of Energy to develop a database of what types of minerals, elements and resources are available and accessible in a specific region of the four states, including the Southwest Virginia counties of Buchanan, Dickenson, Lee, Russell, Scott, Tazewell, Wise and the city of Norton.

State Sen. Todd Pillion, R-Abingdon, said the region is “uniquely positioned to emerge as a key player” in the race to produce critical minerals used to manufacture devices and items in our everyday lives.

“Currently the market on these minerals is dominated by China, which presents a national security issue,” Pillion said. “Working with House Majority Leader Del. Terry Kilgore, this session we sent a bill to Gov. Youngkin that declares the removal of waste coal from previously mined sites in the coalfield region as a matter of public interest. The Commission on Electric Utility Regulation may review information on the approximate volume and number of waste coal piles present in the coalfield region and options for cleaning up such waste coal piles. This is a major public health, conservation and economic opportunity for the region that aligns with the goals of this research initiative.”

Bishop said much work lies ahead.

“We know there is a resource here. We need to move it to that next stage so we know where that resource is, how much is there and what new opportunities can ... create new business opportunities, economic development opportunities and jobs in the region,” Bishop said. “We’re trying to assemble all the information that has already been done, fill in those gaps and assemble all the known information and try to get the low-hanging fruit.”

Kevin Andrews, a member of the project leadership team and vice president and supervisory geologist of Marshall Miller & Associates of Blacksburg, said work began earlier this year.

"We're working in the second quarter of gathering information and very much in the compilation phase," Andrews said. "We are starting to have the database compiled where we can look at general things and make decisions as we go forward — do we need to collect more data? How might we use the data to move forward with the resource as part of the second phase?"

Andrews said the size and scope of entities involved in this effort separates it from anything which preceded it.

"We'll incorporate everything that has been done to this point," Andrews said. "I think what's different here is a lot of efforts in the past were a certain set of researchers, smaller scale. There are 24 industry partners, multiple universities, consulting firms, people who are very familiar with the geology of the area and how things work in the area, as far as mining goes."

The initiative has identified seven objectives including:

- Determine the quantity and distribution of resources in the region.
- Formulate strategies to utilize coal waste streams to produce useful fuels and materials.
- Evaluate regional infrastructure and identify industries that may benefit from REE and CM production.
- Develop strategies to encourage business development.
- Guide research and development of new technologies.
- Frame plans to establish technology innovation centers.
- Implement stakeholder outreach and education initiatives.

The community colleges will serve as workforce training centers if businesses are established, Kris Westover, president of Mountain Empire Community College, said.

"We've always had a connection to training and mining, and we recognize the huge value and potential this project has. And we recognize the need to train a workforce with the processes and the needs that are going to come out," Westover said. "We're waiting to see what the process will look like, what the workforce needs will be, and I love the idea of internships and trying to create a dual-enrollment model for high school and community college students to build that STEM pipeline and have that workforce ready."

The coverage area also includes 38 counties in eastern Kentucky, 12 counties in Tennessee, including Claiborne, Hancock and Roane, and 24 West Virginia counties.

A room at the Business Incubator will serve as a lab and storage area for information and samples, Andrews said.

https://heraldcourier.com/news/group-works-to-identify-areas-mineral-assets/article_ccd408de-a561-11ec-9bcb-838c86577e5d.html

Coal Waste Project Launches in SW Va.

By Katherine Schulte
Virginia Business
March 16, 2022

A public-private project to evaluate the critical minerals in coal waste products in Virginia, West Virginia and Kentucky launched Wednesday with a community meeting in the Virginia Highlands Small Business Incubator in Abingdon.

The project, Evolve Central Appalachia (Evolve CAPP), is part of an almost $1.5 million grant from the U.S. Energy Department to the Virginia Center for Coal and Energy Research (VCCER) at Virginia Tech. VCCER Director Michael Karmis estimates the first phase of the project — a study analyzing what minerals the areas have and how they can be extracted — will take about three years.

Critical minerals — used in computers, household appliances, clean energy technology and other products — are vital to the nation's economy but the supply is vulnerable to disruptions. Such minerals native to the United States include rare earth elements plus lithium and cobalt.

After researching which minerals are present in the region, Evolve CAPP will present its findings to the Energy Department. If the department provides funding for a second phase, researchers would look into extraction technology and commercial development, which could help the U.S. reduce its dependence on other countries' production.

"The project is focused on developing jobs and opportunities for the coalfields," Karmis said. Evolve CAPP seeks to develop the processing of coal waste and advanced manufacturing needed to create usable critical minerals in the three involved states — not just export raw materials.

The project has nearly 50 partners across varying sectors: academia, government, private research, economic development, private technology and energy and power. Karmis and Richard Bishop lead the Virginia Tech team, and Mountain Empire Community College, the University of Kentucky and West Virginia University are academic partners. Virginia's Energy Department, the U.S. Geological Survey and Oak Ridge National Laboratory are government partners, and other groups involved

include InvestSWVA, Coalfield Strategies LLC, LENOWISCO Planning District, Dominion Energy Inc., Kentucky-based Blackhawk Mining LLC and Roanoke's Separation Technologies LLC.

Will Clear, deputy director of the Virginia Department of Energy, says he appreciates that Evolve CAPP has environmental benefits as well, providing a use for "gob" piles — short for "garbage of bituminous" — made of waste products from mining before federal regulations were in place.

"We think there's a parallel track with what we're doing to sort of remediate this environmental problem but also look at ways to really utilize these gob piles as a resource," he said.

https://www.virginiabusiness.com/article/coal-waste-project-launches-in-sw-va/

Can Waste Coal Help Build Cellphones and Rechargeable Batteries

By Megan Schnabel
Cardinal News
March 16, 2022

A research venture launched Wednesday will investigate whether Southwest Virginia's vast supply of coal waste can be turned into high-value raw materials for products like cellphones and electric cars, addressing a need that has grown exponentially in recent years – and that has fueled concerns about the global supply chain.

But the goal of Evolve Central Appalachia – Evolve CAPP, for short – isn't just to figure out how best to extract these materials from mining byproducts, said Michael Karmis, the recently retired director of the Virginia Center for Coal and Energy Research at Virginia Tech.

It's to create the base for an entire industry sector – from mineral extraction to the manufacturing of computer chips or semiconductors – in the region.

"We don't want to be exporting this stuff for other people to reap all the economic benefit," Karmis said. "We want the entire value chain related to this to be located here."

Virginia Tech is leading the project, which has nearly 50 partners from across academia, economic development and industry. VCCER received $1.5 million in federal funding last year as part of a broader Department of Energy initiative to support the production of rare earth elements and critical minerals in traditional fossil fuel-producing areas. Thirteen projects across the U.S. received a total of

$19 million; Evolve CAPP, which will be based at the Virginia Highlands Small Business Incubator in Abingdon, will focus on opportunities in the coalfields of central Appalachia.

Coal ash, a byproduct of burning coal for power generation, and the waste coal called gob (which is left over from mining) are two potential sources of the raw materials that are so in demand.

The rare earth elements are 17 metallic elements that are an essential part of high-tech devices such as cellphones, computer hard drives, weaponry – and electric vehicles and wind turbines, making them a key component in the push toward zero emissions.

Most rare earth elements aren't actually all that rare; the U.S. Geological Survey calls them "relatively abundant," although they can be difficult to mine.

Critical minerals, meanwhile, are true to their name: They have been deemed essential to the U.S. economy, have no viable substitutes, and face potential disruption in supply, according to the USGS. The list has changed over time and currently includes 50 minerals including aluminum, arsenic, cobalt and 16 of the 17 rare earth elements.

The search for ways to get rid of environmentally hazardous coal waste – or even to repurpose it – has been ongoing for decades. In recent years, it has dovetailed with a push to find new sources of rare earth elements and critical minerals, both to supply an ever-growing global demand and to reduce U.S. reliance on China, which has nearly cornered the market on both the raw materials and some of the components built from them.

According to a report by Global Market Insights, the rare earth metals market was estimated at $13.2 billion in 2019 and is expected to reach nearly $19.8 billion by 2026.

Between 2011 and 2017, China produced approximately 84% of the world's rare earth elements, while U.S. production accounted for only 4%, the USGS reported. The U.S. imported $160 million in rare-earth compounds and metals in 2021, an increase of 47% over the prior year, according to USGS.

Even when the elements are mined in the U.S., they're generally shipped overseas for processing before they're sold back to U.S. buyers in more expensive products, the Department of Energy found.

Will Payne of InvestSWVA, one of the economic development partners in the project, said he believes the work of Evolve CAPP could help alleviate supply chain disruptions and make American companies major players in the manufacture of critical mineral-based components.

"If Southwestern Virginia can offer itself to the nation as a domestic sourcing center of critical minerals for manufacturing, it will help the U.S. avoid reliance upon nations that do not share our policy priorities or our legal structure," he said in a statement.

The 13 projects funded by the recent $19 million round of Energy Department grants are part of a broader push to boost domestic production of these elements and minerals. Last month, the White House announced a slew of new efforts, including a $35 million Defense Department award to a California company that will separate and process heavy rare earth elements, a project to collect and recycle lithium-ion car batteries to extract rare elements, and a plan, still in the very early stages, to build a facility that would extract rare earth elements and critical minerals from mine waste.

Additionally, The Denver Post reported in February that the federal government plans to build a $240 million lab in Colorado that will focus in part on research into where these minerals can be found in underground rocks and old mining waste piles.

The growing emphasis on finding new sources of rare earth elements and critical minerals has come as people have realized that at the rate we're consuming some of these materials, we're going to run out, Karmis said.

"We need to pursue as many technologies as we can and look at every resource that can be a potential economic source for developing these minerals," he said.

Work into how to extract these valuable materials from coal waste was underway at Virginia Tech and other research institutions well before Evolve CAPP was launched. Karmis said his team will be watching, and reviewing, the technologies coming out of other labs. Who knows, he said, where the best ideas will come from?

"This is a space where new technologies are coming at a very fast rate," he said.

There are a few things that he knows already. The researchers will only consider methods that have significant positive environmental and social outcomes, he said; they don't want to use methods that create more waste, or just move waste from one place to another. They don't want to use a lot of water, and they want to use the smallest possible footprint.

They want to make the lab a place for STEM instruction. And they don't want to end up with a demonstration-scale operation. At the end of the day, he said, they will need to be able to attract investors who will be willing to put hundreds of millions of dollars into commercial-scale operations in the region.

"We're aiming at developing commercially possible opportunities, otherwise we'll be left doing research forever," said Karmis, who said he will continue to be involved with the project as long as he's needed. "The government is not going to do that. We need to get the private sector doing that."

The possibility of not only removing waste coal, but also turning it into something valuable, is what attracted the state to Karmis' project, said Will Clear, deputy director of Virginia Energy.

The effort to clean up gob has been ongoing for two decades, he said, but it got a boost recently with additional money from the Infrastructure Investment and Jobs Act, which will give Virginia $22.8 million in the first year of a 15-year funding plan.

And thanks to changes in project prioritization at the federal level, that money can now be used to deal with waste coal, he said.

"This allows us to clean up and remove a lot of this waste material," Clear said. "This project, in conjunction with that money – we have the potential to really investigate further beyond even what Dr. Karmis is going to do and use some of those moneys potentially to jumpstart this process."

https://cardinalnews.org/2022/03/16/can-waste-coal-help-build-cellphones-and-rechargeable-batteries/

Recycling Coal: E-CAPP Looks at Coal Waste for Strategic Minerals Supply

By Mike Still
Kingsport Times-News
March 17, 2022

A team of Virginia energy officials, mining/energy industry companies and colleges is looking at how recycling coal waste can provide needed minerals and metals for high-tech products.

Officials from Virginia Tech, the state Department of Energy and mining engineering fields met at the Virginia Highlands Small Business Incubator in Abingdon on Wednesday to outline Evolve Central Appalachia. The project aims to show how Southwest Virginia can become a link in federal efforts to strengthen domestic supply chains for rare earth elements and critical minerals for technology uses.

Michael Karmis, who started E-CAPP and recently retired as the director of the Virginia Center for Coal and Energy Research, joined new E-CAPP manager Richard Bishop to outline the project's goals.

Karmis said the Biden administration has proposed a $37 billion effort to strengthen domestic supply chains for semiconductor chips, high-capacity vehicle batteries, rare earth minerals for electronics and technology uses and for pharmaceutical products. E-CAPP's efforts target the first three parts of that effort, he added.

At least 50 metals, minerals and elements have been identified as critical materials because the U.S. depends on imported supplies. Karmis said those imports become more critical when they come from unstable countries or competitors such as China and Russia.

Critical materials are needed for cell phones, computers, computer chips, electric vehicle batteries, wind turbines and solar power panels, Karmis said.

"Everyday products from appliances to cell phones require critical minerals to manufacture," said Virginia Department of Energy Director John Warren. "We need to reverse course on our reliance on global suppliers, and Evolve CAPP represents an important step in proving Southwestern Virginia can do it and do it right."

Karmis said demand for those critical materials could rise as much as 600% by 2050. Coal contains many of those materials, he said, and coal waste — gob piles, impoundment ponds, acid mine drainage, fly ash, wastewater from oil and gas production — also contain them.

While Southwest Virginia and the entire central Appalachian region from New York to Alabama houses waste coal resources, Karmis said using those domestic sources will require responsible recovery methods to protect the region's environment.

Karmis said E-CAPP includes support from several energy companies, engineering firms and public-private cooperation to evaluate what supplies of recoverable minerals and metals can be found in the region. The project will also evaluate and recommend technology and processes to recover materials in an economical and environmentally sound way.

Developing recovery technologies can bring new technology job opportunities to Southwest Virginia, West Virginia, eastern Kentucky and Tennessee, Karmis said. A coalition of two universities and four community and technical colleges in the region — including Mountain Empire Community College — will help E-CAPP look at the kinds of jobs needed to help keep material recovery, processing and refining in the region.

"We should insist that it's our resource and we want to keep the entire value chain here, including the high-tech end of producing the materials," Karmis said.

E-CAPP will be developing a technology lab at the Business Incubator, Karmis said, and the project hopes to offer internships to community college and high school students in the coming weeks to start learning about the field.

Virginia Department of Energy Deputy Director Will Clear said coal-fired power plants, including Dominion Energy's Virginia City plant near St. Paul, can also provide coal fly ash byproduct that contains many of the critical materials needed for the nation's technology industry.

"This is a long play for Virginia's Southwest and entirely within our wheelhouse," said Clear. "The Commonwealth is working hard to clean up gob coal, and this team's research is offering up a solution that could accelerate that cleanup and stabilize our regional economy through a new industry relevant to domestic and global manufacturers."

https://www.timesnews.net/news/local-news/recycling-coal---e-capp-looks-at-coal-waste-for-strategic-minerals-supply/article_81bec320-a575-11ec-8201-6381286ac8d8.html

Community Colleges of Southwestern Virginia Force Agreement to Prepare Regional Workers for Wind Energy Manufacturing Supply Chain

InvestSWVA Press Release
March 30, 2022

BRISTOL, VA — The presidents of four community colleges in Virginia's Southwest today signed a memorandum of understanding (MOU) to collaborate on training and development actions in the offshore wind energy (OSW) manufacturing supply chain. This agreement fulfills one of the recommendations presented to the region by the Xodus Group, which performed research commissioned by InvestSWVA.

Project Veer is leveraging the advanced manufacturing legacy of Virginia's Southwest to explore entry points for the region's manufacturers into the offshore wind supply chain. An economic development initiative announced on December 14, 2021, Project Veer was funded by the GO Virginia Region One Council, the Virginia Tobacco Region Revitalization Commission and Coalfield Strategies. Xodus Group engaged the region's manufacturers along with industry experts, public-sector partners, the Virginia

Department of Energy, the Virginia Economic Development Partnership, the Hampton Roads Alliance, Dominion Energy, Appalachian Power, and GO Virginia Region One's economic and workforce development organizations in order to advance the region's entry into this new market.

The MOU signifies that Mountain Empire Community College, Southwest Virginia Community College, Virginia Highlands Community College and Wytheville Community College will work together to promote, develop and expand the preparation of workers to enter the employ of regional supply chain manufacturers in the offshore wind energy generation sector.

"We are looking to connect even more deeply with the employers of the region," said Dr. Adam C. Hutchison, President of Virginia Highlands Community College, Abingdon. "A key group is the closely-held manufacturers who have vast experience in other supply chains. Our goal is to work with them to prepare employees for a pivot into wind energy, which we think is well within their reach."

"We are realistic about the number of people ready to go to work in manufacturing," said Dr. Dean Sprinkle, President of Wytheville Community College, Wytheville. "As a result, we see the wind energy sector as an exciting and compelling path for people who may be 'on the fence' about a manufacturing career. Training workers and inspiring them to live and work in our region are elements of our mission in community colleges, and this is an enticing opportunity."

"With this framework for collaboration, our community colleges are making a bold statement about our role in strengthening the regional economy," said Dr. Kristen Westover, President of Mountain Empire Community College, Big Stone Gap. "Our experience in legacy industries has us well-prepared to enter the renewable energy space. At the same time, the framework will enable us to touch every community we serve."

"The decision to enter the wind energy sector signifies fresh thinking and a new chapter for the people of our region," said Dr. Tommy F. Wright, President of Southwest Virginia Community College, Tazewell. "A new industry – with new courses we design with manufacturers and industry experts – is a big start for those looking to polish their existing talents or develop entirely different skills."

The chief recommendations out of the final report by Xodus Group include the following:

1. Identify a major tier company to act as an anchor and an exemplar of the region, helping pave the way to relationships with global original equipment manufacturers (OEMs).
2. Launch a firm collaboration between the region's community colleges to focus on worker training and upskilling.
3. Form a partnership with the Hampton Roads Alliance (HRA), a Virginia entity and one of the nation's most prominent OSW business and investment attractors.

4. Designate a regional entity for positioning Virginia's Southwest and for acting as a single point of entry for the OSW opportunity.
5. Coordinate an approach for retaining the next generation of workers, including building awareness of the career potential in OSW.

"Virginia's Southwest is an answer, a resource and the place to be for wind energy manufacturers looking for business partners who can satisfy market demand in a quality fashion," said Will Payne, Managing Partner of Coalfield Strategies and Project Lead for InvestSWVA. "The agreement we announce today is foundational to our success not just in the wind energy industry but to our ability to rally around opportunity, together. The presidents of our community colleges are setting a great example."

With this initial phase of Project Veer complete, InvestSWVA is now working toward implementing Xodus Group's recommendations. For more information, visit Project Veer.

https://www.investswva.org/news/swva-cc-mou

Former Mine Sites in Southwest Virginia to be Labs for Energy Technology Testbed

By Susan Cameron
Cardinal News
October 4, 2022

A first-of-its-kind "energy technology testbed" that will turn some of the 100,000 acres of former coal mining sites in Southwest Virginia into laboratories to promote energy innovation will be developed, Gov. Glenn Youngkin announced Tuesday.

"The Energy DELTA Lab delivers on our vision to define Virginia as a force in energy innovation," Youngkin said in a news release. "No other project like it exists in the United States. With this energy testbed, we see a commitment to transformation, encouragement for startup enterprises and support for the development of promising careers in exciting new fields."

The announcement came the day after the governor rolled out a new energy plan that called for innovation in energy technologies.The plan mentioned the Energy DELTA project.

The initial site will be near the town of Pound in Wise County on property owned by the Cumberland Forest Limited Partnership and managed by the Nature Conservancy.

The site will be used as a lab for advanced solar and energy storage, according to Will Payne, managing partner of Coalfield Strategies, the firm leading business development for the Energy DELTA Lab and InvestSWVA.

The first site will likely not be up and running for at least two years, he said.A second site, also in Wise County, will be announced later this month, he added.

“We currently have a number of projects in the due diligence phase related to both sites worth over a billion dollars,” Payne said Tuesday.

Plans call for possible additional sites around the region.DELTA, which stands for discovery, education, learning and technology accelerator, has been four years in the making. It is a collaborative effort by the Virginia Department of Energy, the Southwest Virginia Energy Research and Development Authority, and its business development partner InvestSWVA.

The DELTA initiative was developed through a $975,000 grant from the federal Abandoned Mine Land Economic Revitalization Program, which supports economic efforts by regions impacted by the downtown in the coal industry.

Payne said DELTA will serve as a hub between landowners, prospects, utilities and broadband companies. He emphasized that the purpose of the effort is not just research and development, but job creation and economic development.

He added that the land and its assets above and below the ground will be the lab – there will not be a traditional lab or classroom involved.

Mike Quillen, who founded and was CEO of Alpha Natural Resources, is chair of the Energy DELTA Lab and the Southwest Virginia Energy Research and Development Authority.

“The Energy DELTA Lab is a concept becoming reality in the most logical place for it to happen,” Quillen said. “Our work in being part of the global energy story is entering another chapter, encouraging a fresh look at energy production and what it means – and requires – to enjoy a successful career in the industry.

Payne called Quillen the “godfather of Southwest Virginia,” and said he lends credibility to the project.

The initial concept for the project was designed by Michael Karmis, former director of the Virginia Center for Coal and Energy Research, based on what Germany has done with its mine sites, Payne said.

Further study of the concept was led by InvestSWVA and the LENOWISCO Planning District Commission through grants from the GO Virginia One Council and the U.S. Economic Development Administration.
The region is ideal for research and development of energy technologies because in addition to the former coal mining sites, it has more than 9,000 gas wells, a number of mine cavities and water supplies, diverse terrain, mineral and underground resources, the release states.

"The Energy DELTA Lab's focus on leveraging legacy energy assets to develop new and innovate energy technologies can only happen in Southwest Virginia," Payne said. "This is just the beginning of the work we must do together to deliver on our vision to build a new, diversified economy in the region. And, with the Energy DELTA Lab as our vehicle, we can define Virginia as a hub of energy innovation in America."

The energy technologies mentioned include hydrogen, mine-based geothermal, innovative solar generation and advanced energy storage, including pumped-storage hydro. Also mentioned were small modular nuclear reactors, one of which the governor said Monday he hopes to deploy in Southwest Virginia over the next 10 years.

https://cardinalnews.org/2022/10/04/former-mine-sites-in-southwest-virginia-to-be-labs-for-energy-technology-testbed/

New Energy Innovation Project coming to Wise County

By David McGee
Bristol Herald Courier
October 4, 2022

RICHMOND, Va. — Southwest Virginia will host an energy technology project designed to promote innovation, Virginia Gov. Glenn Youngkin announced on Tuesday.

The Energy DELTA Lab's initial site will be located in Wise County near the town of Pound, according to a written statement. Current plans call for the potential development of additional testbed sites around the region.

The Energy DELTA [Discovery, Education, Learning & Technology Accelerator] Lab initiative is a collaborative effort by the Virginia Department of Energy, the Southwest Virginia Energy Research and Development Authority and its business development partner, InvestSWVA.

“Since announcing the Virginia 2022 Energy Plan, I am pleased to announce this Energy DELTA Lab project which delivers on our vision to define Virginia as a force in energy innovation,” Youngkin said in the statement. “No other project like it exists in the United States. With this energy testbed, we see a commitment to transformation, encouragement for startup enterprises and support for the development of promising careers in exciting new fields.”

The initial will be located on property owned by the Cumberland Forest Limited Partnership and managed by The Nature Conservancy. A second site will be identified in the near future.

The Energy DELTA Lab initiative was developed through a previously announced $975,000 grant from the federal Abandoned Mine Land Economic Revitalization program, which works to support economic and community development goals in regions impacted by the downturn of coal production, according to the statement.

The funding, subject to final approval by the U.S. Office of Surface Mining Reclamation and Enforcement, will be used to acquire access to previously-mined land and for infrastructure improvements necessary to deploy clean energy projects.

“This project is one more embodiment of our vision for reimagining Southwest Virginia’s economic competitiveness,” said Del. Terry Kilgore, R-Gate City and Majority Leader of the Virginia House of Delegates and InvestSWVA co-chair. “Energy is a business we know. On behalf of the region’s entire legislative delegation, I can say we believe that this research effort linked with economic development will create new opportunities for the entire region.”

The Energy DELTA Lab is an economic development strategy to drive growth and diversify Southwest Virginia’s economy, according to the statement. The work that goes into these projects and the resulting energy assets can bring new opportunities to a region that has been significantly impacted by the downturn of fossil fuel production.

“The Energy DELTA Lab is a concept becoming reality in the most logical place for it to happen,” said Mike Quillen, chair of both the Energy DELTA Lab and the Southwest Virginia Energy Research and Development Authority. “Our work in being part of the global energy story is entering another chapter, encouraging a fresh look at energy production and what it means — and requires — to enjoy a successful career in the industry.”

The project was endorsed by the presidents of both Appalachian Power and Dominion Energy as both firms are partners in the project and U.S. Senators Mark Warner and Tim Kaine and 9th District Rep. Morgan Griffith.

"The Energy DELTA Lab concept aligns with local, regional, state, federal and international goals," the two U.S. Senators wrote in a joint statement. "Many of us have worked hard over many years to spark new economic opportunities in Southwest Virginia. This initiative is a promising step forward because it leverages Southwest Virginia's diverse and unique terrain to position the region as a leader in clean energy research and development."

Griffith, R-9th, who played an instrumental role in Virginia's participation in the federal AMLER program, called the project "groundbreaking."

"The Energy DELTA Lab is a groundbreaking initiative that draws on Southwest Virginia's resources and technical knowledge," Griffith said. "It will keep our region at the forefront of exciting developments in the energy sector that will one day power the world."

https://heraldcourier.com/new-energy-innovation-project-coming-to-wise-county/article_f228950e-4427-11ed-a256-fb459f013381.html

Energy Technology Testbed Will be Developed in SW Virginia

By Pat Thomas
WDBJ 7 (Roanoke)
October 4, 2022

Governor Glenn Youngkin has announced the launch of what he calls a first-of-its-kind energy technology testbed in Southwest Virginia that will "provide land as laboratories and scientific assistance to promote energy innovation."

The Energy DELTA Lab's initial site will be in Wise County near the Town of Pound, and current plans call for the potential development of additional testbed sites around the region, according to the governor.

The Energy DELTA (Discovery, Education, Learning & Technology Accelerator) Lab initiative is a collaborative effort by the Virginia Department of Energy, the Southwest Virginia Energy Research and Development Authority and its business development partner InvestSWVA.

"Since announcing the Virginia 2022 Energy Plan, I am pleased to announce this Energy DELTA Lab project which delivers on our vision to define Virginia as a force in energy innovation," said Governor Youngkin. "No other project like it exists in the United States. With this energy testbed, we see a commitment to transformation, encouragement for startup enterprises and support for the development of promising careers in exciting new fields."

"As the United States moves toward new forms of energy production and use, Virginia's southwest region has the opportunity to redefine itself as a leader in energy innovation," said Caren Merrick, Virginia Secretary of Commerce and Trade. "The Energy DELTA Lab testbed project highlights our determination to push Virginia's energy leadership position to new heights."

"This project is one more embodiment of our vision for reimagining Southwest Virginia's economic competitiveness," said Delegate Terry Kilgore (R-1), Majority Leader of the Virginia House of Delegates and InvestSWVA co-chair. "Energy is a business we know. On behalf of the region's entire legislative delegation, I can say we believe that this research effort linked with economic development will create new opportunities for the entire region."

"The Energy DELTA Lab is a concept becoming reality in the most logical place for it to happen," said Mike Quillen, Chair of the Energy DELTA Lab and the Southwest Virginia Energy Research and Development Authority. "Our work in being part of the global energy story is entering another chapter, encouraging a fresh look at energy production and what it means – and requires – to enjoy a successful career in the industry."

"The Energy DELTA Lab is an investment Southwest Virginia's future," said Chris Beam, Appalachian Power president and chief operating officer. "It is an opportunity for Appalachian Power to actively engage in next generation research and development in energy on the ground and in a place that makes sense for our customers."

"Dominion Energy Virginia is pleased to join a strong group of partners in the Energy DELTA Lab endeavor," said Ed Baine, President of Dominion Energy Virginia. "This is a significant development for Southwest Virginia, and it will help to ensure the ongoing contribution of the Commonwealth of Virginia to the global conversation about energy."

"The Energy DELTA Lab concept aligns with local, regional, state, federal and international goals," said U.S. Senators Mark Warner and Tim Kaine (D-VA). "Many of us have worked hard over many years to spark new economic opportunities in Southwest Virginia. This initiative is a promising step forward because it leverages Southwest Virginia's diverse and unique terrain to position the region as a leader in clean energy research and development."

"The Energy DELTA Lab is a groundbreaking initiative that draws on Southwest Virginia's resources and technical knowledge," said U.S. Representative Morgan Griffith (R-9). "It will keep our region at the forefront of exciting developments in the energy sector that will one day power the world."

"The Energy DELTA Lab's focus on leveraging legacy energy assets to develop new and innovative energy technologies can only happen in Southwest Virginia," said Will Payne, Managing Partner of Coalfield Strategies, the firm leading business development for the Energy DELTA Lab and InvestSWVA. "This is just the beginning of the work we must do together to deliver on our vision to build a new, diversified economy in the region. And, with the Energy DELTA Lab as our vehicle, we can define Virginia as a hub of energy innovation in America."

Read on for more about the project from Governor Youngkin's Office:

As a country, we are undergoing a transformative period that is challenging how we create, transport, store and use energy. New energy technologies are emerging every day requiring vetting to ensure that they not only meet commercialization potential but also provide the low-cost, clean energy demanded by the marketplace. The Energy DELTA Lab is the culmination of four years of work to establish a vehicle in Southwest Virginia that can lead this research geared toward commercialization and deployment. The initial testbed site in Wise County will be located on property owned by the Cumberland Forest Limited Partnership and managed by The Nature Conservancy. Lead private industry partners include Appalachian Power and Dominion Energy Virginia.

The Energy DELTA Lab initiative was developed through a previously announced $975,000 grant from the federal Abandoned Mine Land Economic Revitalization (AMLER) Program, which works to support economic and community development goals in regions impacted by the downturn of coal production. The funding, subject to final approval by the U.S. Office of Surface Mining Reclamation and Enforcement, will be used to acquire access to previously-mined land and for infrastructure improvements necessary to deploy clean energy projects.

The initiative builds upon Southwest Virginia's unique legacy. With more than 100,000 acres of previously mined property, more than 9,000 gas wells, numerous mine cavities, and boundless water supplies, the region's diverse terrain, mineral and underground resources provide the ideal setting for the commercialization and deployment of new, burgeoning energy technologies, including hydrogen, mine-based geothermal, small modular nuclear reactors, innovative solar generation and advanced energy storage, including pumped-storage hydro.

At its core, the Energy DELTA Lab is an economic development strategy to drive growth and diversify Southwest Virginia's economy. The work that goes into these projects and the resulting energy assets will bring new opportunities to a region that has been significantly impacted by the downturn of fossil fuel production. This activity will ultimately create new career pathways for the region's workforce.

The innovative project has strong support from Southwest Virginia's delegation in Congress.

The Energy DELTA Lab's initial concept was designed by Dr. Michael Karmis, former director of the Virginia Center for Coal and Energy Research. Further study of the concept under the codename Project Innovation, including operations and site planning, was led by InvestSWVA and the LENOWISCO Planning District Commission via grants provided by the GO Virginia Region One Council and the U.S. Economic Development Administration.

https://www.wdbj7.com/2022/10/04/energy-technology-testbed-will-be-developed-sw-virginia/

Energy Demonstration Sites Slated for Wise County

By Mike Still
Kingsport Times-News
October 6, 2022

Richmond – While the commonwealth's new energy plan envisions a nuclear reactor in Southwest Virginia in a decade, Wise county will see a series of energy demonstration sites in about two years.

Gov. Glenn Youngkin on Tuesday announced plans for the first of two demonstration sites under the Discovery, Education, Learning and Technology Accelerator initiative.

Three agencies and private partners – the Virginia Department of Energy, the Southwest Virginia Energy Research and Development Authority and business development and marketing group InvestSWVA – will be behind the effort, Youngkin said.

Funding for the intitative comes from a $975,000 Abandoned Mine Land Economic Revitalization Grant (AMLER).

Will Payne with InvestSWVA said Wednesday the first site will be located on a former mined land area in the Meade Fork area near Pound. That land is owned by the Cumberland Forest Limited Partnership and managed by the Nature Conservancy, he added.

Payne said the Pound area could be operating as a technology demonstrator in about two years with a focus on solar power and storage technology. Another site should be announced in late October, he added, and that site cold focus on geothermal power and hydrogen production for power generation.

A concept drawing of the site included a win turbine along with solar power arrays.

Appalachian Power and Dominion Energy Virginia will be among the lead partners for the Pound site.

Virginia House of Delegates Majority Leader Terry Kilgore – R-Gate City and co-chair of InvestSWVA – said the DELTA project will be another way for Southwest Virginia to boost its economic competitiveness.

“Energy is a business we know,” said Kilgore. “On behalf of the region’s entire legislative delegation, I can say we believe that this research effort linked with economic development will create new opportunities for the entire region.”

https://www.timesnews.net/news/local-news/energy-demonstration-sites-slated-for-wise-county/article_faf37a70-4515-11ed-927b-53657514d920.html

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