# Southwest Virginia Energy Research and Development Authority

2032-24 Annual Report

SWVA Energy

Issued October 9, 2024

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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 and large market cap developers while focusing on innovative and clean energy 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. The Authority is engaged in a robust project portfolio representing a spectrum of technologies and related industrial operations, including solar, wind, hydrogen, energy storage, pumped-storage hydro, energy efficient data centers and other emerging energy technologies, such as small modular reactors.

With each of these projects, this Authority's work can help diversity Southwest Virginia's economy and help the Commonwealth of Virginia and the nation achieve energy goals, and we'll do that with Southwest Virginia leadership and ingenuity as well as support, expertise and funding from key private sector, government, education and community 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, which was updated during the 2023 General Assembly session, had the following goals in mind:

1. Leverage the strength in energy workforce and energy technology research and development of the Commonwealth's public and private institutions of higher education;
2. Support energy development projects generally, including pump storage hydropower, energy storage, hydrogen production and uses, carbon capture and storage, geothermal energy, and advanced wind and solar energy;
3. Promote energy development projects on closed power plant sites, brownfield sites, former coal mine sites, reclaimed coal mine sites, abandoned mine lands, and lands adjacent thereto;
4. Promote energy workforce development and energy supply chain development;
5. Assist energy technology research and development by, among other actions, promoting the development of a Southwest Virginia Energy Park;
6. Identify and work with the Commonwealth's industries and nonprofit partners and, through mutually agreed collaborations, the Commonwealth's research and development partners, in advancing efforts related to energy development in Southwest Virginia; and
7. Promote the capture and beneficial use of coal mine methane from active, inactive, and abandoned coal mines as a low-carbon intensity feedstock for manufacturing and energy generation projects located 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 12, 2023

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

Agenda

| | |
|---|---|
| 10:00 – 10:01 | Call to Order<br>• Mike Quillen, Chair |
| 10:01 – 10:03 | Approval of Minutes from May 9, 2023<br>• Mike Quillen, Chair |
| 10:03 – 10:13 | Public Comment |
| 10:13 – 10:43 | CNX Resources Virginia Operations: The Catalyst for a New Energy and Manufacturing Ecosystem in Southwest Virginia<br>• Brian Green, Vice-President – Virginia Operations, CNX Resources |
| 10:43 – 10:48 | Nuclear Industry Update<br>• April Wade, Virginia Nuclear Energy Consortium |
| 10:48 – 10:58 | Project Updates<br>• Will Payne, Energy DELTA Lab<br>• Duane Miller, LENOWSICO Planning District Commission<br>• Will Clear, Virginia Department of Energy |
| 10:58 – 11:03 | Annual Report |
| 11:03 – 11:13 | Closed Session (if necessary) |
| 11:13– 11:18 | New Business / Announcements<br>• Nominations Committee |
| 11:18 – 11:19 | Adjournment |

- Mike Quillen, Chair

Minutes

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

Authority members not present: Dr. Marcy Hernick and Dr. Mike Karmis

Staff/advisors present: Mr. Will Payne

Speakers present: Mr. Brian Green (CNX Resources) and Mr. Will Clear (Virginia Department of Energy)

On September 12, 2023, the Authority convened a quorum at 10:02 a.m. in person at the Southwest Virginia Higher Education Center.

Mr. Quillen welcomed Authority members and those from the public joining in person. Mr. Quillen then reviewed the meeting agenda.

Mr. Quillen requested a motion to approve the draft minutes from the May 9, 2023 meeting. The motion to approve was made by Mr. Steve Breeding, seconded by Mr. Duane Miller and approved unanimously by a voice vote of the Authority.

Mr. Quillen opened up the floor to comments from the public in attendance.

Mr. Quillen welcomed Mr. Brian Green, Vice President of Virginia Operations for CNX Resources. Mr. Green presented an overview of CNX's business operations in Virginia and the company's plans to capture coal mine methane from active, inactive and abandoned coal mines as a low-carbon intensity feedstock for manufacturing and energy generation projects in Southwest Virginia.

Mr. Quillen called on Mr. Miller to update the Authority on the LENOWISCO Planning District Commission's clean energy initiatives. Mr. Miller discussed the Commission's Small Modular Reactor (SMR) site feasibility study released in April 2023 with funding from the Virginia Department of Energy and the GO Virginia Region One Council. Mr. Miller also introduced the Commission's SMR supply chain study with funding from the U.S. Economic Development Administration. Mr. Miller

commented that this study will enable a comprehensive examination of the region's potential to become a hub for SMR development and deployment, fostering economic growth and sustainability.

Mr. Quillen called Mr. Will Payne and Mr. Will Clear to update Authority members on Energy DELTA Lab projects, including new transmission infrastructure to coincide with proposed clean energy generation projects, including wind and utility scale solar developments.

Mr. Quillen called on Mr. Payne to review the officer nominating process, in which Mr. Miller will serve as chair of the Nominating Committee. Authority members were encouraged to offer nominations for the chair and vice chair roles.

There being no further business, Mr. Quillen adjourned the meeting at 11:18 a.m.

# December 11, 2023

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

Agenda

| | |
|---|---|
| 10:00 – 10:01 | Call to Order<br>• Mike Quillen, Chair |
| 10:01 – 10:03 | Approval of Minutes from September 12, 2023<br>• Mike Quillen, Chair |
| 10:03 – 10:13 | Nominating Committee Report<br>• Duane Miller, Chair, Ad Hoc Nominating Committee |
| 10:13 – 10:15 | 2024 Meeting Schedule |
| 10:15 – 10:20 | Nuclear Industry Update<br>• April Wade, Virginia Nuclear Energy Consortium |
| 10:20 – 10:50 | The Role of Carbon Capture, Utilization and Storage (CCUS) in Meeting the Net-Zero Energy Targets |

- Dr. Mike Karmis

10:50 – 11:05 Energy DELTA Lab Update
- Will Payne, Coalfield Strategies
- Will Clear, Virginia Energy Strategies

11:05 – 11:15 Closed Session (if necessary)

11:15 – 11:30 Public Comment

11:30– 11:35 New Business / Announcements

11:35 – 11:35 Adjournment

Minutes

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

Authority members not present: Mr. Jasen Eige

Staff/advisors present: Mr. Will Clear and Will Payne

Speakers present: Ms. April Wade (Virginia Nuclear Energy Consortium) (virtual)

On December 11, 2023, the Authority convened a quorum at 10:00 a.m. in person at the Southwest Virginia Higher Education Center.

Mr. Quillen welcomed Authority members and those from the public joining in person. Mr. Quillen then reviewed the meeting agenda.

Mr. Quillen requested a motion to approve remote participation by Ms. Cox and Dr. Karmis. 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 requested a motion to approve the draft minutes from the September 12, 2023 meeting. The motion to approve was made by Dr. Hernick, seconded by Mr. Breeding and approved unanimously by a voice vote of the Authority.

Mr. Quillen turned the meeting over to Mr. Miller as chair of the Authority's Nominating Committee. Mr. Miller indicated there was strong interest among Authority members in continuing the Authority's leadership team. Mr. Miller then moved to elected Mr. Quillen as chair and Dr. Westover as vice chair. The motion was seconded by Mr. Poteet and was approved unanimously by a voice vote of the Authority.

Mr. Quillen reviewed options for the Authority's quarterly meeting schedule for 2024. Mr. Miller suggested the Authority meet three times annually, given there was no requirement to hold four meetings. Mr. Quillen tasked Mr. Payne with coming up with a schedule for meetings in March, May and October.

Mr. Quillen called on Dr. Karmis to present on the role of carbon capture, utilization and storage in meeting net-zero energy targets. Dr. Karmis discussed the bipartisan nature of the technology, including federal investment from the Clinton, Bush '43, Obama, Trump and Biden administrations. In fact, the 2021 Infrastructure, Investment and Jobs Act designated over $3 billion toward a variety of carbon capture demonstration projects. A similar amount was provided for regional carbon capture hubs that focus on the broader capture, transport and either storage or use of captured $CO_2$. In addition, hundreds of millions of dollars were dedicated annually to loan guarantees supporting $CO_2$ transport infrastructure.

Mr. Quillen called Mr. Will Clear and Mr. Will Payne to update Authority members on Energy DELTA Lab projects, including new electrical transmission infrastructure to coincide with proposed clean energy generation projects, including wind and utility scale solar developments as well as potential users, such as data centers, which will provide high-paying jobs and significant tax benefits replacing other decreasing local tax revenues.

Mr. Quillen welcomed Ms. Wade with the Virginia Nuclear Energy Consortium to discuss nuclear energy industry updates, including education and training initiatives underway for local government officials and community members.

Mr. Quillen asked if there were any comments from the public in attendance.

There being no further business, Mr. Quillen adjourned the meeting at 11:08 a.m.

# March 20, 2024

UVA Wise
Chancellor's Suite – David J. Prior Convocation Center
437 Stadium Drive, Wise, VA 24293

## Agenda

| | |
|---|---|
| 10:30 – 10:31 | Call to Order<br>• Mike Quillen, Chair |
| 10:31 – 10:33 | Approval of Minutes from December 11, 2023<br>• Mike Quillen, Chair |
| 10:33 – 10:53 | Public Comment |
| 10:53 – 11:18 | Legislative Update<br>• Larry Corkey, *Manager – Policy and Planning,* Virginia Department of Energy |
| 11:18 – 11:20 | Nuclear Industry Update<br>• April Wade, Executive Director, Virginia Nuclear Energy Consortium |
| 11:20 – 12:00 | Advanced Nuclear Pathways to Commercial Liftoff<br>• Julie Kozeracki, Senior Advisor, U.S. Department of Energy |
| 12:00– 12:02 | New Business / Announcements<br>• 2024 meetings: May 8 and October 9 at 10:00 a.m. at the Southwest Virginia Higher Education Center |
| 12:02 – 12:02 | Adjournment |

## Minutes

Authority members present: Mr. Michael Quillen (Chair), Dr. Kris Westover (Vice Chair), Ms. Amanda Cox, Dr. Mike Karmis, Mr. Duane Miller, Mr. Dan Poteet (virtual) and Ms. Lydia Sinemus.

Authority members not present: Mr. Steve Breeding, Mr. Jasen Eige, Dr. Marcy Hernick and Mr. Brad Kreps.

Advisors present: Mr. Will Clear and Will Payne (virtual)

Speakers present: Mr. Larry Corkey (Virginia Department of Energy), Ms. Julie Kozeracki (U.S. Department of Energy) and Ms. April Wade (Virginia Nuclear Energy Consortium)

On March 20, 2024, the Authority convened a quorum at 10:33 a.m. in person at the David J. Prior Convention Center at UVA Wise in Wise, VA.

Chairman Mike Quillen welcomed Authority members and those from the public joining in person. Mr. Quillen then reviewed the meeting agenda.

Mr. Quillen requested a motion to approve remote participation by Mr. Dan Poteet. The motion to approve was made by Vice Chair Kris Westover, seconded by Ms. Amanda Cox and approved unanimously by a voice vote of the Authority.

Mr. Quillen requested a motion to approve the draft minutes from the December 11, 2023 meeting. The motion to approve was made by Mr. Poteet, seconded by Ms. Cox and approved unanimously by a voice vote of the Authority.

Mr. Quillen opened up the floor to comments from the public in attendance.

Mr. Quillen called on Mr. Larry Corkey, Manager of Policy and Planning for the Virginia Department of Energy, to update the Authority on relevant legislative action during the 2024 General Assembly session.

Mr. Quillen welcomed Ms. Wade with the Virginia Nuclear Energy Consortium to discuss nuclear energy industry updates, including education and training initiatives underway for local government officials and community members.

Mr. Quillen called on Ms. Julie Kozeracki, Senior Advisor to the U.S. Department of Energy, to present on the Pathways to Commercial Liftoff report, in which the Department indicates “the domestic nuclear capacity has the potential to scale from ~100 GW in 2023 to ~300 GW by 2050—driven by deployment of advanced nuclear technologies.” The report also says that “power system decarbonization modeling, regardless of level of renewables deployment, suggests that the United

States will need ~550–770 GW of additional clean, firm capacity to reach net-zero; nuclear power is one of the few proven options that could deliver this at scale, while creating high-paying jobs with concentrated economic benefits for communities most impacted by the energy transition." Ms. Kozeracki discussed the Department's estimate that the United States needs to locate up to 1,000 reactors, which would place a premium on sites.

There being no further business, Mr. Quillen adjourned the meeting at 11:44 a.m.

# May 8, 2024

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

Agenda

| | |
|---|---|
| 10:00 – 10:01 | Call to Order<br>• Mike Quillen, Chair |
| 10:01 – 10:02 | Approval of Minutes from March 20, 2024<br>• Mike Quillen, Chair |
| 10:02 – 10:12 | Public Comment |
| 10:12 – 10:32 | Overview and Timing of the Fusion Energy Industry<br>• Andrew Holland, Fusion Industry Association |
| 10:32 – 11:02 | Meeting the Commonwealth's Energy Demand<br>• Emil Avram, Dominion Energy |
| 11:02 – 11:27 | Evolve CAPP Update<br>• Dr. Richard Bishop, Virginia Tech |
| 11:27– 11:28 | New Business / Announcements |
| 11:28 – 11:29 | Adjournment |

## Minutes

Authority members present: Mr. Michael Quillen (Chair), Mr. Steve Breeding, Ms. Amanda Cox (virtual), Mr. Jasen Eige, Dr. Marcy Hernick, Dr. Mike Karmis (virtual), Mr. Brad Kreps, Mr. Duane Miller and Mr. Dan Poteet (virtual).

Authority members not present: Ms. Lydia Sinemus and Dr. Kris Westover (Vice Chair).

Advisors present: Mr. Will Clear and Will Payne

Speakers present: Mr. Emil Avram (Dominion Energy), Dr. Richard Bishop (Virginia Tech) and Mr. Andrew Holland (Fusion Industry Association).

On May 8, 2024, the Authority convened a quorum at 10:03 a.m. in person at the Southwest Virginia Higher Education Center in Abingdon, VA.

Chairman Mike Quillen welcomed Authority members and those from the public joining in person. Mr. Quillen then reviewed the meeting agenda.

Mr. Quillen requested a motion to approve remote participation by Ms. Amanda Cox, Dr. Mike Karmis and Mr. Dan Poteet. The motion to approve was made by Dr. Marcy Hernick, seconded by Mr. Steve Breeding and approved unanimously by a voice vote of the Authority.

Mr. Quillen requested a motion to approve the draft minutes from the March 20, 2024 meeting. The motion to approve was made by Mr. Jasen Eige, seconded by Mr. Duane Miller and approved unanimously by a voice vote of the Authority.

Mr. Quillen opened up the floor to comments from the public in attendance.

Mr. Quillen welcomed Mr. Emil Avram of Dominion Energy to present on the utility's strategies to meet Virginia's growing energy demand.

Mr. Quillen welcomed Mr. Andrew Holland of Fusion Industry Association to present on the organization's purpose, membership and technology advances on the horizon.

Mr. Quillen welcomed Dr. Richard Bishop of Virginia Tech to present on an update of Evolve CAPP related to critical mineral extraction in Central Appalachia. Dr. Bishop detailed plans to move forward

with the next phase of the project with the U.S. Department of Energy that would include a larger geographic area.

Mr. Quillen indicated the Authority's annual report will be due on October 15 and that the next meeting will be held on October 9.

There being no further business, Mr. Quillen adjourned the meeting at 11:34 a.m.

# Appendix A — Code of Virginia

Article 6. Southwest Virginia Energy Research and Development Authority.

**§ 45.2-1717. (Effective until July 1, 2029) Definitions.**
As used in this article, unless the context requires a different meaning:

"Authority" means the Southwest Virginia Energy Research and Development Authority established pursuant to this article.

"Coal mine methane" means methane gas captured and produced from an underground gob area associated with a mined-out coal seam that would otherwise escape into the atmosphere.

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

"Energy development project" means any activity that generates, produces, or stores energy, any energy efficiency system, and any supporting ancillary activities located within Southwest Virginia and includes interests in land, improvements, and ancillary facilities and research, development, commercialization, and deployment activities designated by the Authority to the nonprofit collaborative.

"Nonprofit collaborative" means a multi-site nonprofit innovative energy technology testbed established as a collaborative effort of the Department of Energy, the Authority, and the Authority's business partners to support the Authority's purpose through energy technology research, development, commercialization, and deployment.

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

"Southwest Virginia Energy Park" means the nonprofit collaborative.
2019, cc. 555, 556, § 67-1600; 2021, Sp. Sess. I, c. 387; 2023, cc. 720, 721.

**§ 45.2-1718. (Effective until July 1, 2029) Southwest Virginia Energy Research and Development Authority established; purpose.**
The Southwest Virginia Energy Research and Development Authority is established as a political subdivision of the Commonwealth. The purposes of the Authority are to promote opportunities for energy development in Southwest Virginia, create jobs and economic activity in Southwest Virginia

consistent with the Virginia Energy Plan prepared pursuant to Article 4 (§ 45.2-1710 et seq.), and 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 article.

2019, cc. 555, 556, § 67-1601; 2021, Sp. Sess. I, c. 387.

**§ 45.2-1719. (Effective until July 1, 2029) Membership; terms; vacancies; expenses.**

A. The Authority shall have a total membership of 11 nonlegislative citizen members appointed as follows: four members to be appointed by the Governor, four members to be appointed by the Speaker of the House of Delegates, and three members to be appointed by the Senate Committee on Rules. All members of the Authority shall be citizens of the Commonwealth.

B. Except as otherwise provided in this article, 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, each of whom shall serve in such capacity at the pleasure of the Authority. The chairman, or in his absence the vice-chairman, shall preside at each meeting 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 funds 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 article, 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, § 67-1602; 2021, Sp. Sess. I, c. 387.

**§ 45.2-1720. (Effective until July 1, 2029) Powers and duties of the Authority.**
In addition to the other powers and duties established under this article, the Authority has 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 any place within the Commonwealth it designates;

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 established;

5. Make and execute contracts and all other instruments and agreements necessary or convenient for the exercise of its powers and functions, including executing contracts and all other instruments and agreements that the Authority deems necessary with the nonprofit collaborative;

6. Employ, in its discretion, consultants, attorneys, architects, engineers, accountants, financial experts, investment bankers, superintendents, managers, and any other employees and agents 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 other state, from any municipality, county, or other political subdivision thereof, or from 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 its political subdivisions and with lenders and enter into loans with contracting parties for the purpose of conducting research and development, energy project development, and planning, regulating, and providing for the financing or leasing or assisting in the financing or leasing of any project;

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

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

12. Support energy development projects generally, including pump storage hydropower, energy storage, hydrogen production and uses, carbon capture and storage, geothermal energy, and advanced wind and solar energy;

13. Promote energy development projects on closed power plant sites, brownfield sites, former coal mine sites, reclaimed coal mine sites, abandoned mine lands, and lands adjacent thereto;

14. Promote energy workforce development and energy supply chain development;

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

16. Identify and work with the Commonwealth's industries and nonprofit partners and, through mutually agreed collaborations, the Commonwealth's research and development partners, in advancing efforts related to energy development in Southwest Virginia; and

17. Promote the capture and beneficial use of coal mine methane from active, inactive, and abandoned coal mines as a low-carbon intensity feedstock for manufacturing and energy generation projects located in Southwest Virginia.

2019, cc. 555, 556, § 67-1603; 2021, Sp. Sess. I, c. 387; 2023, cc. 720, 721.

**§ 45.2-1721. (Effective until 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

Committee on Appropriations, the Senate Committee on Finance and Appropriations, the House Committee on Labor and Commerce, and the Senate Committee on Commerce and Labor.

2019, cc. 555, 556, § 67-1604; 2021, Sp. Sess. I, c. 387.

**§ 45.2-1722. (Effective until 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 any person or entity applying for or receiving an allocation of any federal loan guarantee, as well as specific information relating to the amount of, or the identity of the recipient of, such distribution, shall be subject to disclosure in accordance with the Virginia Freedom of Information Act (§ 2.2-3700 et seq.).

2019, cc. 555, 556, § 67-1605; 2021, Sp. Sess. I, c. 387.

**§ 45.2-1723. (Effective until July 1, 2029) Declaration of public purpose; exemption from taxation.**
A. The exercise of the powers granted by this article 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 deemed to be performing an essential governmental function in the exercise of the powers conferred upon it by this article, 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 article.

2019, cc. 555, 556, § 67-1606; 2021, Sp. Sess. I, c. 387.

**§ 45.2-1724. (Effective until July 1, 2029) Sunset.**
The provisions of this article shall expire on July 1, 2029.

2019, cc. 555, 556, § 67-1607; 2021, Sp. Sess. I, c. 387.

# Appendix B — Bylaws

*Updated 3/14/23*

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 45.2-1717 et seq. 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 45.2, Chapter 17, 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 17 (§ 45.2-1710 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 AND STAFF.

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 Va. Code §§ 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.

Section 5. Staff.

The Authority may appoint an Executive Director responsible for the administration and management of the Authority as provided by the Bylaws and other duties as prescribed by the Authority. The Authority may formalize this role either by contract or memorandum of agreement.

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 Chair. 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 Bylaws.

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.

Article V. ELECTRONIC MEETINGS POLICY – GENERAL PROVISIONS.

Section 1. Authority and Scope.

A. Authority. This Electronic Meetings Policy (the "Policy") consisting of Articles V through VII of these Bylaws is adopted pursuant to the authorization of Va. Code § 2.2-3708.3 and is to be strictly construed in conformance with the Virginia Freedom of Information Act (VFOIA), Va. Code §§ 2.2-3700—3715. This Policy supersedes any prior policy of the Authority on remote participation in Authority meetings.

B. Distinction from States of Emergency. This Policy shall not govern an electronic meeting conducted to address a state of emergency. Any meeting conducted by electronic communication means under such circumstances shall be governed by the provisions of Va. Code § 2.2-3708.2.

Section 2. Definitions.

As used in Articles V through VII comprising this Electronic Meetings Policy, unless the context requires a different meaning:

"All-virtual public meeting" means a public meeting conducted by the Authority using electronic communication means during which all members of the public body who participate do so remotely rather than being assembled in one physical location, and to which public access is provided through electronic communication means, as defined by Va. Code § 2.2-3701.

The terms "Authority," "Chair," and "Vice Chair" have the meanings attributed to them in Section 3 of this Article whenever this Policy is used for remote participation in a committee meeting or an all-virtual meeting of a committee.

"Committee" includes any group of members of the Authority, however labeled or designated, created to perform delegated functions of the Authority or to advise the Authority, regardless of where or how the committee meets, whether or not votes are cast in any meeting of the committee, or how many Authority members are part of the committee. The term "committee" includes subcommittees.

"Meeting" means a meeting as defined by Va. Code § 2.2-3701.

"Notify" or "notifies," for purposes of this policy, means written notice, such as email or letter. Notice does not include text messages or communications via social media.

"Remote participation" means participation by an individual member of the Authority by electronic communication means in a public meeting where a quorum of the Authority is physically assembled, as defined by Va. Code § 2.2-3701.

Section 3. Committees.

A. Committee Meetings to Be Public. Committees of the Authority (however labeled or designated) are public bodies under the Virginia Freedom of Information Act; and therefore, committee meetings (like meetings of the Authority itself) must be publicly noticed, publicly accessible, and memorialized by the taking of minutes, as required by § 2.2-3707 of the Code of Virginia.

B. Remote Participation in Committee Meetings. Pursuant to § 2.2-3708.3(D), Article VI (Remote Participation of Individual Members) and Article VII (All-Virtual Meetings) of these Bylaws both apply to committees, as well as to the Authority itself. When a committee meets virtually, or when any member of a committee participates remotely, the term "Authority" (as used in Article VI or Article VII shall be deemed to refer to the committee, and the terms "Chair" and "Vice Chair" shall refer to the Chair and Vice Chair of the committee.

ARTICLE VI. REMOTE PARTICIPATION OF INDIVIDUAL MEMBERS.

Section 1. Physical Quorum Required.

Regardless of the reasons why a member is participating in a meeting from a remote location by electronic communication means, no member shall participate remotely under this Article unless a quorum of the Authority have been physically assembled at the primary or central meeting location.

Section 2. Process to Request Remote Participation.

A. On or before the day of the meeting, and at any point before the meeting begins, the requesting member must notify the Chair (or the Vice Chair if the requesting member is the Chair) that the member is unable to physically attend a meeting due to:

1. a temporary or permanent disability or other medical condition that prevents the member's physical attendance;
2. a family member's medical condition that requires the member to provide care for such family member, thereby preventing the member's physical attendance;
3. the member's principal residence location being more than 60 miles from the meeting location; or
4. a personal matter, the nature of which is identified with specificity by the member.

B. The requesting member shall also notify the Authority's staff liaison of their request, but their failure to do so shall not affect their ability to remotely participate.

C. If the requesting member is unable to physically attend the meeting due to a personal matter, the requesting member must state with specificity the nature of the personal matter. Remote participation due to a personal matter is limited each calendar year to two meetings or 25 percent of the meetings held per calendar year rounded up to the next whole number, whichever is greater. There is no limit to the number of times that a member may participate remotely for the other authorized purposes listed in (1) through (3) of Section 2.

D. The requesting member is not obligated to provide independent verification regarding the reason for their nonattendance, including the temporary or permanent disability or other medical condition or the family member's medical condition that prevents their physical attendance at the meeting.

E. The Chair (or the Vice Chair if the requesting member is the Chair) shall promptly notify the requesting member whether the member's request is in conformance with this policy, and therefore approved or disapproved.

Section 3. Process to confirm approval or disapproval of participation from a remote location.

When a quorum of the Authority has assembled for the meeting, the Authority shall vote to determine whether the Chair's decision to approve or disapprove the requesting member's request to participate from a remote location was in conformance with this policy.

For the purpose of assuring compliance with this Article, the Authority may adopt a resolution approving the remote attendance of the requesting member. A template form of such resolution is included as Annex A to the Bylaws. Likewise, if the Chair disapproves the remote attendance of the requesting member (or if the Authority fails to ratify the Chair's decision), then the Chair should certify such decision using the form on Annex B. The Executive Director to the Authority is directed to bring copies of Annex A and B to all meetings of the Authority, so that these forms may be filled out when necessary.

Section 4. Recording in Minutes.

A. If the member is allowed to participate remotely due to a temporary or permanent disability or other medical condition, a family member's medical condition that requires the member to provide care to the family member, or because the member's principal residence is located more than 60 miles from the meeting location, the Authority shall record in its minutes (1) the Authority's approval of the member's remote participation; and (2) a general description of the remote location from which the member participated.

B. If the member is allowed to participate remotely due to a personal matter, such matter shall be cited in the minutes with specificity, as well as how many times the member has attended remotely due to a personal matter for that calendar year, and a general description of the remote location from which the member participated.

C. If a member's request to participate remotely is disapproved, the disapproval, including the grounds upon which the requested participation violates this policy or the Virginia Freedom of Information Act, shall be recorded in the minutes with specificity.

Section 5. Closed Session.

If the Authority goes into closed session, the member participating remotely shall ensure that no third party is able to hear or otherwise observe the closed meeting.

Section 6. Strict and Uniform Application of this Policy

A. This Policy shall be applied strictly and uniformly, without exception, to the entire membership, and without regard to the identity of the member requesting remote participation or the matters that will be considered or voted on at the meeting.

B. Staff shall maintain the member's written request to participate remotely and the written response for a period of one year, or other such time required by records retention laws, regulations, and policies.

ARTICLE VII. ALL-VIRTUAL MEETINGS.

Section 1. When an all-virtual public meeting may be authorized.

An all-virtual public meeting may be held only when:

a. The Authority has not had more than two all-virtual public meetings, or more than 25 percent of its meetings rounded up to the next whole number, whichever is greater, during the calendar year; and
b. The Authority's last meeting was not an all-virtual public meeting.

Section 2. Process to Authorize an All-Virtual Public Meeting.

The Authority may schedule its all-virtual public meetings at the same time and using the same procedures used by the Authority to set its meetings calendar for the calendar year. Alternatively, if the Authority wishes to have an all-virtual public meeting on a date not scheduled in advance on its meetings calendar, and an all-virtual public meeting is authorized under Section 3 above, the Authority Chair may schedule an all-virtual public meeting provided that any such meeting comports with VFOIA notice requirements.

Section 3. All-Virtual Public Meeting Requirements

The following applies to any all-virtual public meeting of the Authority that is scheduled in conformance with this Policy:

a. The meeting notice indicates that the public meeting will be all-virtual and the Authority will not change the method by which the Authority chooses to meet without providing a new meeting notice that comports with VFOIA;
b. Public access is provided by electronic communication means that allows the public to hear all participating members of the Authority;
c. Audio-visual technology, if available, is used to allow the public to see the members of the Authority;
d. A phone number, email address, or other live contact information is provided to the public to alert the Authority if electronic transmission of the meeting fails for the public, and if such transmission fails, the Authority takes a recess until public access is restored;

e. A copy of the proposed agenda and all agenda packets (unless exempt) are made available to the public electronically at the same time such materials are provided to the Authority;
f. The public is afforded the opportunity to comment through electronic means, including written comments, at meetings where public comment is customarily received; and
g. There are no more than two members of the Authority together in one physical location.

Section 4. Recording in Minutes.

Minutes shall be taken, as required by VFOIA, and must include the fact that the meeting was held by electronic communication means and the type of electronic communication means used.

Additionally, pursuant to Virginia Code § 2.2-3707(H), minutes shall also include:
a. the identity of the members of the public body who participated in the meeting through electronic communication means;
b. the identity of the members of the public body who were physically assembled at one physical location; and
c. the identity of the members of the public body who were not present at the location identified in clause (b) but who monitored such meeting through electronic communication means.

Section 5. Closed Session.

If the Authority goes into closed session, transmission of the meeting to the public will be suspended until the public body resumes to certify the closed meeting in open session.

Section 6. Strict and Uniform Application of this Policy

This Policy shall be applied strictly and uniformly, without exception, to the entire membership, and without regard to the matters that will be considered or voted on at the meeting.

ARTICLE VIII. BYLAWS.

Section 1. Effective Date.

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

Section 2. Amendments.

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

# Appendix C — In the News

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

Virginia has Gone Nuclear, And Tennessee Should Follow Suit
Staff, *Business Journal of Tri-Cities Tennessee / Virginia,* October 2023

SVERDA Briefed On new Energy, Manufacturing Opportunities
A.J. Kauffman, *Business Journal of Tri-Cities Tennessee / Virginia,* October 2023

Youngkin Announces Several Clean Energy Projects in Wise County
Staff, *Business Journal of Tri-Cities Tennessee / Virginia,* November 2023

7 Sites Were Studied As Potential Locations for a Small Modular Reactor in Southwest Virginia. Here's a Closer Look
Susan Cameron, *Cardinal News,* October 23, 2023

Land Agreement Puts Mine Land Company Into Virginia's Energy Plan
Mike Still, *Kingsport Times News,* November 1, 2023

Study of Carbon Dioxide Storage Hub Proposed for Wise County Receives $4.29 Million Federal Grant
Susan Cameron, *Cardinal News,* November 16, 2023

Virginia Energy Gets Share of $444 Million for Carbon Dioxide Storage Study
Mike Still, *Kingsport Times News,* November 15, 2023

A Hub For Energy Research In Southwest Virginia
Staff, *VEDP,* December 2023

Betting On Energy Innovation: A Conversation With Will Payne
Staff, *VEDP,* December 2023

5 SWVA Projects Recommended for $9.5M In Federal Grants
Katherine Schulte, *Virginia Business,* January 26, 2024

Five Projects Selected For Revitalization Grants In Virginia's Abandoned Mines
Ezra Hercyk, *WSET 13,* January 25, 2024

Millions in AMLER Grant Funds Awarded to Southwest Virginia
Slater Teague, *WJHL,* January 25, 2024

Federal Grants Tap Project Intersection, Data Center Demo
Mike Still, *Kingsport Times News,* January 29, 2024

Virginia Project Gets $3M To Cool Data Centers With Mine Water
Peter Judge, *Data Center Dynamics,* January 30, 2024

Data Center Cooling, Power Technology Under Demonstration in SWVA
Mike Still, *Kingsport Times News,* February 26, 2024

Southwest Va. Big Deal: Land Ho!
Paul Bergeron, *Virginia Business, February 28, 2024*

As States Increasingly Look to Advanced Nuclear, Wyoming, Virginia and Michigan Lead The Way
Brian Martucci, *Utility Dive, April 17, 2024*

Search for Rare Earth Elements to Continue In Central Appalachia
Joe Dashiell, *WDBJ7,* May 8, 2024

Virginia Explained: Data Center Expansion, with All Its Challenges and Benefits
Charlie Paullin, *Virginia Mercury,* May 28, 2024

Malting House Spurs Growth for Value Added Crops
Des Keller, *Progressive Farmer,* July 31, 2024

Promoters of Clean-Energy Data Centers In Virginia Coal Country Unfazed By Doubters
Elizabeth McGowan, *Energy News Network,* September 10, 2024

Could Old Coal Sites Be Recycles As New Data Center Campuses
Diana Goovaerts, *Fierce Network,* September 18, 2024

## Virginia Has Gone Nuclear, And Tennessee Should Follow Suit

By Staff
*Business Journal of Tri-Cities Tennessee / Virginia*
October 2023

Government often acts in a reactive manner, particularly on the federal level. federal level. Something goes wrong, outrage pops up on social media like a mid-summer thunderstorm, politicians race to the nearest TV camera with their best soundbites, opportunists come pouring out of the woodwork to propose solutions and in the end, legislation is passed.

It's easy to see why the cynics, and quite frankly, the realists among us bemoan the lack of foresight among our elected officials. But every now and then, faith is restored. That was the case for me this week as I came across this headline on CNBC: Microsoft is hiring a nuclear energy expert to power its A.I. and cloud data centers. My thoughts immediately turned to Virginia Governor Glenn Youngkin, who proposed locating the nation's first commercial small modular reactor (SMR) in Southwest Virginia around this time last year.

The proposal was part of Youngkin's "All-American, All-of-the-Above" energy plan. In addition to producing nuclear power in Southwest Virginia, Youngkin has championed the implementation of an energy testbed - the Energy DELTA Lab - that aims to establish the region - and the state as a whole - as a hub of energy innovation.

As it stands, Virginia is already home to the largest data center market in the world as 35 percent of all hyperscale data centers on the planet are located inside the common-
wealth. Currently, many of those centers are located in the northern half of the state.

But cloud data centers and A.I operating at peak capacity require two things - a massive amount of reliable energy and a large supply of water to cool the servers. SMRs seem to be ideal sources of massive amounts of reliable, clean energy, and the cool water that has filled the abandoned mine shafts in Southwest Virginia seem capable of being used in cost-efficient cooling systems for servers. When you add those two things together, Southwest Virginia is primed for a great deal of growth because of Youngkin's foresight.

In recent years, our neighbors in Virginia have looked across the border and taken note of the workforce development successes achieved under Tennessee Governor Bill Lee. As a result, several steps have been taken to help transform Virginia's workforce development system, bolster training programs and streamline the licensure process in an effort to help make the state more competitive.

Likewise, there are lessons to be learned in Tennessee as Youngkin's vision for clean energy independence begins to pay dividends.

It was nearly 100 years ago when the economic development engine known as the TVA was created. It has since helped move our region into the future through the creation of hydroelectric energy. The organization modernized our economy and helped beat back the poverty that was far more prevalent in our region before the TVA's formation.

As our elected officials and business leaders look ahead to a future that is increasingly digital, it is time to observe what is working in Virginia and act accordingly. Our current power grid will not be adequate to facilitate businesses as they scale up their operations in the digital age, and a failure to recognize that and find solutions will limit Tennessee's ability to meet the needs of businesses in the years to come.

SVERDA Briefed On new Energy, Manufacturing Opportunities

By A.J. Kauffman
*Business Journal of Tri-Cities Tennessee / Virginia*
October 2023

Youngkin Announces Several Clean Energy Projects in Wise County

By Staff
*Business Journal of Tri-Cities Tennessee / Virginia*
November 2023

7 Sites Were Studied As Potential Locations for a Small Modular Reactor in Southwest Virginia. Here's a Closer Look

By Susan Cameron
*Cardinal News*
October 23, 2023

One site sits on a former limestone mine whose interior is described as a domed cathedral with 40-foot ceilings and a waterfall. It was also once considered the largest bomb shelter in the world.

Another property was home to one of the biggest underground coal mines in Southwest Virginia, owned by the oldest and at one time one of the largest coal companies in the country.

Two others are also on former coal mined land that are now being reshaped as successful industrial parks — one is in a Wise County town and the other is just outside a town.

All are among the seven properties identified as possible sites for a small modular nuclear reactor, or SMR, in a feasibility study conducted for the LENOWISCO Planning District Commission. The study, released in May, was done in the months following Gov. Glenn Youngkin's announcement last October that he planned to place the first commercial SMR in the coalfields of Southwest Virginia.

SMRs are smaller, simpler versions of traditional nuclear reactors that produce about a third of the power produced by the big reactors. They can be built in a factory and shipped to a site, which saves construction time, reduces the risks and is cheaper than constructing a large reactor.

No SMRs have yet been built in the United States, although one SMR design has been approved by the U.S. Nuclear Regulatory Commission.

Nearly two weeks after Youngkin announced his SMR plan as part of his energy package, the governor held a news conference on a former coal mine site near Norton to release more details. On the way back to his office, LENOWISCO Executive Director Duane Miller said he and his team strategized about how they could take action and be ready if that opportunity does come to the region.

They decided to seek funding in hopes of launching a study to answer the question of whether the region has the capabilities to be a "competitive hosting ground" for an SMR. The $150,000 in funding came through from Virginia Energy and GO Virginia Region 1.

Dominion Engineering Inc. of Reston was hired to conduct the study. (Dominion Engineering is not related to Dominion Energy.)

The analysis took place over three months and looked at technical feasibility, safety considerations, economic viability and preliminary sites in the LENOWISCO area of Lee, Wise and Scott counties and the city of Norton, plus Dickenson County.

The review was conducted using the Siting Tool for Advanced Nuclear Development, or STAND, which is used by the NRC and aggregates data from multiple governmental sources and ranks the proposed sites with respect to socioeconomic, proximity and safety suitability factors.

The sites identified in the study were chosen because they are "pretty much the seven predominant sites that are either in development or we've discussed for development in our region," Miller said.

However, he and Thomas Lawson, a regional planner with LENOWISCO who was the project lead on the feasibility study, emphasized that the sites are all just potential, example sites that show the variety of what's available in the region.

"There's a strong possibility all seven of these sites, none of them would be utilized, but it was kind of to say, 'OK, here's some of the example sites we have, how do they stack up with this feasibility study?'" Miller added.

It turned out that all the sites scored well with the STAND tool.

"We were either equal to or better than all the sites in the United States. I mean we're as competitive as anywhere," he said.

Still, several environmental groups have raised concerns about some of the sites, particularly those that are in or near towns and so are closer to homes and businesses.

But the biggest complaint has been that so far, the public is being left out of the process.

Miller has said that there will be opportunities for public participation in 2024. Until the planning district commission completed the feasibility study that answered the question of whether the region was capable of deploying an SMR, there was no need to seek public input, he said.

Here's a closer look at the seven sites:

Bullitt Mine site, Wise County

At 4,000 acres, the largest by far of the identified sites is the former Bullitt Mine site, which is outside the town of Appalachia in Wise County near the Lee County line. This huge parcel could house multiple 300-megawatt SMRs, according to Miller.

The property is privately owned, at least partially by A & G Coal Corp., according to Wise County's online property records.

Both Miller and Will Clear, chief deputy director of the Virginia Department of Energy, consider the parcel of land one of the best sites for development in the area.

“That piece of property, I think, can be utilized for a lot of different things, including data centers, industrial, solar, potentially there’s a little bit of wind opportunity there,” Clear said. “It’s a very large site with about five really good pad locations. ”

The land has a long history of mining, both surface and underground, including one of the largest underground mines in Southwest Virginia, the Bullitt mine, which was owned and operated by Westmoreland Coal Co. and closed in the mid-1990s as production declined, Clear said. There are three underground mined seams beneath the land.

According to the U.S. Mines Database, the status of the mine is “abandoned and sealed.”

The site is permitted with Virginia Energy and most of the permit area has been reclaimed, but it has not met all the necessary qualifications to be released from the agency’s authority, according to Tarah Kesterson, public relations manager for Virginia Energy.

The site, near the Wise-Lee County line, has been mentioned as a possible location for the Energy DELTA Lab, an energy technology testbed announced last fall. The project intends to turn some of the 100,000 acres of former coal mining sites in Southwest Virginia into laboratories to promote energy innovation.

“The discussion has been locating one of the main hubs of the Energy DELTA Lab” on the Bullitt property, Miller said. “There would be distinct advantages of having an SMR in an area where you also have all the things that are going on with the DELTA Lab.”

An initial site for the DELTA Lab — near the town of Pound in Wise County — was announced last October. The property is owned by the Cumberland Forest Limited Partnership and managed by the Nature Conservancy.

The Bullitt Mine site was also one of two considered by Dominion Energy Virginia as a location for a pumped hydroelectric storage facility. Ultimately, Dominion chose the 4,100-acre East River Mountain site in Tazewell County and decided against moving forward with a smaller one at the Bullitt site.

[Disclosure: Dominion is one of our donors, but donors have no say in news decisions; see our policy.]

Hydroelectric storage works by storing water in an upper reservoir and releasing it into a lower body of water, spinning turbines to produce electricity when it’s needed.

Dominion said in a June 2019 news release that the Bullitt Mine site was analyzed by the Virginia Center for Coal and Energy Research, which determined that it's "not suitable for a utility-scale pumped storage project."

The Bullitt site is also "inundated" with a minimum of about 4 billion gallons of water, according to Clear. The water is considered very clean and could be used to cool an SMR or data center, according to the feasibility study.

Much of the site is flat as a result of mining, which makes it a strong candidate for development in the mountainous region.

Undermining is an issue because developers must make sure the site surface is stable, Clear explained.

That happens when a "a piece of property has been undermined so effectively they've taken the coal out and they've either let it collapse or they let piers allow for that support," he said. "You've got to make sure there is surface stability and make sure there's not some kind of collapse or something that would come to the surface that would result in surface issues, and that's the real issue with a lot of sites in and around mining areas."

The power infrastructure is ample and already in place.

Some of the most successful economic developments in Southwest Virginia have occurred on previously mined properties, Clear added.

The site is also one of the most remote pieces of property identified in the study, away from the population centers in Wise County, although an environmental official pointed out that it is near an old coal camp, where there are more than 100 houses.

Another feature that might make it attractive for an SMR or another development: It is less than a mile from a Lee County property that is also among the seven sites identified in the feasibility study.

The Lee County site also has a lot of features that might make it attractive to the developer of an SMR.

The property is isolated, in addition to being just across Virginia 606 from the Bullitt site. In the future, Clear said the two properties might be combined.

"I think the idea is to connect that whole area long-term, no matter what we do," he said. "Because once you get one thing out there, you know, for example a data center, you're going to get multiple things out there. And so having all that property together is a huge opportunity."

The feasibility study also states that SMRs and data centers are "synergistic industries" that can be developed together because an SMR needs a customer for its power and data centers need clean, reliable energy.

At 10 acres, the Lee County site is much smaller than the Bullitt property, but it's still large enough to house multiple 300-megawatt SMRs, the study states.

It is also privately owned.

The land is currently permitted for coal mining, but it is going through the final stages of reclamation, Clear said. Reclamation, which occurs once mining is completed, rehabilitates the land so it can be used for other purposes.

The process can take five or six years to complete; it takes about three years just to vegetate a site, and it requires patience, Clear said.

There are three mine seams below the site, which contains a lot of mine water that could be used for cooling an SMR or data center.

It also has access to nearby rail lines for transportation and is less than a mile from Lake Keokee, a 92-acre impoundment surrounded by national forest lands that could also provide water for cooling. The site is also near a Kentucky Utilities' power substation.

Currently, there is enough backfill material on the land to be used for a pad for an SMR, the study states.

The property also carries a financial incentive: A $500,000 grant from the Abandoned Mine Land Economic Revitalization, or AMLER, program is committed to it, according to the study. Directed by the Office of Surface Mining Reclamation and Enforcement, the program is designed to explore and implement strategies that return legacy coal mining sites to productive uses through economic and community development.

The site of a former limestone mine in Scott County offers about 4 acres for development of an SMR.

The site with the most colorful history is a former limestone mine near Duffield in Scott County, which was once set aside as a national fallout shelter.

The above-ground site totals about 4 acres, making it large enough for multiple 300-megawatt SMR units, and is privately owned.

In 1909, as the South Atlantic and Ohio Railroad was building a line through the area, geologists discovered a pure source of limestone at the site, according to a history of Foote Mineral Co. written by historian Dr. Lawrence J. Fleenor Jr. of Big Stone Gap in 2017.

It was 1953 when Foote Mineral opened a plant at a community called Sunbright in rural Scott County, the history states. Foote already had a lithium plant in Pennsylvania.

There are a lot of stories about the mine, some that are vague or difficult to substantiate with the passage of time, including that its smoke stacks released a white powder that coated the landscape for miles around while liquid waste was dumped in settling ponds.

The history notes that it was common practice at that time for local governments to release untreated sewage into nearby streams, for local industries to release all types of gasses into the air, and for sinkholes to be used to dispose of garbage, dead animals and other materials.

The mine shut down in 1971, the history says. There are also reports of ties to the nuclear or atomic industry.

Inside the vacant limestone mine, the temperature stays a constant 55 degrees Fahrenheit and the mine water is 51 degrees. The mine also features a waterfall.

Its interior is like a huge cathedral, with 40-foot ceilings and rooms as big as football fields, Miller said.

At some point, the underground mine was designated a fallout shelter that was believed to be the largest in the world because it could accommodate as many as 45,000 people, according to a 1964 article in the Kingsport Times-News. The federal government supplied the site with medical supplies, food, sanitation and radiation supplies in case of an atomic attack, the story states.

The story said the mine is cut through by 16 miles of tunnels.

In 2021, the site was being considered for a data center, according to a story in The Roanoke Times.

Clear called the mine a “very interesting asset” whose low ambient temperature would mean a cost savings for businesses like SMRs or data centers, which need to be kept cool.

The site was described by Miller as the third most isolated site of the seven that were examined, although the feasibility study points out that it is near a residential area as well as a Tempur-Pedic mattress manufacturer, which is several miles away in Duffield.

Other attributes are a nearby Kentucky Utility transformer, an Appalachian Power substation and close access to rail lines.

There’s not much about the site in the feasibility study, which states that it’s an operating coal plant and that the property is not available for immediate development. It was included in the study for future reference, the document says.

According to Dominion, Virginia City is a 610-megawatt electric generating facility that uses a combination of waste coal, waste wood and run-of-mine coal, which is raw coal that comes directly from a coal plant, as fuel.

Since opening in July 2012, the center has generated more than 22.2 million megawatt hours of electricity, or enough to power the entire United States for two days.

Under the Virginia Clean Economy Act, which requires power companies to emit zero carbon by 2050, the Virginia City facility was originally set to close in 2030 but it will stay open until 2045, thanks to an amendment secured by Southwest Virginia legislators. Some environmentalists have said the plant is “uneconomic” and want it to close sooner.

Todd Flowers, Dominion’s director of business development, was asked about the sites included in the LENOWISCO feasibility study, including Dominion’s own Virginia City plant, and he said he was aware of the report but had no comment on the sites.

A November 2022 study by Dominion on the hybrid plant’s economic viability noted the inclusion of an SMR in the governor’s 2022 energy plan and said that when the Virginia City plant retires, an SMR “may offer a viable option for continued generation” at the site.

In a section of the Dominion study focused on repurposing the site once the plant is closed, the company analyzed the potential to use the site for solar, wind, energy storage and SMRs. Dominion said it identified approximately 65 acres that are suitable for development.

The study rules out solar, wind and energy storage for the plant site for different reasons, but states that the site could support various SMR technologies, including a 300-megawatt design.

But because SMR technology is still under development, “it would be too speculative to analyze and provide a more extensive discussion of the economic impacts, system reliability, environmental justice, or the social cost of carbon at this time,” according to Dominion’s study.

Two of the proposed sites, Mineral Gap and Project Intersection, are industrial parks that are being developed in Wise County, and both are near larger population centers, homes and businesses.

Both properties are also believed to be better locations for microreactors, nuclear reactors that are smaller in size and strength and that could provide power to one business or town.

Mineral Gap, also known as the Lonesome Pine Regional Business and Technology Park, is just outside the town of Wise, adjacent to the Lonesome Pine Airport.

A former coal mine site, the property currently has 76 acres of available land and totals 400 acres. It is home to the Wise Solar Project, the Intuit Call Center and the Mineral Gap Data Center.

It is also the temporary home of EarthLink, an internet service provider headquartered in Atlanta that is building a new customer service center at Project Intersection.

Project Intersection is in Norton, totals 80 acres and has four sites, one that’s taken and three that can be developed.

Nearly $22 million in grant funding, including money from the AMLER program, has been secured for its development, according to Miller.

Clear said he is particularly proud of the site, which he said is one of the best for development in Southwest Virginia.

“That is a true example of what AMLER was intended to do, is couple economic development with the cleanup of some of these old, abandoned mine sites,” he said.

EarthLink, whose customer service center is expected to open in March, will be its first tenant. The roads in the park were paved earlier this summer and the building is taking shape with a visible presence above the junction of U.S. highways 23 and 58.

A power substation is also adjacent to the property.

The feasibility study does say the site is close to a population center, single-family homes, businesses, a school and shopping center, which "must be carefully considered during siting" of an SMR.

The Red Onion site is in Dickenson County near the Wise County border. The land was mined for coal more than 30 years ago.

There was also once a wood chip mill on the site and a vacant building remains there, according to Clear.

He considers it a good site because although it's remote, it's close to U.S. 23, a combination that is hard to find, he said.

This site is also big enough to accommodate multiple 300-megawatt SMRs, according to the study.

The property is also close to Red Onion State Prison, a state supermax prison near the town of Pound, "which must be considered when evaluating evacuation zones," the study states.

The Red Onion site intersects with the Clintwood, Imboden, Imboden Marker, Lower Banner and Norton mines, the study states.

The property was purchased in 2014 by the Dickenson County Industrial Development Authority, according to Dana Cronkhite, the IDA's director of economic development.

The IDA is working to develop the site to include water, sewer, power, gas and broadband, with a project budget of $2.56 million, she said. Once the work is complete, the site is expected to offer three build-ready pads totaling 5 acres, 10 acres and 15 acres.

"At this time no action has been taken by the county with regard to the target market for the future industrial park," Cronkhite said.

Land Agreement Puts Mine Land Company Into Virginia's Energy Plan

By Mike Still
*Kingsport Times New*
November 1, 2023

A private-public development agreement will put 65,000 acres of Wise County mine land into the mix for future energy development.

Virginia Gov. Glenn Youngkin on Wednesday announced the agreement, which allows mining corporation Penn Virginia and its Texas-based parent company Energy Transfer to lease sites in a zone of mined land along the county's northwest crescent from Appalachia to Pound and into parts of Lee County.

The agreement follows a similar three-decade public-private partnership arrangement where mining companies would prepare the Coalfields Expressway highway project along a corridor from Pound through Dickenson and Buchanan counties.

Energy DELTA Lab — which is developing energy demonstration site projects for solar, wind and hydrogen energy storage in Southwest Virginia — would work with Wise County officials and Energy Transfer to partner with energy and electric utility companies on projects in the zone.
"This agreement will make Virginia energy more reliable, affordable and clean while transforming Southwest Virginia into a hub for innovation," Youngkin said Wednesday.
DELTA Lab was established to help guide energy projects as part of the state's energy plan announced by Youngkin a year ago. DELTA chair and former coal company Alpha Natural Resources CEO Mike Quillen said the agreement shows that coal production still has a role in the region's energy production future.

"The coal industry will continue to play its role in energy and the region's economic activity," said Quillen, "while providing talent, assets, developable land, power infrastructure and water resources to lead energy diversification through innovation."

Will Payne, managing partner of Coalfield Strategies and an advisor to Energy DELTA Lab, said the agreement does not yet specify projects that would be started or whether Energy Transfer would sell or lease specific sites.
Energy Transfer does retain surface and underground mineral rights of the 65,000 acres, Payne said, and Penn Virginia would continue mining operations or lease mining rights to other coal operators. The mining would provide prepared sites for construction on energy projects.
Payne said Energy DELTA Lab is looking at 12 or more energy projects with a potential $8.25 billion in total private investment in Virginia. That could translate into more than 1,600 new jobs and almost one gigawatt of new power generation. DELTA also is a partner in federal grant project applications for 2023 totaling approximately $600 million.

The Coalfields Expressway public-private partnership, while in existence since the mid-1990s and coming with a 1995 congressional approval for federal reimbursement of Virginia's construction costs, has seen most of its progress in Buchanan County and some work in Dickenson County with no actual expressway construction in Wise County.
Payne said the energy development agreement would show faster development with many energy projects identified by late 2024 and some projects either started or in progress by 2027 or 2028.

While Wednesday's development agreement would focus on several energy technologies — solar, wind, hydrogen, energy storage, pumped-storage hydroelectric power, energy efficient data centers and other technologies — Payne said Youngkin's October 2022 call for a small modular nuclear power plant in Southwest Virginia is not among the projects that would fall under the agreement.

A planned wind-solar demonstration site for the Meade Fork area near Pound, however, could be scaled up to a utility-scale power production facility, Payne added.

Several federal and state legislators — including Virginia Democratic U.S. Senators Mark Warner and Tim Kaine, Virginia House of Delegates Republican Majority Leader Terry Kilgore and Ninth District Republican Congressman Morgan Griffith — all congratulated the agreement as a step toward energy diversity and project development.

Study of Carbon Dioxide Storage Hub Proposed for Wise County Receives $4.29 Million Federal Grant

By Susan Cameron
*Cardinal News*
November 16, 2023

A carbon dioxide storage hub project proposed for Wise County has been granted $4.29 million by the U.S. Department of Energy.

The storage hub is intended to store more than four million metric tons of carbon dioxide emitted annually by industrial sources in the area, U.S. Rep. Morgan Griffith, R-Salem, said in a news release Wednesday.

The money will go to the Virginia Department of Energy and will be used to study site feasibility and commercial viability of the project, the release states.

"I look forward to seeing how the Virginia Department of Energy can play a part in the development of carbon dioxide storage, as it will not only be beneficial to our environment by taking emissions out of the atmosphere, but also bring more jobs to Southwest Virginia," Griffith said in the release.

According to a map from Virginia Energy, potential carbon dioxide sources are the Buchanan Mine Prep Plant; Buchanan Units 1 and 2; Jewell Coal & Coke; McClure River Prep Plant; Clinch River Technology Park; Virginia City Hybrid Energy Center in St. Paul; the proposed Penn Virginia Blue Hydrogen facility; Wolf Hills Energy; the Holston Army Ammunition Plant in Kingsport, Tennessee; and Eastman Chemical Co. in Kingsport.

Tarah Kesterson, public relations manager for Virginia Energy, said the department was notified Tuesday that it was recommended for a federal grant for the Virginia Carbon Storage Assurance Facility Enterprise, or SAFE, but has not yet confirmed the amount.

"The goal of the project is to identify storage opportunities for local Carbon Dioxide Emissions," she said Wednesday in an email. "First, the team will demonstrate that porous formations deep underground can safely and permanently store large volumes of Carbon Dioxide. The team will create an infrastructure framework for this storage hub, complete a comprehensive risk assessment and develop a site characterization plan to support getting a permit to inject CO2 in the next phase of the project."

The economic benefit of the project in Southwest Virginia will also be evaluated, she said, and there will be opportunity for community and stakeholder engagement throughout the process.

In addition to Virginia Energy, the project partners are Advanced Resources International Inc., Crescent Resource Innovations, Coalfield Strategies LLC, EnerVest Ltd., Virginia Tech professor emeritus Michael Karmis, and Oklahoma State University, which together possess experience on carbon capture and storage projects over the last 20 years, Kesterson said.

The project is in the early phase and the work is expected to be completed in 24 months, she said.

"This is a very early phase to study whether developing an actual carbon storage facility would be feasible," Kesterson said. "This grant is for Virginia Energy and its partners to validate the opportunity. If they do find that there is potential, there will be another phase where they test the actual storage process."

Virginia Energy Gets Share of $444 Million for Carbon Dioxide Storage Study

By Mike Still
*Kingsport Times News*
November 15, 2023

Finding a place to store carbon dioxide emissions in Wise County is getting a federal funding boost.

Virginia Department of Energy spokesperson Tarah Kesterson confirmed Wednesday that the agency is among 16 recipients of a total of $444 million in U.S. Department of Energy Carbon Storage Assurance Facility Enterprise program funds.

The Carbon SAFE program, funded under the Biden administration's bipartisan infrastructure law, gives government, academic and energy industry organizations funding to identify and study geologic sites where CO2 emissions from energy production and industrial operations can be pumped and stored in a safe and permanent way.

Kesterson said DOE had not confirmed the grant amount, although a Tuesday press release from Ninth District Congressman Morgan Griffith's office claimed the grant would be approximately $4.3 million.

Kesterson said Virginia Energy's study team will start looking at a site in Wise County, west of Dominion Energy's Virginia City Hybrid Energy Center at St. Paul and near Penn Virginia's proposed Blue Hydrogen Energy Facility.

Besides determining if a porous underground geologic formation can store large tonnages of CO2 safely, the projected two-year study will include assessing the needed infrastructure for a central storage site in Wise County. The Virginia Energy study team also would assess risks and economic benefits for a Southwest Virginia facility and develop a plan for permitting such sites.
Kesterson sad a preliminary map shows a number of CO2-generating operations in Southwest Virginia and East Tennessee that a storage site could serve, including coal mining and preparation plants in Buchanan County, the Hybrid Energy Center, Eastman Chemical and the Holston Army Ammunition Plant.

Partners in the student will include Virginia Energy, Advanced Resources International, Inc., Crescent Resource Innovations, Coalfield Strategies, LLC. EnerVest Ltd, Michael Karmis, Ph.D., P.E., LLC and Oklahoma State University. Kesterson said.

A Hub For Energy Research In Southwest Virginia

By Staff
*VEDP*
December 2023

His hair and mustache grayed, 74-year-old Mike Quillen is no longer flexible enough to regularly walk the mines of Southwest Virginia, where he started a career that saw him build a company that became the sixth-largest coal supplier in the world — although he does plan to be underground for his 75th birthday.

But while his joints show their age, Quillen's mind remains nimble, a quality that made him a natural choice to chair the Energy DELTA Lab, a Wise County partnership between local and state leaders aimed at establishing the region as a testbed for energy innovation.

Those aspirations achieved liftoff in October when the lab reached a landmark public-private deal to use 65,000 acres of previously mined coal properties to develop clean and sustainable power.

The agreement brings together the Energy DELTA Lab, Wise County, Virginia officials, and landowner Energy Transfer. The land empowers the Energy DELTA Lab to become a green energy matchmaker, pairing the land with developers who can build and store cleaner, more sustainable sources of energy to power the Commonwealth and its economy.

Some deals will be made in 2024, said Will Clear, managing partner of Bristol-based Virginia Energy Strategies, former chief deputy director of the Virginia Department of Energy, and an adviser to the lab. "I'm very excited. That's when we get to see some traction to getting real assets on the ground," he said.

A Plot of Land and a Vision

That vision, five years in the works, garnered public attention in 2022 as a piece of Virginia's revamped 2022 Energy Plan, itself a refinement of the Virginia Clean Economy Act of 2020. Since then, leaders at the Energy DELTA Lab secured the one asset without which the project couldn't move ahead — land that would make possible plans to develop diverse projects that include solar, wind, nuclear, hydrogen, and energy storage.

"Everything rides on this land," said Will Payne, managing partner of economic development firm Coalfield Strategies and an adviser to the Energy DELTA Lab.

The size of the land, nearly the equivalent of 50,000 football fields, provides the space the lab needs to make good on its promise. “This acreage will provide everything we need at DELTA Lab for the pending projects we’ve got in the pipeline right now,” Clear said.

Size matters. So, too, does the fact that the land and all the rights bundled with it are owned by Energy Transfer, which has a network of pipelines and energy assets in 41 states. That sole ownership is unusual for a region in which it was often more expedient to sell off property ownership piecemeal — whether that meant the right to sell timber, lay railroad tracks, or mine minerals underneath.

“They are unique in that,” Quillen said.

Quillen, too, brings an unusual perspective to his role. Growing up in Gate City near the Tennessee border, he first worked in the coal industry for a small company his father co-owned. Along the way, to become a foreman, he had to work two years underground in the mines. Eventually, he became president of Paramont Coal.

In 2002, Quillen dove deeper at a time the industry was struggling, helping to found coal producer Alpha Natural Resources. In a sector that saw waves of mergers and acquisitions, Alpha grew quickly. By 2012, when he stepped down as its chairman, Alpha was the second-largest coal producer by revenue in the United States.

In the years since, the rise of natural gas — buoyed by advances in extraction techniques — and the push for a shift to renewable energy sources led to a significant decline in U.S. coal-fired power generation, and thousands of related jobs were eliminated in Southwest Virginia. The leaders behind the Energy DELTA Lab asked Quillen to chair their board and play a role in building a new economy off the infrastructure of the old. It was an offer the former miner couldn’t resist.

“I don’t play much golf. I don’t go to Florida,” Quillen said. “I spend most of my time trying to help the region move into that next transition so the next generation can stay here. The goal is to keep the region going for another 50 years.”

The lab has a good partner in Penn Virginia Operating Co., which manages the lands here for landowner Energy Transfer as a wholly owned subsidiary and has a history in the region that dates back more than a century.

A Place for Innovation

Quillen's outlook represents a shift in the Energy DELTA Lab's goals. The lab's initial concept was designed by Dr. Michael Karmis, former director of the Virginia Center for Coal and Energy Research. Karmis conceived of the lab as a center for research and an incubator for innovation, which was reflected in his choice of the name DELTA, an acronym for Discovery, Education, Learning, & Technology Accelerator.

While Karmis' goals remain, the site has features that have also made it a magnet to developers. The former mining area is already served by roads and power transmission lines. There are also fewer regulatory restrictions on how the land can be repurposed.

But it's the underground mines themselves, once thought of as a liability, which may be the site's biggest attraction. They contain cool water that can be used to operate one of the most promising sectors in the regional economy: data centers.

With "Data Center Alley" in Loudoun County, Virginia already has the highest concentration of data centers in the world, but high demand, land prices, and energy and cooling needs mean that the industry needs to expand into new areas. The Energy DELTA Lab will build Data Center Ridge, where the equipment can be cooled with billions of gallons of water collected from the underground mines, realizing savings of more than $1 million annually and creating a competitive edge in a fast-growing sector.

Data Center Ridge could then be powered by a multitude of on-site energy generators, including blue hydrogen, solar, wind, hydro pumping stations, and, eventually, small modular nuclear reactors.

"It's going to transform the region," Payne said.

Inside the Energy DELTA Lab's Future Projects
In addition to Data Center Ridge, the Energy DELTA Lab is working on numerous other projects aimed at developing clean energy sources:

WIND: Erect wind turbines that generate 225 megawatts (MW) of power with a goal of eventually doubling output. Required studies on wind speed and other factors could be completed as early as 2025, after which construction would begin.

SOLAR: Create solar farms that produce 300 MW of power with the goal of having them in place as soon as 2028, with the potential of adding more than 400 additional MW.

NUCLEAR: Build small modular reactors to provide a steady source of energy to complement intermittent sources, like wind and solar, and serve as a bridge while technology is developed to store intermittent energy efficiently on a large scale. Though developers have visited the site, potential deals are likely years away as companies test competing designs.

PUMPED-STORAGE HYDRO: Known as Project Energizer at the Energy DELTA Lab, this effort will use underground mine reservoirs as sources of water. When energy supply exceeds demand, the water will be pumped to higher-elevation reservoirs to allow it to be used to generate power during demand surges.

ENERGY STORAGE: Test and deploy innovative ways to store power, such as cutting-edge batteries. The Energy DELTA Lab is partnering with technology accelerator Newlab and international energy developer Ørsted on the project.

HYDROGEN: Generate hydrogen energy that can be used to power vehicles, trains, and boats by separating the hydrogen from water. To separate hydrogen, heat must be applied — initially using natural gas, producing what is called “blue hydrogen.” As cleaner power sources go online, generation would shift to sources like wind and solar, creating “green hydrogen.”

EDUCATION: Provide scientific assistance to energy innovators and educational opportunities for area K-12 schools and community colleges looking to train the next generation of talent to work in energy production in Southwest Virginia.

PARTNERSHIPS: Continue the strong relationship with area utilities Dominion Energy and Appalachian Power, which have proven instrumental in growing the scope of the lab beyond research to commercialization and deployment.

Betting On Energy Innovation: A Conversation With Will Payne

By Staff
*VEDP*
December 2023

Will Payne is managing partner of economic development firm Coalfield Strategies, the director of InvestSWVA, a public-private partnership aimed at attracting companies to the western portion of Virginia, and an adviser to the Energy DELTA Lab research and development facility in Wise County. He is a member of the University of Virginia Darden School Foundation Board of Trustees and

previously served as vice rector of William & Mary's Board of Visitors. He is also co-owner of Squabble State Farms in Washington County.

Virginia Economic Review (VER): In the past, the Southwest Virginia economy was centered on the region's abundant coal mines. How has the region shifted its priorities as the energy industry has moved away from coal?

**Will Payne:** Southwest Virginia has had challenges diversifying its economy over the last 30 years. Census and economic data tell that story clearly. When it comes to economic development, the solution lies in new approaches and accountability with broad local buy-in. Reimagining the economy doesn't mean wholesale change. In fact, we need to build on our strengths, particularly the region's committed workforce. As with any regional solution, we must come together. That means making closing deals a priority, regardless of where the jobs end up. After all, a job in one end of the region or the other is good for the whole region.

A coordinated approach has been underway since 2019, and much credit goes to members of the region's legislative delegation. Their vision several years ago resulted in InvestSWVA, a homegrown private sector lead generation and project development campaign with investments from Appalachian Power, Dominion Energy, the Virginia Tobacco Commission, and the LENOWISCO Planning District Commission. InvestSWVA is all about pursuing big ideas and taking risks — we can't afford to think any other way. We're especially optimistic about building on the private equity partnerships that have resulted in multiple tech company expansions.

The roadmap we've laid out builds on the region's strengths. It includes a vision where Southwest Virginia can be the location of choice for high-tech companies looking to grow in rural downtowns, clean energy developers building at scale on large reclaimed coal mine properties, data centers running energy-efficient and secure operations, manufacturers seeking a hardworking and skilled workforce, and the craft beverage industry being supplied with locally sourced specialty grains. All five priorities have aggressive goals in place and are now meeting milestones to varying degrees.

**VER:** Can you talk about how Southwest Virginia is well positioned for the energy industry and what the region can offer energy companies?

**Payne:** The energy play is a land strategy, pure and simple. Over 100,000 acres of previously mined properties reach every corner of the region's seven coalfield counties and the city of Norton. However, development of that land hasn't traditionally been possible due to private and federal ownership. Access to that land is complicated, and knowledge of the subsurface geology and mining history is even more complicated. You also must understand ownership of surface and subsurface

rights, including coal, gas, and pore space. Anyone who has worked with a former mine site knows it's unlike any other property.

That's where relationships with large landholders become so critical. Our team has spent much of the last four years developing partnerships with resource companies, seeking ways to diversify holdings and maximize revenue generation. At the same time, developers emboldened by federal incentives and responding to market demands are coming out of the woodwork to find suitable locations for projects. That demand is Southwest Virginia's gain.

Our pitch to energy companies is straightforward: vast, relatively low-cost tracts of land, robust power assets, and access to abundant clean water define half of the value proposition. The other half is partnering with us. We have a clear mission to deliver new higher-paying jobs and long-term tax revenues for the region. If a project can be done, we know we can do it in Southwest Virginia. The bonus value add is that through developing energy-ready sites from reclaimed mine properties, we can continue to produce metallurgical coal for steelmaking for years to come. It's this "all-of-the-above" strategy that defines a once-in-a-generation opportunity to transform the region's economy. It's both realistic and a natural fit.

**VER:** How does energy generation play into economic development? How have companies reacted to clean energy projects in Virginia?

**Payne:** Providing reliable and affordable clean energy is the new frontier opportunity for Southwest Virginia. Increases in land use restrictions for energy projects outside the region underscore our chief competitive advantage. We have large tracts of relatively inexpensive land with site attributes attractive to energy developers. Southwest Virginia has been flooded with developers over the last two years, all exploring reclaimed mine properties — particularly for solar, wind, energy storage, hydrogen, and energy-efficient data centers. More recently we've been working on potential advanced nuclear reactor projects.

Our InvestSWVA and Energy DELTA Lab teams have the luxury of choice. Given the amount of time and investment that goes into a multiyear project, we have to be discerning about who we choose to partner with. That timeline requires trust and a shared commitment to workforce training, job creation, and sustainable local tax revenues. We're strategically positioned to work with Fortune 500 companies with large balance sheets and proven developers of all sizes. We only want to work with partners who have the region's long-term best interests in mind.

**VER**: Can you give us a high-level overview of the Energy DELTA Lab in Wise County? What is that project best equipped to accomplish and how can it put Southwest Virginia on the map to attract energy projects?

**Payne:** We launched the Energy DELTA (Discovery, Education, Learning, & Technology Accelerator) Lab in conjunction with the 2022 Virginia Energy Plan after four years of incubation at InvestSWVA to fill a void in the market. Southwest Virginia's large landowners are seeking ways to enhance their resource revenue base through new land development. At the same time, energy companies and utilities are searching for land meeting specific attributes. We're capitalizing on the opportunity to close deals by serving as a matchmaker while providing technical expertise on the land above and below the surface.

The DELTA Lab is currently developing several energy-ready industrial sites in Wise County on land owned by Fortune 100 company Energy Transfer and managed by Penn Virginia Operating Company. This strategy complements the Virginia Business Ready Sites Program, with campuses totaling nearly 7,000 acres to support agricultural, conservation, industrial, and clean energy projects. These sites were selected because of industry demand for vast tracts of land, robust grid access, on-site generated power potential, and abundant underground mine-based water.

We recently secured an agreement with our development partner Energy Transfer for access to its 65,000-acre property. While most of the land deal's properties are in Wise County, neighboring Lee, Scott, and Dickenson counties and the city of Norton are on the table for development and have projects undergoing due diligence today.

The DELTA Lab's project portfolio represents the full spectrum of energy technologies — solar, wind, hydrogen, energy storage, pumped-storage hydro, energy-efficient data centers, and emerging technologies like advanced nuclear reactors. More than a dozen projects under consideration today represent in excess of $8 billion in potential private capital investment, 1,650 new high-paying jobs, and nearly a gigawatt of new power generation and demand. In addition, the DELTA Lab led federal grant applications in 2023 for nearly $600 million that would support our project portfolio.

Our model site under development, Data Center Ridge, builds on four years of work to convert a 400-acre previously mined property to a 1-gigawatt multi-tenant data center campus leveraging the DELTA Lab's planned nearby clean energy projects and patent-pending Oasis mine-based water cooling technology. The site serves not only as a solution to unprecedented demand for cloud storage, but also provides location diversity and security, considering real estate constraints in Northern Virginia.

**VER:** What role does metallurgical coal still play in the energy industry?

**Payne:** From a steelmaking standpoint, metallurgical or "met" coal will be necessary for a long time to come, just as thermal coal and natural gas will be needed for power plants for the foreseeable future as a backstop to rolling blackouts and power disruptions. Some of the world's highest-quality met coal is produced in Southwest Virginia. It's a more rare and higher-value product that's used to produce coke, an essential ingredient in steel production. The met coal export business is also big for the Commonwealth as a whole. As of June 2023, over 56% of the country's met coal flowed through The Port of Virginia's three coal terminals.

When it comes to clean energy, steel is the common denominator in all projects. We need it for wind turbines, solar racks, battery components, and advanced nuclear reactors. Our team worked closely with many state and local partners to ensure global met coal producer Coronado Global Resources expanded its Buchanan Mine Complex. That resulted in the deepest underground ribbon-cutting in U.S. history at 1,819 feet below the surface — a four-minute descent by elevator. Even Coronado argues that it's not an energy company. It's more aptly defined by its role in the manufacturing, infrastructure, and construction sectors. Without companies like Coronado and other met coal producers throughout the region, we wouldn't have clean energy power generation assets to deploy.

**VER**: How is Southwest Virginia developing talent to meet the needs of energy producers that might consider locating in the region?

**Payne:** Workforce development begins and ends with the strength of partnerships our four community colleges — Mountain Empire, Southwest Virginia, Virginia Highlands, and Wytheville — have developed with the region's K-12 public school systems. I've had the good fortune to work with all four of the region's community college presidents and many of their faculty and workforce solutions professionals. They can all clearly and concisely articulate their complementary role in driving economic development.

The challenge with energy projects is timing. Training programs that try to prepare our workforce before a demand exists create inefficiencies in the system. They also put the region's talent pool at risk of moving away, further contributing to so-called "brain drain." Southwest Virginia is not alone in training a cohort for jobs that didn't materialize for one reason or another.

There must be communication and commitment from both sides. Our community colleges have already made a commitment. It's central to their mission. As we move forward, our team will work to match developers and technologies with community colleges that can both recruit talent and deliver customized training programs. A great example is how Mountain Empire Community College

delivered value in 2021 for a medical IT company, eHealth Technologies. Following an early December expansion announcement, the team identified an applicant pool and worked through the holidays to prepare for a multiweek training program that kicked off right after New Year's Day.

Energy projects have a longer runway, and we'll use it to our advantage. It could take anywhere from 18 months to several years for a generation project to be online following an announcement. We're engaging now with educational partners for awareness and planning but will shift gears to execution at the right time. We need to leverage the fact that our K-12 schools and community colleges are ready to work together to produce graduates who can be trained in a quick, strategic, and surgical manner.

5 SWVA Projects Recommended for $9.5M In Federal Grants

By Katherine Schulte
*Virginia Business*
January 26, 2024

Five Southwest Virginia economic development projects have been recommended to receive a cumulative $9.35 million in federal Abandoned Mine Land Economic Revitalization (AMLER) grants, Virginia Gov. Glenn Youngkin and U.S. Rep. Morgan Griffith announced Thursday.

The projects are on sites where coal was mined before 1977. Funding for the federal AMLER Program comes through the Office of Surface Mining and Reclamation Enforcement, which has final approval over recommended projects. The Virginia Department of Energy administers AMLER funding for projects in the state.

"Repurposing land to create jobs and grow communities is a wonderful benefit of the AMLER program," Youngkin said in a statement, "and we are excited to see these developments create opportunities in our Southwest communities."

The five projects are:

Data Center Ridge, Wise County, $3 million
Haysi High School Site Redevelopment, Dickenson County, $2 million
Southern Gap Office Park Building, Buchanan County, $1.95 million
Norton Light Industrial Building, Wise County, $1.2 million
Russell County Access Bridge, Russell County, $1.2 million.

The Data Center Ridge project is located on a 4,000-acre industrial site in Wise County known as the Bullitt site. The project will convert a 400-acre previously mined property into a 1-gigawatt, multitenant data center campus. It's part of a planned clean energy development that could attract up to $8.25 billion in capital investments, resulting from a land development agreement between Energy DELTA Lab, Dallas-based Fortune 100 energy company Energy Transfer and Wise County. The AMLER funding would support site and infrastructure development for Data Center Ridge.

Funding for the Haysi High School site redevelopment project would support infrastructure development and land preparation for retail development. The Southern Gap Office Park project includes building a two-story commercial office building in the regional office park. The Norton project is constructing a spec building in the Project Intersection industrial park, where Atlanta-based high-speed internet service provider EarthLink is building a 28,000-square-foot customer support center. The Russell County bridge will add infrastructure supporting the Project Reclaim industrial park, which previously received close to $5 million in AMLER funding.

Virginia began receiving federal grant dollars for the AMLER program in 2017 and has recommended more than 40 projects since then. The state is one of six that receives AMLER grant funding.

"The AMLER Program, federal funding I championed, provides our communities in Southwest Virginia with opportunities to reuse old mine lands for new and exciting purposes. AMLER projects have contributed to job creation, economic growth and environmental renewal in the coalfields, improving the quality of life for residents in the surrounding areas," Griffith, a Republican who represents Virginia's 9th Congressional District, said in a statement.

Five Projects Selected For Revitalization Grants In Virginia's Abandoned Mines

By Ezra Hercyk
*WSET 13*
January 25, 2024

On Thursday, Governor Glenn Youngkin and Congressman Morgan Griffith (R-9th District) announced five economic development projects selected for Abandoned Mine Land Economic Revitalization (AMLER) grant approval.

Each project is located on sites where coal was mined before 1977 and includes safety and environmental improvements to the Southwest Virginia communities where they are located.

“Repurposing land to create jobs and grow communities is a wonderful benefit of the AMLER program and we are excited to see these developments create opportunities in our Southwest communities," Gov. Glenn Youngkin said. “These innovative projects advance Virginia's standing as a great place to do business and raise a family.”

“The AMLER Program, federal funding I championed, provides our communities in Southwest Virginia with opportunities to reuse old mine lands for new and exciting purposes,” Rep. Griffith said. "AMLER projects have contributed to job creation, economic growth and environmental renewal in the coalfields, improving the quality of life for residents in the surrounding areas."

Recommended projects include:

Five economic development projects were selected for Abandoned Mine Land Economic Revitalization (AMLER) grant approval. (Credit: Office of Governor Glenn Youngkin)
Five economic development projects were selected for Abandoned Mine Land Economic Revitalization (AMLER) grant approval. (Credit: Office of Governor Glenn Youngkin)

“We are already celebrating success through projects that have been created through this program,” Secretary of Commerce and Trade Caren Merrick said. “AMLER supports significant site development in these coalfield communities which creates a successful path toward a more robust economy.”

“The AMLER program meets the top three priorities of Virginia Energy: safety, positive environmental impact and good economic development,” Virginia Energy Director Glenn Davis said. “Industrial, clean energy and community developments made through this program over the last six years have supported 415 jobs.”

Virginia received the federal grant dollars funding AMLER to develop Abandoned Mine Land (AML) sites beginning in 2017. Over 40 projects have been recommended for funding since the program began.

Virginia Energy oversees the grant which comes from the Office of Surface Mining and Reclamation Enforcement (OSMRE). The OSMRE has final approval over recommended projects that are proposed on land that include features associated with coal mining that occurred before 1977. The Commonwealth is one of six states chosen to receive the funding.

Millions in AMLER Grant Funds Awarded to Southwest Virginia

By Slater Teague

*WJHL*
January 25, 2024

More than $9 million in Abandoned Mine Land Economic Revitalization grants were awarded to several projects in Southwest Virginia.

Abandoned Mine Land (AMLER) grants are administered by the Virginia Department of Energy and funded by the federal government.

Each of the selected projects is located on sites where coal was mined before 1977.

“Repurposing land to create jobs and grow communities is a wonderful benefit of the AMLER program and we are excited to see these developments create opportunities in our Southwest communities,” Gov. Glenn Youngkin said in a relase. “These innovative projects advance Virginia’s standing as a great place to do business and raise a family.”

The following projects were awarded grants, according to the governor’s office:

Buchanan County

$1,950,000 — Southern Gap Office Park Building – Two-story commercial office space within the Regional Office Park
Dickenson County

$2,000,000 — Haysi High School Site Redevelopment – Developing infrastructure and preparing the land for retail development
Russell County

$1,200,000 — Russell County Access Bridge – Infrastructure needed to increase business opportunities in an industrial park supported by AMLER funds called Project Reclaim
Wise County

$1,200,000 — Norton Light Industrial Building – A spec building for future business located in an industrial park supported by AMLER called Project Intersection
$3,000,000 — Data Center Ridge – Site development and infrastructure development for future data centers

Federal Grants Tap Project Intersection, Data Center Demo

By Mike Still
*Kingsport Times News*
January 29, 2024

More than $4 million in federal grants will move along two potential data center projects in Wise County.

The federal Abandoned Mine Land Economic revitalization grant program has approved:
• $1.2 million for a third building on the Project Intersection development in Norton.

• $3 million for Data Center Ridge — a proposed data center cooling technology demonstrator between Appalachia and the Exeter community.

Virginia Department of Energy spokesperson Tarah Kesterson said Monday that the grants — administered by the agency — await final environmental and economic viability review from the federal Office of Surface Mining Reclamation Enforcement.
The Project Intersection grant follows an announcement a week earlier of an $800,000 Virginia Tobacco Commission grant to match a $3.16 million Virginia Coalfield Economic Development interest-free loan for a 20,000-square-foot building.

LENOWISCO Planning District Executive Director Duane Miller said Friday that the newest AMLER grant will give the Lonesome Pine Regional Industrial Facilities Authority — Project Intersection's manager — a marketing advantage to attract new businesses to the site. Once Tobacco Commission funding is approved, the third building would be designed for light industrial or data center use.

The Tobacco Commission tabled another $800,000 grant toward a second, 40,000-square-foot building pending announcement of the $1.2 million grant. The grant could result in commission approval of the tabled grant by May, commission member and state Delegate Terry Kilgore said Friday.

The $3 million AMLER grant will combine with a $1.5 million federal Department of Energy earmark for work on an access road and initial site preparation for the Data Center Ridge project, InvestSWVA marketing partnership consultant Will Payne said Monday.
The project involves Energy Delta Lab — a public-private partnership of the Southwest Virginia Energy Research and Development Authority, Virginia Energy, InvestSWVA and utility companies Appalachian Power and Dominion Energy.

Bullitt — a former Westmoreland Coal underground mine — will show how an estimated 10 billion gallons of water in three or four seams in the Bullitt site can be used to cool servers and other electronic equipment in a future data center.
Data Center Ridge could be complete and ready to start operating as soon as Labor Day, Payne said.

The project marks the first operating demonstration since InvestSWVA's Project OASIS started in 2019. That project aimed to market former mine sites in Southwest Virginia as economical alternatives to locating more data centers in Northern Virginia.

"This is the next step toward attracting data centers to the region as well as showing prospects that wind and solar power can help provide cheap power for those centers," said Payne.

Virginia Project Gets $3M To Cool Data Centers With Mine Water

By Peter Judge
*Data Center Dynamics*
January 30, 2024

A project in Wise County, Virginia, will investigate using water from a disused mine to cool a data center.

The Data Center Ridge project will develop a data center cooled by up to 10 billion gallons of water in the abandoned Bullitt coal mine, outside the town of Appalachia in Wise County.

It's part of a plan to redevelop the area where the mine was closed and sealed in the 1990s, and is funded from multiple sources and involves Energy Delta Lab, a partnership involving the Southwest Virginia Energy Research and Development Authority, Virginia Energy, InvestSWVA and utility companies Appalachian Power and Dominion Energy.

The Abandoned Mine Land (AMLER) federal grant program has approved $3 million for Data Center Ridge, which also has been granted $1.5 million from the Department of Energy for work on an access road and initial site preparation, according to Times News.

Data Center Ridge is planned as a 400-acre data center campus, with up to 1GW of clean energy powering "the most sustainable and energy-efficient data center cluster in the world," according to Energy Delta (Discovery Education Learning & Technology Accelerator) Lab's site.

Delta has designed Oasis, a closed-loop HVAC-based cooling system, that uses water below 55 degrees Fahrenheit in underground mine workings,

The group is working on a template of 36MW facilities, each taking up 250,000 sq ft (23,000 sqm) and housing 150,000 sq ft (14,00 sqm) of raised floor space, which would be owned and operated by partners such as Amazon Web Services, Alphabet or Microsoft.

The buildings would also hold office space, telecom equipment, electrical/mechanical rooms, shipping/receiving areas, and security.

Each 36MW facility is projected to create $15.7 million in real estate and property tax revenues over the first five years of operation, support 2,048 jobs during the 18-month construction period, with 40 continuing data center jobs and economic activity to support 59 additional jobs, according to analysis by Mangum Economics.

Virginia Energy Plan

The Virginia Energy Plan, a selection of clean energy investments in Wise County was announced by Governor Glenn Youngkin in October, and could amount to $8.25 billion in capital investments, and generate up to 1,650 jobs, Virginia Business reported.

Energy Delta Lab, created in 2022 as part of the Virginia Energy Plan, will be the primary developer for a mix of projects including natural gas, nuclear, wind, hydrogen, batteries, pumped storage hydro, and other emerging energy sources, on 65,000 acres of former coal mining land owned by a company called Energy Transfer.

“The commonwealth’s power demand is skyrocketing, and now is the time to make strategic investments in energy infrastructure to meet our growing needs,” Youngkin said in October.

“This is the next step toward attracting data centers to the region as well as showing prospects that wind and solar power can help provide cheap power for those centers,” said InvestSWVA marketing partnership consultant Will Payne, speaking of the grants.

The Bullitt mine has also been picked as a potential site for nuclear small modular reactors (SMRs), reports Cardinal News, and pumped-storage hydro has also been proposed at the site.

“There would be distinct advantages of having an SMR in an area where you also have all the things that are going on with the Delta Lab,” Duane Miller, executive director of the Lenowisco planning area told Cardinal News.

Also in Wise County, Energy Delta Lab is managing two other sites: Meade Fork near the town of Pound, where a solar energy facility is planned, and Project Intersection which has received federal grants to create a business park containing data centers on former mining land, which also might be given SMRs.

Project Intersection had $800,000 from the Virginia Tobacco Commission grant and a $3.16 million loan from the Virginia Coalfield Economic Development loan to build a 20,000-square-foot building.

The federal grants await final approval.

Data Center Cooling, Power Technology Under Demonstration in SWVA

By Mike Still
*Kingsport Times News*
February 26, 2024

Labor Day could become a milepost toward Southwest Virginia attracting new data centers to the region.

A partnership of Energy Delta Lab — a public- private partnership of the Southwest Virginia Energy Research and Development Authority — Virginia Energy, InvestSWVA and utility companies Appalachian Power and Dominion Energy will go toward the Data Center Ridge demonstration project.

Partnership consultant Will Payne said in January that the AMLER grant and another $1.5 million in U.S. Department of Energy earmarked funds will fund the demonstration site at the former Westmoreland/Penn Virginia Bullitt underground mine complex.

The project will combine a small data storage facility with a solar power panel 'farm' and a cooling system using underground mine water. Payne said the project could start operating as soon as Labor Day.

"This is the next step toward attracting data centers to the region as well as showing prospects that wind and solar power can help provide cheap power for those centers," said Payne.
Project OASIS opened Southwest Virginia's marketing campaign in 2019 to show the region could provide cheaper land and mine water cooling for companies looking outside Northern Virginia to establish new centers serving the financial, retail and internet service industries.

OASIS — conducted by InvestSWVA in 2019 — issued a survey of potential data center sites across the region in 2020 as the first stage of marketing Southwest Virginia as an alternative to a growing density of centers in Northern Virginia.

Three of the OASIS-identified sites were in far Southwest Virginia, with Wise County's Lonesome Pine Technology and Business Park listed for the proximity of underground mine water cooling sources. The Park now housed the Mineral Gap Data Center with an associated solar array 'farm' to supplement the facility's energy needs.

The Wise County Industrial Development Authority is developing the Elam Farm site near the Technology and Business Park with the potential for siting a data center.

Southwest Va. Big Deal: Land Ho!

By Paul Bergeron
*Virginia Business*
*February 28, 2024*

The largest business deal announced during the past year in Southwest Virginia is an agreement between Dallas-based Fortune 100 natural gas and propane pipeline transport company Energy Transfer, Virginia's nonprofit Energy DELTA Lab and Wise County to develop energy infrastructure in the region.

Under the agreement, the partners will work with energy companies and electric utilities to promote development of 65,000 acres of reclaimed coal mining lands as part of a public-private regional economic development campaign.

The partnership will pursue development using an "all-of-the-above" energy technology strategy. This aligns with Gov. Glenn Youngkin's 2022 Virginia Energy Plan, which aims to fulfill the 2020 Virginia Clean Economy Act's 2050 mandate for generating electricity statewide from renewable, carbon-free energy sources by harnessing a mix of energy sources such as nuclear, hydrogen and natural gas in addition to wind, solar and battery storage supported by Virginia Democrats.

It's hoped that the deal could attract up to $8.25 billion in private capital investment and generate more than 1,650 jobs, according to a news release from the governor's office.

"It's safe to assume that energy jobs on average are going to exceed the median household income for Wise County of approximately $47,000 and per capita income below $24,000," says Will Clear,

managing partner of Bristol, Virginia-based consultancy Virginia Energy Strategies and an adviser to DELTA Lab.

The Energy DELTA Lab will be the primary developer of the project, and more than a dozen projects that could generate nearly 1 gigawatt of power were under consideration as of November 2023.

Energy Transfer's vast land holding, which is managed by Penn Virginia Operating Co. (PVOC), is primarily located in Wise County and includes ownership of surface and subsurface rights.

"The important thing about the agreement is that there is now something in writing with PVOC, so we can go to investors, developers or grant providers and show them that the landowners are onboard with leveraging the land for potential energy-related projects," Clear says. "I expect 2024 to be a year when land-lease deals will get done, the first of which would be around midyear. There are regulatory steps that first must be taken."

Clear declined to name the companies eyeing the land for development but added, "I can say they have done transmission studies and have spent hundreds of hours evaluating this land."

U.S. Rep. Morgan Griffith, R-9th District, who represents much of Southwest Virginia, Martinsville and parts of the New River Valley, says energy has been the foundation of the area's economy for more than 100 years.

"This deal will bring hundreds of jobs related to so many energy sources such as nuclear, wind, solar and hydro," Griffith says. "This is a huge parcel of land. … It has the potential to have a positive and dramatic effect on our area. We are striving to bring cutting- edge technology to old energy sources."

Much of the surface of this land hasn't really been utilized, Clear says: "It's been mined — and so, it's been disturbed — but it's in a great position to deploy alternative energy assets such as solar and perhaps wind power.

"Because of the land disturbances that have been made, the rock is easy to move around," Clear explains. "The land is essentially flat. Very little additional excavation is necessary."

Wise County Administrator Mike Hatfield said in a statement, "Large portions of Wise County have often been difficult to develop, given limited access due to private and federal ownership. This agreement will create game-changing opportunities that simply did not exist before."

One of three industrial sites that the Energy DELTA Lab is developing in Wise County, including on land owned by Energy Transfer, is the 4,000-acre Bullitt site on the border of Lee County. The site could hold multiple industrial projects with adjacent energy sites to power on-site demand, and the complex is situated over abandoned mines that contain nearly 10 billion gallons of water.

The team also plans to develop the Data Center Ridge campus on the Bullitt site, converting a 400-acre previously mined property to a 1-gigawatt, multi-tenant data center campus that would be powered by the planned adjacent energy projects.

As States Increasingly Look to Advanced Nuclear, Wyoming, Virginia and Michigan Lead The Way

By Brian Martucci
*Utility Dive*
*April 17, 2024*

TerraPower plans to begin construction this summer at the site of what's now expected to be the United States' first commercial advanced nuclear power facility near a coal-fired power plant in Kemmerer, Wyoming.

Though TerraPower's reactor isn't expected to begin operations until 2030, Wyoming began laying the groundwork for TerraPower in March 2020, when Gov. Mark Gordon, R, signed a bill allowing small modular reactor capacity to replace coal generation capacity. State laws streamlining advanced reactor deployment and enabling up to $150 million in matching funds for a range of energy technology deployments followed in 2022 and 2023.

"Wyoming has done a terrific job" to support advanced nuclear deployment, David Terry, president of the National Association of State Energy Officials, said in an interview.

Wyoming was an early mover on advanced nuclear, but industry experts say other states are catching up. State legislatures considered about 200 nuclear-friendly energy bills in 2023 and have already looked at about 130 this year, said Christine Csizmadia, senior director for state governmental affairs and advocacy at the Nuclear Energy Institute.

"It used to be maybe five to ten [state] bills each year that would even mention nuclear," Csizmadia said in an interview.

In addition to Wyoming, Michigan and Virginia stand at the forefront of resurgent state interest in nuclear energy. Michigan put $150 million last year toward Holtec's potential restart of the recently

shuttered Palisades generating station, which subsequently received a $1.5 billion conditional loan commitment from the U.S. Department of Energy. Virginia's recent pro-nuclear moves include state funding for an energy "career cluster" and a state-supported energy lab that could enable deployment of advanced nuclear reactors near former coal mines.

These states' efforts point the way for policymakers elsewhere to attract emerging nuclear technologies and the skilled workers they need to operate, Terry said.

"There are no regional voters, only state and local voters" he said. "So states need to [enact state-specific policies] that bring jobs and attract investment" within their borders.

Four pathways for state nuclear policy

State nuclear policy generally takes one of four complementary forms, Csizmadia said:

Moratoria repeal and advanced nuclear regulation

Six state legislatures have lifted freezes on new nuclear facilities since 2016, leaving 10 states with bans still on the books. Hawaii and Rhode Island could lift their nuclear bans this year, Csizmadia said. State legislatures may also need to update regulations to allow specific advanced nuclear demonstration projects to proceed as proposed, said Betsy Smith, policy specialist for environment, energy and transportation at the National Council of State Legislatures, in an email to Utility Dive.

Including nuclear in clean energy standards

Several states have recently enacted or expanded clean energy standards that incorporate nuclear energy, rather than remaining silent on nuclear or specifically excluding it, Csizmadia said. They include Michigan, Minnesota, North Carolina and Utah, according to NEI's state policy tracker.

Exploring nuclear development

This is the broadest and most active category at the moment, encompassing technology feasibility studies, working groups and stakeholder councils commissioned and funded by state governments, Csizmadia said. Recent and ongoing examples include Michigan, Kentucky, Tennessee, Ohio and South Dakota, among other states. "Some of these states lack existing commercial nuclear power facilities and want to see if it's feasible for them," Csizmadia said.

Financial support or incentives

Some states have committed significant funding to nuclear energy beyond the relatively modest cost of nuclear feasibility studies, Csizmadia said. At $150 million, Michigan's commitment to support Palisades' restart was the most significant toward a single nuclear project in the past several years. But other states, including Virginia (up to $10 million), Tennessee ($50 million) and Wyoming (up to $150 million in matching funds for a broad range of technologies that includes nuclear) have recently enacted or proposed sizable financial commitments for nuclear.

States can lay the groundwork for new or revitalized nuclear industries by including nuclear in clean energy standards and repealing bans, NASEO's Terry said.

But even with tangible financial commitments from elected and appointed officials, pro-nuclear state policies' payoff can take years to arrive, Virginia Department of Energy Director Glenn Davis said in an interview.

Virginia began its "moonshot" journey with the creation of the Virginia Nuclear Energy Consortium's predecessor organization in 2013, gained momentum with a flurry of pro-nuclear laws passed last year and now aims to have its first SMR online in 2032 while "leading the nation in new nuclear development," Davis said.

The role of energy communities and industrial sites

TerraPower's first commercial reactor will sit a mile or two from the Naughton coal-fired power plant in a community with a "high energy IQ," TerraPower Director of External Affairs Jeff Navin said in an interview earlier this month.

It's the first commercial advanced nuclear project to take advantage of what the DOE believes is a tremendous opportunity to transition coal communities toward nuclear and other low-carbon energy technologies — a key focus for Wyoming and other states. The DOE predicts that a larger coal-to-nuclear project could directly create over 100 additional jobs at the plant and indirectly support several hundred more, a lifeline for energy communities in a decarbonized future.

However, David Eskelsen, spokesperson for Rocky Mountain Power, which partnered with TerraPower on the Kemmerer reactor, cautioned that the utility's consideration of other coal-to-nuclear conversions is "in the very early stages of feasibility study and not certain at this point." Eskelsen noted that Rocky Mountain Power's resource planning process "does not pick specific projects, but rather a portfolio of resource types over a 20-year planning horizon."

Still, with declining coal revenues and volatile oil and gas prices, Wyoming is adopting an "everything we have" mentality around energy, Wyoming Energy Authority Executive Director Rob Creager said in an interview..

"We are a strong coal state that has seen challenges with the coal markets," Creager said.

Wyoming is also working to support nuclear suppliers and upstream businesses in and around fossil-dependent communities, with the mindset of "'How can we get [nuclear] done from cradle to grave," he added.

In August, the Wyoming Energy Authority earmarked $10 million in state matching funds to support potential partnerships between nuclear fuel and components supplier BWXT Technologies and two Wyoming companies, including Gillette-based heavy equipment manufacturer L&H Industrial.

Using nuclear as an economic revitalization tool is a priority for other historically fossil-dependent states, such as Virginia, where the southwestern coal patch is a focus of advanced nuclear efforts.

The Virginia Department of Energy's Davis pointed to the recently announced Microsoft-Google-Nucor 24/7 clean electricity RFI as an opportunity for advanced nuclear power in southwestern Virginia, where a state-funded feasibility study last year identified seven promising SMR sites on or near decommissioned mine lands and the state-supported Energy DELTA Lab will "deploy innovative and clean energy technologies," including nuclear, that could support hyperscale data center and low-carbon hydrogen production clusters.

By supporting clean local and behind-the-meter generation, the lab's work could help reduce the need for new transmission lines in the already-congested PJM Interconnection region, Davis said.

"That challenge is easier to solve with behind-the-meter energy generation," he said.

Building a nuclear workforce

Workforce development is an important piece of pro-nuclear state policy, experts and officials say. In part, due to the unique skills and sometimes extensive training required for key nuclear roles, there's "healthy competition between states to set up these early [advanced nuclear] projects" as states work to attract existing nuclear-industry workers and train new ones at local colleges and universities, Creager said.

"I joke with my friends in other governors' offices that I'll tell you what we've done [in Wyoming], but I'm not sure I'll tell you what we're going to do next," he added.

Even places like Virginia, with BWXT's world headquarters, several commercial nuclear generating stations, a world-class nuclear engineering program at Virginia Tech and "40 [naval] reactors sitting off the coast," need to invest in nuclear workforce development, Davis said.

He cited the state legislature's move in 2019 to create an "energy career cluster" that includes nuclear and the Virginia Nuclear Innovation Hub's expected partnerships with the University of Virginia, Virginia Tech, Virginia Commonwealth University and Liberty University. The Nuclear Innovation Alliance expects the cluster to "support the next generation of engineers, experts and technologists."

States can turn to the federal government for help on skilled workforce development, NASEO's Terry said. The DOE's Nuclear Energy University Program supports "higher-skill areas" like nuclear engineering, while the Inflation Reduction Act and Infrastructure Investment and Jobs Act include funding for nuclear higher education, he noted.

By contrast, state energy offices tend to take the lead on establishing technician-type roles, Terry said.

In states farther along in the process of attracting advanced nuclear generation, workforce development can happen in partnership with — or even at the initiative of — the operators themselves. TerraPower is "moving as fast as possible" to stand up nuclear education programs at the University of Wyoming's School of Energy Resources and several community colleges across the state, Creager said.

TerraPower hopes to retain at least some of the Naughton workforce to staff its Kemmerer reactor, Navin said last month. More than existing transmission infrastructure and water rights, the presence of skilled workers who understand the energy business was a key factor in TerraPower's siting decision, he added.

The workforce synergies between prior and potential future site operations are even stronger in southwest Michigan, where the Palisades nuclear facility's closure affected nearly 600 employees, said Kara Cook, chief of staff of the Michigan Department of Energy, Great Lakes and Environment.

Many Palisades employees left the area after the plant closed in 2022, in some cases to find work at other nuclear facilities, Cook said. But now that the decommissioning process is on hold, some are returning or even coming out of retirement to help with worker retraining, she added.

Like TerraPower in Wyoming, Holtec is taking the lead on workforce development at Palisades, conducting training exercises in "an amazing simulator that is an exact replica of their operations room," Cook said.

"Every state is different"

Wyoming, Michigan and Virginia have each made progress in establishing, expanding or revitalizing their nuclear industries, but the examples they set may not apply everywhere.

In some states, policymakers remain ambivalent about nuclear energy. A legislative proposal to repeal Oregon's nuclear moratorium failed last year amid grassroots opposition, while a Colorado Energy Office official expressed skepticism about a proposed coal-to-nuclear conversion at the Comanche 3 coal-fired generator in Pueblo, which is set to retire in 2031.

"Current evidence suggests the high costs of nuclear makes it unlikely to be a major contributor to generation in Colorado any time soon," Colorado Energy Office Communications Manager Ari Rosenblum said in an email. Rosenblum cited a recent analysis showing Colorado's least-cost grid decarbonization pathway to be "significant wind, solar and storage and using gas generation as a reliability and capacity resource."

North Dakota policymakers and utility officials, meanwhile, are looking to stand up a $1.4 billion carbon capture and sequestration project to curtail emissions at the state's third-largest coal-fired power plant as soon as 2028 — before TerraPower's Kemmerer reactor is expected to come online.

"We looked at carbon capture [rather than coal-to-nuclear] because we have better resources for it here in North Dakota than anywhere else," including favorable local geology and seismic stability, Ben Fladhammer, communications manager for plant operator Minnkota Power Cooperative, said in an interview.

"Every state is different and they deserve the right to choose," NEI's Csizmadia said. But for states that are serious about supporting next-generation nuclear, she has some straightforward advice for policymakers: "Start planning today."

"If you commit to a reactor today, it'll take eight to ten years to happen," she said.

## Search for Rare Earth Elements to Continue In Central Appalachia

By Joe Dashiell
*WDBJ7*
May 8, 2024

The U.S. is highly dependent on China and other countries for rare earth elements and critical minerals that go into all kinds of electronics and high-tech products.

But what if the coalfields of southwest Virginia could help develop a larger domestic supply? A study led by a Virginia Tech researcher is considering that possibility, and the work could have major implications, not just for national security, but for the region's economy as well.

Southwest Virginia, and the rest of central Appalachia, have a long history of coal mining, and a legacy that includes tens of millions of tons of fly ash and waste coal.

Dr. Richard Bishop is a Professor of Practice in Mining and Minerals Engineering at Virginia Tech, and currently the Principal Investigator on the Evolve Central Appalachia Project.

Wednesday morning, he briefed members of the Southwest Virginia Energy Research and Development Authority on the team's efforts to identify potential sources, that could include active mining, or the byproducts of past mining operations.

"Are you looking at old waste piles?" a member of the authority asked. "Absolutely," Bishop responded. "One of the tasks we have right now… is try to do the best inventory we can of where the locations are, try to quantify the volume and tonnage associated with them."

Bishop said more study is required, but the work could pay dividends in terms of environmental remediation and job creation. And he said central Appalachia has the mining history and the infrastructure that some other areas lack.

"We have the navigable waterways. We have access to internet. We have housing. We have things that could build a new industry that people could move back to this area and hopefully have new high-tech jobs to work in," he said.

Bishop and his team are now working on the final report for the first phase of their project. They plan to apply for additional funding from the Department of Energy, and hope to begin the second phase of their study in 2025.

Virginia Explained: Data Center Expansion, with All Its Challenges and Benefits

By Charlie Paullin
*Virginia Mercury*
May 28, 2024

Humanity is almost a quarter of the way through the 21st century and Virginia — home to 70% of the world's data centers — is on the frontlines of the latest emerging technology: artificial intelligence, or AI.

The prevalence of data centers and the rising role of AI don't equate to a dystopian battle between humans and machine control, though (at least at the moment). Rather, these issues are at the center of a debate over localities' authority and revenue benefits, historic preservation, environmental considerations, and electricity demand and utility rate projections, all shaped by ever-increasing internet use.

The state is studying data center development

Northern Virginia, the densely populated suburbs and exurbs located just outside the nation's capital, is home to 70% of the world's data centers, the huge warehouses that store computers' processing equipment, internet network servers and data drives. With people increasingly using web-based programs on an average of 22 internet-connected devices in homes, data centers are seen to be needed more than ever.

While data centers are proposed as potential drivers of economic benefits for localities, a number of Virginians have expressed concerns about the proliferation of the warehouses in the state and their effect on communities where they're located.

"Is it worth losing all your water, and having noise pollution and everything else to get revenue for some of the things you need?" said Mary Damone, 67, who moved to the Orange County area a few years ago, where a 732-acre data center park development has been proposed.

Fairfax County resident Chris Ambrose, 63, who, like Damone, was also at a recent press conference raising concerns over data center development, said the development of thousands of homes in the proposal is bad enough.

“Then you add the data centers to it, and the transmission lines, the impact on the battlefields,” Ambrose said. “If they need more revenue, you would think it would be something more measured. The magnitude is just crazy. It’s off the charts.”

Josh Levi, president of the Data Center Coalition, said the industry looks forward to supporting JLARC and discussing the findings when the study is done.

“Virginia continues to distinguish itself as one of the most dynamic and important markets for the digital infrastructure that enables our innovation economy and meets the growing, collective computing demands of individuals and organizations of all size,” Levi said.

This past legislative session, lawmakers introduced over a dozen bills to address some of the public’s concerns over how data centers could impact water demand, power delivery costs and more, but they were all sent to the Joint Legislative Audit Review Commission, the state’s policy research arm, to develop policy proposal recommendations.

“We have a number of research activities planned or underway for this study,” said Mark Gribbin, the JLARC project lead for the data center study, at a meeting last week outlining the study’s goals.

“Foremost, we’ll have a high level of engagement with local communities and data center companies,” said Gribbin. “We’re also working closely with utilities, local governments and state regulators, especially on questions related to development, water, air and energy,”

In the few months since those legislative deferrals, a battlefield in Orange County has been listed as one of the 11 most endangered sites in the country because of data center development, and Google announced a $1 billion investment to expand their data center campus in Reston.

Both events have re-upped the conversation over how to provide data centers their needed electrons, which could be delivered through an improved transmission system, after a recent regulatory overhaul of how such systems are planned.

“If the generation isn’t there to meet a proposed data center’s needs, the data center doesn’t [need to] locate in Virginia or anywhere else that can’t meet its load,” said Walton Shepherd, Virginia Policy Director with the Natural Resources Defense Council. “Virginia is not responsible for the running of

the internet, the data center operators largely are. The solution we need to solve is a cleaner grid. We have the tools to do so, and that's with or without data centers."

Local, historic concerns

In Orange County, Wilderness Crossing data center received national attention for its proposed development near a Civil War-era battlefield, fueled by concerns after data centers were built near other historic sites in Loudoun and Prince William counties in addition to other parts of the state.

The proposed Wilderness Crossing site near Wilderness Battlefield sprawls across 2,600 acres, 732 of which would accommodate data centers — which can typically have a footprint of over 100,000 square feet each and reach 90 feet tall — and distribution warehouses. The site plan also envisions over 5,000 residential units and 200,000 square feet of mixed commercial use buildings, and a realigning of Route 20.

"If this development goes forward as approved, there will be intense pressure on the existing road network," said Bob Lookabill, president of the Friends of the Wilderness Battlefield, at the press conference announcing concerns over the Wilderness Crossing proposal.

The development would also obstruct the views of Virginia's hillside, take up forested land, sit on abandoned gold mines and draw on water from the Rapidan River, which experienced drought-like conditions last year. Concerns about data centers' impact on local waterways have been echoed around the state.

The area's water is served by the Rapidan Service Authority. According to its recently approved water permit, obtained by the Virginia Mercury, the Department of Environmental Quality rejected an initial request finalized after the Wilderness Crossing rezoning that sought to pull more water for projected demand increase.

"What if there is a drought?" said Tim Cywinksi, communications director for the Virginia chapter of the Sierra Club, while speaking about another data center proposal in Caroline County during a webinar. "Are we going to continue to supply what becomes a diminishing resource to an industry that's powering AI? Or are we going to give it to families to make sure they need it? … This is why protective policy is so important."

Other data center proposals appear to show that the developments would encroach on historic sites statewide, such as Manassas National Battlefield Park, Culpeper National Cemetery, Brandy Station, Sweet Run State Park and Savage Station Battlefield.

Two historic Black graveyards belonging to the Gaskins family in the Brentsville area of Prince William County are alleged to have been damaged from the construction of a data center and a nearby power substation.

“Without comprehensive action from our elected leaders, countless historic sites [and] national parks may continue to fall victim to this unchecked and unregulated data center growth,” said Kyle Hart, mid-atlantic field representative at the National Park Conservation Service during the May 1 press conference.

The pressure to these sites has already been largely seen in Loudoun and Prince William counties, which have been dubbed Data Center Alley, and recently approved a Digital Gateway rezoning in their respective jurisdictions.

“We have to have a better way [to] think it through and it needs to be transparent,” said Chris Miller, president of the Piedmont Environmental Council, a conservation organization focused on preserving central Virginia’s countryside. The group won a lawsuit against Orange County that forced the release of previously withheld information on the Wilderness Crossing proposal. “I think everyone wants a continued investment in the economy and [to be] prosperous, but you want it done in a way that doesn’t destroy the underlying quality of life.”

Data center developments have been continually proposed throughout Virginia and are welcomed by some communities. A 1,200-acre data center site was recently approved in Hanover County. The Delta Lab, an energy innovation initiative focused on Southwest Virginia, has studied locating one in that region that could use water from mines for cooling.

Del. Mark Sickles, D-Fairfax County, said at the recent JLARC meeting, two vacant buildings along the beltway in his district are being converted into an Amazon Web Services data center, without controversy.

“It was a perfect place for it, actually,” Sickles said. “We need to find more perfect places in Virginia that are close to power, and can be shielded from the public. It’s going to be a challenge for everybody because I don’t think we want to give up on this industry.”

$1 billion investment

Just days before the concern over Wilderness Crossing became public, Gov. Glenn Youngkin announced that Google, one of the biggest companies in the world, would expand its data center campuses from two facilities to three.

“We’re super excited about it,” said Ruth Porat, president, chief financial officer and chief investment officer of both Google and its parent company Alphabet, of the expansion. “The investments we’ve made today are not only important investments in infrastructure, but they’ve also added 3,500 jobs in Virginia, and they supported a billion dollars of economic activity.”

Google completed the first phase of construction on the first two data centers in 2019 with a $1.2 billion investment in the state.

The third center’s creation will usher in an AI Opportunity Fund seeded with $75 million from the company’s philanthropic arm, Google.org. The fund will help people around the county earn online training certifications. The program joins a separate Grow with Google program, already underway, that teamed with Northern Virginia Community College to offer a new free cyber security career certificate.

“Since 2019, this innovative public-private partnership has increased opportunities for students to join the technology workforce,” said Anne M. Kress, president of NOVA, in a statement. Kress added that the partnership  “helps close the skills gap and greatly expands the region’s talent pool.”

A driving force for the online certifications through the opportunity fund, would be leveraging AI. The governor leaned into the “accelerator” allegory during the announcement, highlighting AI’s ability to hasten the pace for certifications to be awarded.

“What’s been so exciting is that this parallel path, this moment of accelerator and brakes, is enabling confidence as we move forward to move forward with an expedited pace,” Youngkin said. “That is where breakthroughs can occur.”

Data centers in Virginia have provided $2.2 billion in wages for citizens, and 25% of revenue to Loudoun County have gone into “essential services” like schools, social services and other public programs, Youngkin added.

Impact on power demand

Increased internet usage, including AI, requires data centers to use more electricity. Computing for AI is measured by an entirely new computing graphic processing unit, or GPU.

"Historically, a single data center typically had a demand of 30 megawatts or greater," Dominion Energy Virginia President Bob Blue said in the utility's first quarter earnings call. "However, we're now receiving individual requests for demand of 60 megawatts to 90 megawatts or greater, and it hasn't stopped there."

Larger data center campuses with multiple buildings can "require total capacity ranging from 300 megawatts to as many as several gigawatts," Blue added.

The utility has connected 94 data centers to date and expects to connect another 15 this year, Blue also told investors. Power Engineering reported on a Securities Exchange Commision annual filing that in 2023 and 2022, 24% and 21% of electricity sales from Dominion were to data centers, respectively.

"The concentration of data centers primarily in Loudoun County, Virginia represents a unique challenge and requires significant investments in electric transmission facilities to meet the growing demand," the SEC filing states.

While the data center computers have become more efficient through a power usage effectiveness score — a rate that determines how efficiently energy is processed for the web-based service to reach internet users — a study from McKinsey & Company found that data center power demand is expected to more than double across the country from from 17 GW to 35 GW. Some of that power could come from Dominion's 176-turbine offshore wind project, expected to generate 2.6 GW of electricity, or enough to power 660,000 homes.

"The point is that they're packing more and more into less space," Miller said. "How are we going to meet that load?"

Dominion projects its load growth, which includes data centers and vehicle electrification, to increase from 17 gigawatts in 2023 to 33 gigawatt in 2048, though environmental groups are skeptical of growth proposals being modeled accurately.

Northern Virginia Electric Cooperative expects to increase its peak electric load by more than 12% per year over the next 15 years, "driven almost exclusively by data centers."

"NOVEC works one-on-one with each new data center, as each new high-load customer presents unique issues to NOVEC and its distribution facilities," said Jim East, communications manager at electric cooperative. "Part of this includes meeting the special energy supply and construction

schedule needs, while always maintaining the high degree of reliability and affordability for all remaining customers."

To meet the demand for data centers, Dominion has included renewable energy technology in its long-term, non-binding integrated resource plan, but is also proposing a natural gas plant, which environmental groups continue to oppose, including protests at a Richmond outdoor festival the utility sponsored.

Teresa Hall, a spokeswoman for Appalachian Power Company, Virginia's second largest utility that serves Southwest Virginia, noted that "annual power generation over the last 20 years has stayed relatively flat until now." The uptick, she said, is thanks to data centers.

"With data centers/increased internet use and AI, the landscape is changing quickly," Hall said, adding that data centers present a unique challenge because they "require a lot of power – commonly 300 MW or more, which is enough to power all of the homes in a medium-size city."

The company is facing the challenge head-on, Hall said.

"To date, we've been able to accommodate almost any size customer that has expressed an interest in our service territory. As we go forward, we know we will need additional cooperation."

Virginia's leaders have increasingly expressed the need for new technologies such as small modular reactors, tinier versions of traditional nuclear plants that could power a small city like Roanoke with a population of 100,000. Proponents say SMRs could provide baseload, around-the-clock power when renewable technology can't produce it. The SMRs are intended to provide between 300 to 500 megawatts of power, but none have been turned on in the United States since NuScale pulled the plug on its effort to build one in Idaho due to cost concerns.

Shepherd, with the NRDC, said that if SMRs are built, "they're so far off. I don't think those are going to implicate the data center's decision on where and when it builds in a place where it is able to get power."

Another part of the dialogue focuses on technologies like battery storage and a recently announced 1920 rule from the Federal Energy Regulatory Commission, or FERC, to increase planning for transmission lines across state lines. FERC's new guidance includes transmission lines that may need to be upgraded from a traditional 110 kilovolt to up to 500 kilovolt capacity, in order to supply data centers.

"Transmission developers can now plan projects that address a multitude of needs that are anticipated to develop over a long-term horizon more efficiently and cost-effectively for customers," stated Ben Fowke, president and CEO of American Electric Power, the parent company of Appalachian Power Company, in U.S. Senate committee testimony this week.

The regional rule will also help areas pull on generation sources that may be located in other areas of the PJM Interconnection regional grid that Virginia is a member of.

"Every resource backs up every other, but only if you have the transmission required," said Gamlich.

In 2023, Virginia's legislature passed a bill to truncate a State Corporation Commission review of a transmission line proposal from PJM Interconnection. The line is needed to deliver power for data center development in Virginia and the $670 million project cost is recovered from ratepayers in Virginia.

There's also an opportunity to strengthen existing transmission lines through grid enhancing technologies, or GETs, and separate ways to utilize a demand side management and energy efficiency programs to reduce the amount of strain on the grid. It can also help get around the 26 gigawatts of electricity stuck in a queue awaiting approval from PJM, 23% of which is from Virginia, said Kim Jemaine, director at Advanced Energy United.

"In the states where they have been adopted at a medium level, GETs have unlocked 30% additional capacity from existing infrastructure and have allowed twice as many new energy projects to be integrated," said Kim Jemaine, director at Advanced Energy United. Jermaine said GETs "can be installed with little to no downtime and at a fraction of the cost of new infrastructure.

Utilities have said they can't rely on energy efficiency efforts, like homeowners using smart thermostats to control consumption, because the end use may not keep up with those behaviors. But that dismissal is a "red herring," Shepherd said. Measuring the load reductions delivered through energy efficiency programs and making actionable plans based on those measurements is not impossible, Shepherd added.

"I think folks need to chill out and recognize the regular nature of grid planning. It's just a matter of rolling up our sleeves a little further to make sure it's done correctly."

Perhaps ironically, as manufacturing and society in general electrifies more, AI might be able to help with those demand side management programs, as noted by the U.S. Department of Energy.

"AI has the potential to significantly improve all these areas of grid management," the report stated, and can be a tool that models for capacity and transmission studies, compliance and review for federal permitting, forecasting renewable energy production and creating applications to enhance resilience.

Levi, with the Data Center Coalition, said the "industry is committed to leaning in as an engaged partner at this pivotal time. Collectively, we can meet the moment and ensure a clean, reliable, affordable, and resilient electric system that supports the digitization of our economy, widespread vehicle and building electrification, the onshoring of advanced manufacturing, growth in controlled environment agriculture, and other 21st-century economic drivers."

The local revenue generated by data centers supports Loudoun and Prince William counties — the latter of which could add $54 million in revenue, with $19 million going toward schools and $21 million offsetting a real estate tax increase — as a result of increasing its data center tax from $2.15 to $3.70 per $100 assessed value.

Henrico County created a $60 million affordable housing fund with revenue from data centers in order to waive water and sewer connection fees and building permit fees.

"We're doing something different," Board Chairman Tyrone Nelson said, according to Richmond BizSense. "We may be the only locality in the commonwealth, maybe in the country, dedicating a single revenue source to address a crisis like this in our community."

Even property owners that sell their land for development of a data center can reap benefits. But, as evidenced by a Prince William County lawsuit, the spoils don't always go to the seller if a legal challenge over the rezoning holds up their profits as the property value and tax increase remains.

The report on Project Oasis proposal in Southwest Virginia said development of a 250,000 square foot "hyperscale" data center with 36 MW of demand could generate an estimated $464 million in capital investment and 40 indirect jobs.

Another report by the Virginia Economic Development Partnership found that 35 data centers, which are cited as the largest industry in the state, invested $23 billion into the economy while getting almost $1 billion in tax relief in exchange for its economic inputs. The report found a 14% average annual return on incentive for the years 2022 through 2027.

"JLARC estimated [in 2019] that 90 percent of the data center investment made by the companies that benefit from the DCRSUT exemption would not have occurred in Virginia without the exemption," the report stated.

Although localities may be raking in local revenue benefits, those tax incentives for data centers cancel out cash that could be padding state coffers, which similarly could go toward education and other services.

"There's different layers to look at," said Jackson Miller, director of state power sector policy, also at the NRDC. "We just think that if you're going to give away that revenue, which is taxpayer public money, then it needs to be conditioned with requirements to maximize energy efficiency, with requirements to maximize and ensure that that facility is bearing its costs and paying for it on the grid so ratepayers don't get a double- whammy."

Along with a bill to study if data centers or ratepayers foot the bill for transmission upgrades, a separate bill sent to JLARC this session came from Del. Rip Sullivan, D-Fairfax, and Sen. Suhas Subramanyam, D-Loudoun, that would've required data centers to achieve a certain computing efficiency score, known as a PUE, in order to receive state tax breaks.

The data center companies have climate improving commitments, but local permitting pushback to renewable energy sources, including solar, present challenges.

The centers should " be required to be 100% renewable before they turn the lights on if they're serious about their publicly stated comments," said Hart, with the National Park Conservation Service.

The data center industry's benefits to Virginia's economy include the creation of 12,140 direct jobs, including engineers, building control specialists, security, server technicians, logistics professionals, construction management, health and safety specialists, and food services. The future benefits — and challenges — of data center development in the state remain to be seen.

Malting House Spurs Growth for Value Added Crops

By Des Keller
*Progressive Farmer*
July 31, 2024

n a field of barley swaying in a spring breeze near Shelby, North Carolina, Steve Greene is asked if he foresaw how their operation has evolved -- how it recently came to grow small grains destined to become a prime ingredient for beer and distilled spirits in the region.

His answer is quick and emphatic: "I wouldn't have predicted anything that's happened in the last 10 years," says Greene, who co-owns and operates ASR Grain with his cousin, Andrew White, and uncles Randall and Phillip Greene. "Ten years ago, we were running a 225-head dairy and using a two-row planter," he says.

White adds, "Now, we operate a grain elevator serving 220 farms, farm 4,000 acres ourselves and grow specialty crops." Gone is the dairy, something their family started in 1948 and dissolved in 2015. "We eventually realized with the dairy we had to either go bigger or go home," Greene says.

LOCALIZE SUPPLY CHAIN

Part of the shift in business for ASR Grain -- now in its seventh generation -- can be attributed to Riverbend Malt House, 70 minutes away in the mountain tourist mecca of Asheville. It's here that Brent Manning shows us around the company he founded 13 years ago with Brian Simpson that takes grain -- barley, rye, oats, corn and wheat -- and malts it for use by regional brewing and distilling businesses.

"We didn't want to be just another brewery in the city (at the time, Asheville had 13 breweries; there are now 40 in the area)," Manning says. "We wondered what we could do to localize the supply chain and connect farmers to this billion-dollar industry."

Most barley used for malting in the U.S. is grown in the Northwest, from the Dakotas to Washington. Manning and Simpson wanted to carve out a slice of that business for brewers and distillers in the Southeast. They needed growers.

RECRUITING FARMERS

Malted grain is germinated using moisture, and then the process is halted by drying. Malting causes enzymes to develop in the grain -- enzymes required to modify the grains' starches into various types of sugar. The modifications are crucial to the character and flavor of the resulting beverage.

ASR Grain had expertise growing small grains such as barley -- after all, the family ran a dairy for nearly 70 years. They had also increased their storage capacity and, today, have more than 500,000

bushels available at their main location. ASR's ability to store grain is important, as Riverbend has little available onsite beyond its most immediate needs.

Riverbend now works with several dozen growers from the Carolinas, Kentucky, Virginia and even Florida. The first few growers Manning and Simpson tracked down with the help of state Extension services. "Farmers are very enterprising and always looking for new markets," he explains. "After our name got out, farmers started finding us."

Promoters of Clean-Energy Data Centers In Virginia Coal Country Unfazed By Doubters

By Elizabeth McGowan
*Energy News Network*
September 10, 2024

*Correction: David Porter, vice president of electrification and sustainable energy strategy at EPRI, spoke generally about the challenges and opportunities of constructing data centers and coordinating with utilities. He did not speak specifically about the Southwest Virginia project.*

Will Payne and Will Clear are all too aware of the skeptics.

But those doubters only fuel the duo's vision for Southwest Virginia. The former Virginia state energy office bureaucrats turned private-sector consultants have an ambitious plan to repurpose land and backfill local taxes in communities left behind by the coal industry's decline, and also pioneer new models for powering data centers with local clean energy.

Data Center Ridge is one piece of a nonprofit venture — Energy DELTA Lab — designed to transform 65,000 mostly contiguous acres of minelands where coal was king for decades into test sites that advance energy innovation. The project has the backing of Republican Gov. Glenn Youngkin, who announced an agreement last November establishing a framework for developing the land.

"If I had a dollar for every time somebody asked why we're wasting our time on this, I wouldn't have to work," Clear, a former chief deputy director with the state Department of Energy. "This isn't a pipedream. What people need to understand is how long a project like this takes."

The first phase involves persuading tech companies to build solar-powered data centers on up to 2,000 acres of the now-defunct Bullitt Mine in Wise County. The facilities would be able to tap into underground mine water to help cool their servers. Eventually, they say, other energy sources such as wind turbines, pumped hydro storage, or small nuclear reactors could be added across the larger property.

“This is a big idea and we need someone who can share that vision,” said Payne, managing partner of Coalfield Strategies LLC. “We need developers who believe in ramped-up clean energy.”

Glenn Davis, director of the Virginia Department of Energy, said a couple of key factors are driving the state’s interest in the lab. Many data center companies are exclusively seeking sites where they can access 100% clean energy, and new clean power generation could cushion the grid impact from the state’s booming data center sector.

“Southwest Virginia was the energy capital of the East Coast and I believe it will be again,” Davis said in an interview. “There’s a power void that needs to be filled and solar is part of that.”

Dovetails with Youngkin energy plan

DELTA, shorthand for Discovery, Education, Learning & Technology Accelerator Lab, is just one enterprise Davis is tracking as he coordinates Youngkin’s all-of-the-above Energy Plan.

Last fall, Youngkin said the intent is to attract private and public dollars to flesh out a portfolio that also draws wind, hydrogen, large-scale batteries, pumped-storage hydropower and eventually, perhaps, small modular nuclear reactors when and if that nascent technology matures. Any carbon-cutting realized by lab energy projects wouldn’t count toward Virginia’s landmark Clean Economy Act because the faraway area is served by a Lexington-based power company, Kentucky Utilities. The VCEA requires only the state’s largest investor-owned generators — Dominion Energy and Appalachian Power — to achieve a carbon-free grid by 2045 and 2050, respectively.

That doesn’t bother Youngkin, Davis said.

“What’s driving the governor’s interest is jobs, businesses and an improved quality of life,” said Davis, appointed as an agency head in April 2023. “We’re excited because the opportunity for growth there is larger than any other in the state.”

Dallas-based Energy Transfer owns the acreage, roughly 101 square miles. The lab is coordinating site development with Wise County officials and the landowner. Some of the acreage is still being mined

for metallurgical coal, the type used for steelmaking and other industries. However, much of the property, including inactive Bullitt Mine, is being reclaimed.

On paper, the dozen or so projects on the drawing board, including Data Center Ridge, could generate 1,600-plus jobs, add 1 GW of new power and induce $8.25 billion in private investments, Payne said. First, however, they have to move beyond the conversation stage.

Payne and Clear, DELTA's chief advisers, are counting on their matchmaking skills to revive a region often depicted as down on its heels.

Clear grew up in Smyth County, east of Wise County. Payne recently moved to Washington County on the Virginia-Tennessee border. The Richmond native left a position as chief deputy at the state energy department in 2019 to direct InvestSWVA, an incubator invented to diversify the region's economy and curb carbon emissions. Appalachian Grains was one of their previous energy-related joint ventures.

Tax revenues from data centers are the boost local governments need to fill the coal gap, they say.

"Plain and simple, public safety, education, health care, municipal services and other core government sources are at risk of falling off a cliff if we do nothing," said Clear. "We're trying to solve this crisis."

Is SW Virginia the next 'tertiary market'?
Josh Levi, president of the Loudoun County-based Data Center Coalition, said Southwest Virginia shouldn't be dismissed as too inaccessible or mountainous for data center development.

Recently, the burgeoning industry began expanding into off-the-beaten path "tertiary markets," he said. For instance, he pointed to a deal Amazon Web Service announced this year to spend $10 billion on two data center complexes in Mississippi.

It was only a few years ago that the industry reached into secondary markets such as Columbus, Ohio, and San Antonio, Texas, after initially concentrating its investments primarily in Silicon Valley, New York-New Jersey, Dallas, Chicago, Northern Virginia, Atlanta and Phoenix.

In Virginia alone, there's a southward shift as more data centers pop up around Fredericksburg and Richmond.

"What they're doing is credible," Levi said about Payne and Clear. "My understanding is that they have seen levels of interest from data center developers. Whether the opportunities they're leveraging lines up with the business needs of data centers remains an open question."

For instance, he said, Southwest Virginia might be the right fit for backing up federal data but less so for applications such as live-streaming video or trading stocks.

Loudoun County and surrounding Northern Virginia are home to almost 300 data centers, the biggest concentration of such campuses in the world. It's the crossroads for roughly 70% of global internet traffic.

Prolific construction of the mega-buildings that make cloud computing possible — combined with the accompanying need for transmission lines for electricity and water for cooling — have caused an uproar among community activists alarmed about their impact on local infrastructure and the environment.

Such large-scale growth prompted a tongue-in-cheek comment from Democratic state Sen. Danica Roem about exporting data centers from Prince William, the county she represents, to Tazewell County, just east of the proposed Data Center Ridge.

In an interview with the Energy News Network, Roem said she would only support siting data centers in Southwest Virginia if the projects have widespread community buy-in, are powered with renewable energy and are built on reclaimed coal mines that don't require clearcutting of forests, which serve as carbon dioxide sinks. Utility customers shouldn't be saddled with paying for the expensive buildout of transmission infrastructure, she added.

"I don't want to simply shift the problems we're having here to Southwest Virginia and create problems for the residents there," Roem said. "If they're building data centers there, are they going to stop digging in my district?"

Roem has joined other legislators introducing bills aimed at reining in data center growth and controlling the resources the buildings require. For instance, compared to a typical office building, the U.S. Energy Department estimates one data center needs 50 times more electricity.

'A lot of potential hurdles'

David Porter, vice president of electrification and sustainable energy strategy for the Palo Alto, Calif.-based Electric Power Research Institute, said there are numerous challenges and opportunities when it comes to coordinating data centers' power needs with utilities.

"These data centers could be a really neat idea if they can work around a lot of potential hurdles," Porter said. High on his checklist of potential limiting factors are access to a reliable electric grid connection, battery storage to fill gaps and "major league" fiber optic cable for communications.

He emphasized that even a modest number of data centers can't rely on renewable energy 24/7. Backup power, typically provided by diesel-powered generators, is needed to keep the centers operating when the wind isn't blowing and the sun isn't shining.

As well, he said, even larger data centers in the gigawatt range generate far fewer jobs than a manufacturing center.

Payne and Clear said they are far from naïve about the difficulty of solving grid and broadband issues, which they know will take years, not months, to remedy, and that the jobs will be impactful in a region where the average annual income is $42,000.

"In Southwest Virginia, we've seen plenty of manufacturers pick up and leave, and that wouldn't be the case with wind turbines and data centers."

Their models show that one 36 MW data center, considered to be a mid-size project, would generate about 50 jobs paying $134,300 a year. In an ideal scenario, the size of Data Center Ridge would eventually expand more than 25-fold to 1,000 MW.

DELTA Lab recently collaborated with a local industrial facilities authority to offer a financial incentive for data center developers, Clear noted. It translates to Wise, Lee, Scott and Dickenson counties and the city of Norton offering a tax rate on data center equipment of 24 cents per $100 of assessed value. By far, it's the lowest such rate in the state.

"The more persuasive argument for data centers here is about sustainability for local governments and their citizens," Clear said. "This creates a new trajectory for tax collections for the next 50 years."

Water source easy, electricity not so much

The sites they're eyeing for data centers are atop an estimated 6 billion to 10 billion gallons of underground 55-degree mine water, which offers a less-costly method for cooling the hot air generated by hundreds of servers.

It's not an aquifer. Over the years, rainwater has been filtered by the limestone and sandstone as it trickled through fissures and cracks and landed in cavities created as coal deposits were removed. The pools of water are as deep as 1,000 feet below the surface.

Four years before ushering in DELTA Lab, Payne and Clear had procured a state grant to study the water supply. Since then, they have been collaborating with engineers to devise a closed-loop water system that could chill the centers and eventually pump the water back underground to be reused after the Earth removes the heat it absorbed.

Drilling of test wells by a geotechnical company is scheduled to begin this fall. That exploration is funded by the federal government and managed by the U.S. Department of Energy.

In the meantime, a looming challenge is securing the flow of electricity to and from Data Center Ridge. Even if on-site solar arrays with backup battery storage are the initial power source, the project needs to have sufficient substations, transmission lines and other infrastructure to tie into the grid. That way, excess electricity can be shipped out and "imported" electrons can fill any deficits.

Payne and Clear are talking with Kentucky Utilities — which does business in Wise and four other Virginia counties as Old Dominion Power — about upgrading and adding infrastructure. That analysis is part of a larger effort spearheaded by county officials to meet long-term energy demand in Southwest Virginia.

One plus, Clear said, is that siting the buildout of substations and transmission lines will be less difficult on property with one landowner. However, he also knows investor-owned utilities often aren't keen on asking ratepayers to fund infrastructure built to serve one distant customer.

Davis said his agency would likely pursue federal Energy Department money to construct transmission infrastructure.

Data Center Ridge has the potential to boost the utility's renewable energy portfolio, which is 1% of a generation energy mix that is heavy on coal, 84%, and natural gas, 15%.

Although every component of their blueprint presents a separate set of obstacles, the entrepreneurs say outsiders' perception of Appalachia is the chief hindrance.

"Even after making our case since 2019, dispelling myths about the region is our first challenge in getting developers down here," Payne said. "They think everybody is on meth and lives in shanties."

They persist to prove their doubters wrong.

"Everything is teed up here to be executed," Clear said. "It's getting that first domino to drop that's really important."

Could Old Coal Sites Be Recycles As New Data Center Campuses

By Diana Goovaerts
*Fierce Network*
September 18, 2024

It seems the race to lead on artificial intelligence (AI) infrastructure could end up taking U.S. companies back to the coal mines.

C-suite executives from Alphabet, AWS, Microsoft, Meta, Nvidia and OpenAI met with government officials in Washington D.C. last week to brainstorm ways to bolster domestic AI infrastructure. Buried in the White House summary of the meeting was one interesting tidbit: among other things, the group apparently discussed the possibility of repurposing old coal sites to house data center campuses.

This might sound a little far-fetched, but it's already being done by Energy DELTA Lab at Data Center Ridge in Virginia and is the subject of a U.S. Department of Energy campaign. That said, it's not easy.

Will Clear, managing partner of Virginia Energy Strategies and part of Energy DELTA Lab's leadership team, told Fierce that coal plant sites come with a number of challenges. First, he noted land rights are often separated such that one person may own the land on the surface but another may own rights to the minerals, coal or gas below ground. Access to the surface is needed to harvest those underground resources, which can complicate the process for siting structures on the surface.

Then, he said, there's the question of whether the land is under permit for coal activities and whether that permit requires the land to be restored to its original contours once mining and processing (which tends to flatten any hills) has ceased. If such a clause exists, then regulators have to greenlight leaving the land flat for development, he said.

Retention ponds, underground mine structures and land stability are also concerns for developers, with the latter two issues of particular importance for data center operators. After all, if you're putting something very heavy on the surface, you want to make sure the land won't move and won't cave in. Clear said while regulations can vary by locality, in Virginia at least there tends to be a solid minimum of 200 feet of sandstone or limestone between the surface and any remaining underground tunnels.

"That'll hold," he said.

Pretty perfect

Challenges aside, Clear and fellow Energy Delta Lab exec Will Payne said coal plant sites tend to have a few key things data center facilities need: access to power lines, water and a local workforce. And it's not just Clear and Payne that have noted this. The Department of Energy's Pacific Northwest National Lab, which is spearheading the government's "coal-to-X" redevelopment campaign, said the same in a fact sheet on its website.

"A retired coal site could even be redeveloped to combine a data center with new clean energy on the same site," PNNL's guide added.

The ability to generate power – be it solar, wind, hydrogen, nuclear or other – onsite is particularly appealing given the issues data centers are facing accessing power in other areas. In addition to sourcing enough power, data centers are finding it hard to move that power to where they need it. Both of those problems can be solved by an old coal site which boasts enough room to hold both the data center and its power generation facilities.

"Power is the significant gorilla in the room, and what ultimately has got to happen is data centers are going to have to take matters into their own hands and produce their own power," Clear said. "Transmitting it anywhere is a problem. Generating anywhere is a problem, unless you can find a place to do it all together, which is what we offer."

"The size of the property allows for line-of-site for generation," he added of the 65,000 data center ridge site. "Not a whole lot of places can say that."

Peak shaving could help data centers solve the AI power problem – for now
Payne also stressed the importance of access to the "highly skilled" workforce residing in old coal towns. It's a win-win for an industry that is looking to bridge a workforce shortage and towns that would welcome economic development efforts.

On top of all that, coal sites also have access to tax benefits and grants on the local and federal levels, Payne and Clear said.

Future targets

It's worth noting that in attendance at the White House meeting was AES, a global energy company that is working to shut down all of its coal plants across the U.S. by 2027 as it shifts toward renewable energy. It has facilities in Indiana, Maryland, Hawaii and Puerto Rico that it either has already shuttered or plans to decommission.

The company is just one of several in the U.S. retiring its old coal plants, which is why the government is pushing its "coal-to-X" redevelopment plan. The Department of Energy has developed a resource guide – complete with a handy dandy mapping tool – that identifies areas where coal facilities are closing or have already.

And given the government is planning to push those sites to power and space hungry data center operators as part of a bid to lead in AI infrastructure, we could see more facilities on old coal sites in the years ahead.

For those interested but wary of the challenges, Payne said the best thing to do is visit the site in question.

"You have to come here to understand what we're selling. We can put together a pitch deck and what will be selected is what's easier with less risk," he concluded. "You've got to take the time to come visit. Those who do, they're doing the projects."

# Contact

For more information on the Authority, please contact the Director:

Will Payne, Managing Partner
Coalfield Strategies, LLC
Will.Payne@CoalfieldLLC.com