

PHS Q&A

The Basics

Question: What is a pumped hydroelectric storage facility?

A: Pumped hydroelectric storage facilities function as a giant battery, storing energy for when it is needed most. Specifically, pumped hydroelectric storage facilities store energy in the form of water, using an upper and a lower reservoir to create an elevation difference between the two bodies. During times of high demand on the grid, pumped hydroelectric storage produces electricity by releasing stored water from the upper reservoir into the lower, turning large turbines as it moves. During times of low demand on the grid (nights, weekends or a period of mild temperatures), water is pumped back up to the upper reservoir using lower-cost electricity from the grid (or renewable sources). There are two large pumped hydroelectric storage facilities in Virginia: Dominion Energy's Bath County site and Smith Mountain Lake/Leesville Lake Complex.

Question: How does pumped hydroelectric storage technology differ from other types of energy generation?

A: Pumped hydroelectric storage technology provides energy at times when additional resources are most needed on the grid. During periods of higher electricity demand, (for example when the outside temperature is very hot or very cold), additional "peaking" power stations are called upon to generate energy beyond what is normally available. Pumped storage facilities fill these unpredictable gaps in power production, providing generation when around-the-clock (24/7) resources like nuclear or coal are not sufficient.

Question: Why is Dominion Energy interested in considering pumped hydroelectric storage in Southwest Virginia?

A: Pumped hydroelectric storage facilities, such as Dominion Energy's Bath County Pumped Storage Station and the potential Tazewell Pumped Hydroelectric Project, are able to generate electricity in a manner of minutes. That's increasingly important as more solar and wind generation is developed across the state. Solar and wind power can fluctuate throughout the day; Pumped storage and pumped hydroelectric facilities can help stabilize the grid as renewables come on and off line, ensuring reliability.

In 2017, the Virginia General Assembly recognized the value of a pumped hydroelectric storage project by passing legislation sponsored by members of the Southwest Virginia legislative delegation. The bills authorize electric utilities in Virginia to apply to the Virginia State Corporation Commission (SCC) for permission to construct pumped hydroelectric storage facilities in Virginia's coalfield region. The bills further stipulated that at least part of the energy stored in such facilities must be generated by renewable resources. The legislation was approved by Gov. Terry McAuliffe and became law July 1, 2017.

Question: The legislation mentions that renewable energy resources located within the coalfield region would be used to power at least a portion of the hydroelectric facility. Is Dominion Energy planning any renewables projects, such as solar or wind, in the coalfield region in Southwest Virginia?

A: This project is still in its early stages, and no sites have been identified at this time. As a leading developer and operator of renewable energy such as solar energy and biomass, Dominion Energy is always evaluating sites and partnerships that make sense for providing more clean and renewable energy to our customers at reasonable prices.

Question: Would a pumped hydroelectric storage facility replace energy generated from coal?

A: No, this kind of storage project supplements other generating sources. The Virginia City Hybrid Energy Center (VCHEC) in Wise County, Virginia, serves our customers by burning coal and biomass around-the-clock, providing 24/7 generation. A pumped hydroelectric storage facility relies on electricity generated by coal, renewables or other energy sources to operate. It uses electricity from other sources during off-peak times to pump water to the upper reservoir. It then serves as a generator in times of peak demand that can quickly deliver electricity to the grid and help balance the fluctuating nature of renewable energy resources such as solar and wind. Think of the Virginia City Hybrid Energy Center like an engine, and think of the pumped hydroelectric storage facility as a battery. Both are helpful to the overall electric system.

Question: Would this facility be as large as Dominion Energy's Bath County Pumped Hydroelectric Storage Station?

A: Dominion Energy's Bath County Pumped Hydroelectric Storage Station is currently the largest pumped hydroelectric storage generator in the world and has a capacity of 3,003 megawatts, the equivalent of 750,000 homes. It is not likely that a new pumped hydroelectric storage facility will be as large as Bath County.

Question: Has Dominion Energy committed to building a pumped hydroelectric storage generation facility in Southwest Virginia?

A: Dominion Energy is carefully examining the feasibility of a pumped hydroelectric storage facility in SWVA. Development of the project is still in its early stages and the project's final size and scope have not been determined. Dominion Energy has received approval of its Preliminary Permit Application (PPA) from Federal Energy Regulatory Commission (FERC) for the Tazewell, VA site and studies will continue through 2019. Dominion Energy is working to compile additional data and information in preparation to file a Notice of Intent (NOI) and Pre-Application Document (PAD) with FERC in late 2019.

Question: The use of abandoned mine water was submitted in Dominion Energy's Preliminary Permit Application (PPA) from Federal Energy Regulatory Commission (FERC) for the Tazewell, Virginia site; what has changed?

A: Dominion Energy filed its Preliminary Permit Application (PPA) with Federal Energy Regulatory Commission (FERC) in 2017 identifying the use of water from the abandoned mines at Amonate. Dominion Energy's investigation of the abandoned mines in Amonate has revealed the amount of water within the mines will not meet the needs for the proposed pumped hydroelectric storage facility in Tazewell, Virginia. Dominion Energy's continued feasibility studies will include water sources from groundwater and regional surface water streams and rivers in the New River watershed. Dominion Energy is currently investigating the water quantity and feasibility of obtaining water from Wolf Creek near Rocky Gap, in Bland County, Virginia.

Question: How would a pumped hydroelectric storage facility work in conjunction with the increase in renewables on the electric grid?

A: A pumped hydroelectric storage facility could encourage more renewable energy by balancing the variability in energy provided from renewable energy resources such as solar or wind. Pumped hydroelectric storage can

quickly provide energy upon demand and thereby help stabilize the electric grid. It also allows energy produced during low demand times of the day to be stored and used during high demand periods.

Question: Following the selection of the Dominion-owned Tazewell County property for the Preliminary Permit Application (PPA) filing with the Federal Energy Regulatory Commission (FERC), does this mean Dominion is no longer interested in developing a wind farm on the site?

A: Dominion Energy's recent Integrated Resource Plan (IRP) filed with the Virginia State Corporation Commission (SCC) does not include onshore wind as a potential alternative in our long-term forecasting for meeting the energy needs of our customers. The company's focus in Southwest Virginia is our clean coal-fired Virginia City Hybrid Energy Center, and the successful permitting and construction of a pumped storage facility integrated with other regional renewable energy sources. We have announced plans for two offshore test turbines off the coast of Virginia Beach, and see offshore wind as more promising at this time.

Question: Where did the concept of incorporating an abandoned mine in the construction of a pumped hydroelectric storage facility originate?

A: The Department of Mines, Minerals, and Energy (DMME) evaluated the potential feasibility of using abandoned mine cavities and abandoned mine cavity water for pumped hydroelectric storage projects greater than 100 megawatts or the equivalent of 25,000 homes. The project would entail pumping water from the abandoned mine cavity up to a surface reservoir and then allowing it to flow back into the mine cavity, passing through a turbine or utilizing the water in the mine cavity as a source of water. Dominion Energy engaged the Virginia Center for Coal and Energy Research (VCCER) at Virginia Tech, led by Dr. Michael Karmis, to conduct an independent technical evaluation of using an abandoned mine cavity as a lower reservoir. Based upon information provided to Dominion Energy, the former Bullitt Mine near Appalachia, VA was identified by the Department of Mines, Minerals and Energy (DMME) for evaluation.

Question: Why has Dominion Energy decided not to move forward with the Bullitt Mine as a possible construction site for a pumped hydroelectric storage facility?

A: After evaluations of its preliminary study, Dominion Energy has concluded that the use of the former Bullitt Mine is not viable for a utility-scale pumped hydroelectric storage facility.

Question: Is Dominion Energy able to provide a copy of the pre-feasibility report prepared by Virginia Center for Coal and Energy Research (VCCER) at Virginia Tech?

A: This information is proprietary. This is a privately funded study conducted by the Virginia Center for Coal and Energy Research, on behalf of Dominion Energy.

Question: So, if you are not going to build a pumped storage station at the Bullitt Mine, how much potential tax revenue will Wise County be losing?

A: The coalfield counties independently entered into a revenue sharing agreement to share tax dollars if a pumped storage facility is built in the region. Any questions regarding the agreement should be directed to the counties themselves.

Question: It was previously stated that if the Bullitt Mine did not work out Dominion Energy may evaluate additional sites. Is Dominion Energy still planning to evaluate additional abandoned mine sites?

A: Dominion Energy announced its plan to conduct feasibility studies on two potential sites. After reviewing the analysis performed on the Bullitt Mine, it is reasonable to predict that many of the mines in the region would have similar issues. Therefore, Dominion Energy does not intend to pursue additional mine sites at this time.

Dominion Energy is planning to further its investigation in the proposed Tazewell site to determine if the site is suitable for a pumped hydroelectric storage facility. If it is determined the Tazewell site is not feasible, then further evaluations on additional locations will be made at that time.

Question: Does the decision to remove Bullitt Mine as a possible pumped hydroelectric storage facility site mean Dominion Energy has chosen to build the Tazewell site?

A: A final decision as to whether or not Dominion Energy will build a pumped hydroelectric storage facility in Tazewell is yet to be determined. Further analysis is needed to determine the feasibility of the Tazewell site.

Question: Does your hesitancy to make a final decision come from concerns with the Tazewell site?

A: Before making this kind of substantial investment, Dominion Energy must be confident in the project's success. Dominion Energy plans to continue its investigation to ensure that construction and operation of the Tazewell site is feasible.

Landowners

Question: When will landowners be contacted about interest in their property, potential sale or options?

A: Dominion Energy is continuing a feasibility assessment of the proposed Tazewell site. During this process, a company representative may contact you directly regarding access to your property to conduct survey and environmental studies. Dominion Energy is committed to keeping landowners informed about the FERC process, project developments, and potential project impacts.

Question: If my property was listed in the Federal Energy Regulatory Commission (FERC) pre-application does it mean that Dominion Energy will construct a pumped hydroelectric storage facility on my property?

A: No. The development of the project is in the feasibility stages and the project's final size and scope have not been determined.

The Federal Energy Regulatory Commission's (FERC) approval of the preliminary application is not a conveyance of any property rights. Dominion Energy will have to seek the landowners' permission for access to their property. Dominion Energy is sensitive to the needs and concerns of the homeowners in those areas listed and will make every effort to keep them informed and work with them throughout the process.

Question: Will adjacent landowners or the general public be able to use the reservoirs for recreational purposes?

A: No, because the water level in the potential reservoirs is expected to rise and fall regularly as part of normal operations, public safety would be of concern. Therefore, the reservoirs will not be open to the public or individuals for recreational use.

Question: In the Bluefield Daily Telegraph article it was mentioned that Dominion Energy needed another 1,500 acres that had been worked out with landowners. Where is this land?

A: Dominion Energy filed a Preliminary Permit Application (PPA) for 4,100 acres with the Federal Energy Regulatory Commission (FERC) in September of 2017. The filing allows the company to seek landowner permission to conduct in-depth studies to determine if the project can be built. Dominion Energy currently owns 2,600 acres within the site scope, located on East River Mountain. At this time Dominion Energy has not purchased any additional land.

Question: My property was not listed in the Federal Energy Regulatory Commission (FERC) Preliminary Permit Application (PPA), why am I being contacted by Dominion Energy?

A: As part of ongoing feasibility studies, Dominion Energy is evaluating possible water sources to initially fill and maintain the proposed facility's reservoirs. Studies on water sources from regional surface water streams and rivers in the New River watershed, including Wolf Creek, are necessary for Dominion Energy's preparations to file a Notice of Intent (NOI) and Pre-Application Document (PAD) with FERC in late 2019. Certain studies may need to be conducted on or near your property.

Question: If Dominion Energy is investigating Wolf Creek as a possible water source, does it mean that a pumped hydroelectric storage facility or associated infrastructure will be built on my property?

A: The pumped hydroelectric storage facility is proposed to be located on East River Mountain near the town of Bluefield, VA. If water is to be sourced from Wolf Creek or another surface water location, then a water supply system will need to be constructed to transport the water to the facility. The potential water supply system would include an intake structure, pumping stations, and water supply line.

The project is still in its very early stages. Location and feasibility of the facility's proposed infrastructure are still being determined. Dominion Energy continues to be committed to keeping landowners informed about potential project impacts.

Question: My property is located on Wolf Creek, downstream from Rocky Gap. How will my property be affected? What if I am located along Route 62?

A: As part of ongoing feasibility studies, Dominion Energy is evaluating possible water sources to initially fill and maintain the proposed facility's reservoirs. Continued studies on water sources from regional surface water streams and rivers in the New River watershed including Wolf Creek is necessary for Dominion Energy's preparations to file a Notice of Intent (NOI) and Pre-Application Document (PAD) with Federal Energy Regulatory Commission (FERC) in late 2019. Certain studies may need to be conducted on or near your property.

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Environmental

Question: What process did Dominion Energy use to evaluate potential sites, and were there other sites being considered?

A: Dominion Energy engaged two consulting firms to assist in identifying potential locations within the seven-county coalfield region and the City of Norton. During this process, nearly 200 sites were initially identified for evaluation. Dominion Energy continued to further evaluate the sites, and narrowed down to a smaller number of sites based on the following criteria:

- Impact on landowners
- Environmental and cultural resources
- Topographic relief
- Suitable geology
- Proximity to electric transmission
- Water availability
- Community interests
- Economic considerations (including state and local)

Question: Why was the Tazewell County site the only one included in the September 6th Federal Energy Regulatory Commission (FERC) Preliminary Permit Application (PPA) filing?

A: The Tazewell County site, located near Bluefield, Virginia on East River Mountain, was selected for further study as it was the one most compatible with our siting criteria.

Question: Will there be an impact on the rivers or streams of the region?

A: Dominion Energy is keenly aware of the ecosystems in Southwestern Virginia that make this region unique. As with our development of the Virginia City Hybrid Energy Center (VCHC), which used one-tenth of the water of a conventional coal plant, we are committed to avoiding and minimizing environmental effects on this region's natural resources and biodiversity. Dominion Energy is studying the watershed in the region to evaluate the potential for impacts to streams and rivers, and to design the project to protect and preserve the local resources.

Question: How much water is needed for Dominion Energy's proposed pumped hydroelectric storage facility in Tazewell County and where will it come from?

A: Dominion Energy continues to study possible water sources to initially fill and maintain the facility's reservoirs. Approximately 6.5 billion gallons of water will be needed to initially fill the reservoirs, with a much smaller quantity needed to maintain water levels in the reservoirs. Dominion Energy's feasibility studies include water sources from underground mines, groundwater, and regional surface water streams and rivers in the New River watershed. Dominion Energy is currently investigating the water quantity and feasibility of obtaining water from Wolf Creek near Rocky Gap, in Bland County, Virginia.

Question: Would these facilities require the damming of rivers or streams?

A: Major rivers would not be dammed as part of this project. Potential impacts to streams or rivers would be avoided and minimized to the greatest extent possible in coordination with the appropriate environmental regulatory agencies and permits. Unavoidable impacts would be addressed in the design and permitting for the project to minimize, and mitigate environmental impacts to water and aquatic resources.

Question: Is Dominion Energy concerned about possible environmental justice impacts in the region?

A: Potential impacts on the environment, including impacts on historic and cultural resources, and environmental justice issues, will be among the many factors considered in our evaluation of potential sites. Dominion Energy is committed to carefully considering all environmental consequences of the proposed project and potential impacts to the population of the region.

Question: What potential water sources are being evaluated for the proposed Tazewell County site?

A: Dominion Energy has studied the potential use of mine cavity water to supply the reservoirs initial fill and operating needs from an abandoned underground mine near Amonate, VA, per the Preliminary Permit Application (PPA) filed with the Federal Energy Regulatory Commission (FERC) in 2017. This investigation revealed that the amount of water within the mine will not meet the needs for the proposed facility. As required through this process, Dominion Energy is continuing to evaluate potential water sources for the project, including regional surface water streams and rivers in the New River watershed. Dominion Energy is currently studying the feasibility for obtaining water from Wolf Creek near Rocky Gap.

Question: What environmental and resource studies are underway or planned for the proposed project?

A: Dominion Energy began environmental, cultural, and historical resource field studies on the project site in 2018 and will continue these studies during 2019 to support a Notice of Intent (NOI) and Pre-Application Document (PAD) filing with the Federal Energy Regulatory Commission (FERC) in late 2019. Aquatic habitat, fish, and mussel surveys will be completed in the watershed streams on the proposed project site and related water sources. Continued studies in 2019 will include the potential water supply system for obtaining water from Wolf Creek near Rocky Gap.

Regulatory

Question: What are the next steps in the process?

A: Dominion Energy received approval of its Preliminary Permit Application (PPA) from Federal Energy Regulatory Commission (FERC) for the Tazewell, Virginia, site in 2017. Dominion Energy is currently investigating the feasibility of obtaining water from Wolf Creek near Rocky Gap, in Bland County, Virginia.

Dominion Energy is continuing its environmental and geological feasibility studies on the proposed Tazewell site through 2019.

Question: Does Dominion Energy's filing of a Preliminary Permit Application (PPA) mean that the company is completely committed to moving forward with this project?

A: No. Dominion Energy is still evaluating the viability of this project. The Federal Energy Regulatory Commission (FERC) requires the filing of a Preliminary Permit Application (PPA) as part of its regulatory process.

The purpose of a PPA is to grant the permit holder priority to file a license application during the permit term. Additionally, it allows the permit holder to begin developing permits to perform site and environmental studies.

Question: Why has Dominion Energy not yet filed a Notice of Intent (NOI) and Preliminary Action Document (PAD) with the Federal Energy Regulatory Commission?

A: Dominion Energy is continuing with a feasibility assessment on the Tazewell site. It is critically important that the feasibility studies be allowed to continue so that our engineering and environmental consultants complete their evaluation of possible critical issues. Dominion Energy anticipates these studies continuing through late 2019. At that time, Dominion Energy will determine if a NOI/PAD will be submitted to FERC.

Question: What regulatory steps has Dominion Energy taken in pursuit of a possible Pumped Hydroelectric Storage generation facility in Southwest Virginia?

A: In September 2017, Dominion Energy filed a Preliminary Permit Application (PPA) with the Federal Energy Regulatory Commission (FERC) for a proposed pumped hydroelectric storage facility at a site in Tazewell County, Virginia.

Question: Why didn't Dominion Energy acquire all the necessary properties before filing the Preliminary Permit Application (PPA) with Federal Energy Regulatory Commission (FERC)?

A: Dominion Energy is conducting feasibility studies on the Tazewell site. The preliminary permit application that was approved by FERC does not authorize the permit holder to perform any land-disturbing activities or otherwise enter upon lands or waters not owned by Dominion Energy. Individual landowners need to be identified, and permission to perform these activities would have to be granted individually.

Question: What permits would Dominion Energy need to secure to construct a facility?

A: If Dominion Energy makes a decision to build a pumped hydroelectric storage facility, the company would have to secure numerous local, state, and federal permits and approvals. For example, Virginia Department of Environmental Quality (DEQ) permits, additional environmental permits, a Federal Energy Regulatory Commission (FERC) license, a Certificate of Public Convenience and Necessity (CPCN) from the Virginia State Corporation Commission (SCC), and an Army Corps of Engineers permit would be required.

Question: With the new water source, does Dominion Energy have to file an updated Preliminary Permit Application (PPA) with the Federal Energy Regulatory Commission (FERC)?

A: No. the Preliminary Permit Application (PPA) provides for studies of all aspects of the proposed project. The results of these studies will be incorporated into a Pre-Application Document (PAD) filing with FERC.

Jobs & Economic Development

Question: If constructed, what effect would the construction of the facility have on job creation in Southwest Virginia?

A: A study by the consulting firm of Chmura Economics & Analytics indicated construction of the facility would create thousands of jobs in Southwest Virginia. Depending on the final size of the project, the Chmura study found development and construction could support more than 2,500 jobs in the region from 2017-2027. Almost 1,700 of those jobs would result from construction activity; the rest would be supported as the effect of spending on the project spreads throughout the regional economy. Additionally, the Chmura study found development and construction of the facility could generate as much as \$481 million in new economic activity in Southwest Virginia from 2017-2027.

The project will also produce well-paying, full-time jobs once it begins operating. The Chmura study found operation of the facility would support creation of as many as 76 new jobs in Southwest Virginia starting in 2028. Of those, approximately 50 would be permanent workers at the station.

The Chmura study was commissioned by Dominion Energy.

Question: Do you support the legislation recently signed by the governor to create a Southwest Virginia Energy Research and Development Authority?

A: As an industry leader, Dominion Energy is excited to hear about the General Assembly's decision to create a Southwest Virginia Energy Research and Development Authority. Southwest Virginia has long served as one of the Commonwealth's main energy producers and Dominion Energy looks forward to hearing more about the Authority's economic development plan for the region.

Question: Will Dominion Energy be doing any work with the Authority?

A: Based on the legislation that was passed during the 2019 General Assembly session, the Authority is charged with a number of responsibilities that are of interest to Dominion Energy, including the development of pump hydroelectric storage in Southwest Virginia and the development of renewable generation in the region. As an industry leader, Dominion Energy looks forward to learning more about the Authority and its economic development plan for the region.