



ATVG WINTER 2024 NEWSLETTER

The Future at Bull Run

Retired Fossil Plant Eyed as Green Energy Asset

When Tennessee Valley Authority workers finished Bull Run Fossil Plant in 1967, it stood proudly as the world's largest in volume of steam produced.

On Dec. 1, 2023, after 56 years of operation, this storied generating asset near Oak Ridge, Tennessee, retired.

It's the only single-unit plant in TVA's coal fleet.

"Bull Run has provided electricity to more than 400,000 homes for more than 50 years," Kris Edmondson, vice president of TVA Coal Operations, said. "The team at Bull Run has left a strong legacy in this community. The power they produced made significant impacts that should be remembered and honored."

TVA originally built Bull Run to meet the energy needs of the thriving city of Knoxville and the rest of the Tennessee Valley region.

But even today, the plant's location is important for TVA's energy system of the future.

After Retirement

Once Bull Run Fossil Plant retired, TVA removed 765 megawatts of electricity from the grid.

Once the decommissioning process begins, elements of the site may be eligible for reuse. Some of the options include installing battery storage, pursuing economic development opportunities, exploring innovation, adding new generation or establishing a portion of the area to a green space for community use.

The future of this site will depend on a few factors – environmental reviews to determine the impact of each option, community feedback on the preferred best use, and a final decision by TVA.

It's a thorough process to determine what's best for the people of the Valley region.

In North America, the grid entails generating assets, a massive, complex network of transmission lines, and other electrical equipment. TVA's Transmission team manages the grid within the seven-state TVA territory.



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“As TVA evolves to a cleaner energy portfolio, including retiring and adding generation, we are working to meet demand with the right generation mix and investing over \$2.8 billion in transmission improvements through 2027,” Nate Schweighart, general manager of Transmission Planning, said. “As we look at the next 10 to 15 years, we are focused on ensuring grid stability and keeping power flowing reliably through our transmission lines.”

The transmission system operates at a system frequency of 60 hertz, which is accomplished through matching generation output with energy consumption in real time. Spinning generation – rotating turbines that create power at TVA’s current generating facilities – is one of the ways to provide frequency stability as generation or consumption changes unexpectedly.

“Once we remove the spinning aspect by retiring a generating asset, we reduce the natural inertia maintaining the grid system frequency and decrease system support in that region,” Schweighart said. “And without careful planning, this could lead to instability.”

“In addition, as we add renewable energy such as solar power, which doesn’t have a spinning element, we exacerbate the issue.”

Optimal Spin, Optimal Grid

TVA is considering a solution for this: a synchronous condenser.

Similar to a generator, a synchronous condenser spins. But unlike an operating plant, it doesn’t produce any real power. It simply operates to support the transmission grid.

“Our older fossil plants are perfect for this solution,” Schweighart said. “They already have the existing infrastructure, transmission lines, etc. And in Bull Run’s case, it’s located in a key strategic geographic location in the TVA service territory to provide grid stability in a largely populated area.”

While this is currently just an idea, TVA project manager Bob Rehberg is working to determine if the Bull Run site could indeed house a synchronous condenser.

“Right now, we are in the early stages of considering this option and have submitted a request for proposals to get quotes from contractors who specialize in this work,” Rehberg said. “We won’t make any decisions without community input and TVA Board approval.”

If the project is approved, Bull Run’s existing generator would be reconfigured. A limited crew would continue working at the site to maintain the synchronous condenser, which would be in the turbine building.

Most of the other buildings – scrubbers, coal handling and more – would be demolished as part of the retirement.



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A Greener Future

As TVA moves away from traditional fossil generation and toward cleaner energy, its specialists will continue to have to find new ways to ensure the enterprise has a stable and reliable power system.

“If you add on that TVA is building up to 10,000 megawatts of solar generation by 2035, the need for a synchronous condenser will be even more critical,” Rehberg said.

As TVA’s energy portfolio evolves, synchronous condensers and other innovations will prove vital to optimizing the grid.

“We don’t want to miss the opportunity to support a clean energy future,” Schweighart said. “And with the dedication of this team, we won’t.”

Storm Response Underway

Tornadoes Leave Path of Destruction

Devastating storms and tornadoes ripped through TVA’s northern region Saturday evening, leaving behind a path of destruction.

TVA line workers and team members arrived on scene soon after to work with local partners in assessing the full extent of the damage and coordinating repairs and assistance.

The TVA system is currently secure and stable.

TVA is working with affected local power company partners to offer support. Clarksville Department of Electricity sustained the most significant system impacts. System impacts were also seen at Gibson Electric, Nashville Electric, Cumberland Electric Membership Corporation, Middle Tennessee Electric and Pennyrite Rural Electric Co-Op.

“Our hearts are with the communities and families impacted,” said Justin Maierhofer, TVA regional vice president of the North Region. “Our TVA Regional team in Middle Tennessee and Kentucky stands ready to support, assist and partner with our customers and local communities.”



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Buttoning Up the Winter To-Do List

TVA Teams Finalizing Cold-Weather Readiness Repairs

Jason Forsgren's shift starts at 5:30 a.m., so it's still dark on his 14-minute commute.

As Forsgren drives up to TVA's [Kingston Fossil Plant](#) in Harriman, Tennessee, he can see lights glowing on the panels that control the heat trace system, which protects outdoor pipes from freezing.

Some of those lights – the green ones – have been around for years. They tell him that the system is powered up.

But these past few months, TVA team members have installed additional lights – red ones the size of a hamburger.

"It looks like a Christmas tree," Forsgren, the winterization coordinator at Kingston, said.

The big red lights are part of the most comprehensive cold-weather preparedness overhaul in TVA's 90-year history – a to-do list of nearly 3,400 items that began earlier this year with the addition of more stringent winterization standards. The work will be completed over the next few weeks.

TVA has invested nearly \$123 million in the last three months alone to harden its system and enhance the reliability and resiliency at its coal, gas and hydro plants.

For FY 2024, TVA is committing an additional \$120 million above normal funding levels to focus specifically on enhancing the reliability of the generation fleet.

Bolstering reliability at Kingston, for example, each heat trace light indicates power is flowing all the way to the end of an individual heat trace line.

The new monitoring system lets Forsgren tell – even from his truck before dawn – that the freeze protection system is operating correctly.

"My Christmas tree's on, so we're good," he said.



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Thousands of upgrades

Heat trace is a thin, flat rubber cable containing conductive wires that heat up when electricity passes through them. It's strung alongside pipes and sensitive instruments to help keep them from freezing.

At Kingston alone, TVA has replaced more than 2,000 feet of heat trace – 45 individual lines – along with the insulation that surrounds it.

Heat trace lines at all of TVA's 17 gas plants and four coal plants have been modernized, accounting for more than 2,600 repairs. The new monitoring lights at some plants are blue rather than red, but they function the same.

TVA has also installed 443 wind breaks and enclosures to protect equipment from cold air. These include everything from heated shelters to tentlike temporary enclosures and heavy plastic butcher curtains like you might see in a walk-in cooler.

Another 339 preventive maintenance tasks have been carried out. These have focused on servicing heaters, staging auxiliary heaters and other emergency response equipment, and installing far more robust desiccant drying systems to protect critical air flow pipes and valves.

"We're doubling our efforts to remove the moisture from the air," said Derrick Shaw, a combustion turbine technician at [Gallatin Combustion Turbine Plant](#) in Sumner County, Tennessee. "If the air is dry, it will not freeze in temperatures typically experienced in extreme winter weather."

67-Point Checklist

Each of these repairs and upgrades has been tracked using a system of dashboards. A person responsible and a deadline have been assigned for each one. There have been status update meetings multiple times per week.

Almost all the repairs are already done.

The final items being handled are at [Ackerman Combined Cycle Plant](#) in Ackerman, Mississippi, which has been in a planned maintenance outage.

This week, a crew of TVA inspectors began fanning out to sites around the Valley region – armed with a multipage, 67-point assessment checklist – to sign off on the work.



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Those inspections are slated to be complete by the first week in January, Norm Flake, TVA's senior program manager of seasonal readiness, said.

TVA team members designed the inspection system to verify nitty-gritty details, such as whether a seam on the lagging – insulation surrounding the heat trace – is positioned in a way that water could seep in and freeze.

On a plant-by-plant basis, the assessments will pin down critical details.

“Did you turn the knobs and slide the levers of winter readiness in the ways we asked?” Flake said.

Top-To-Bottom

The cold-weather to-do list was compiled earlier this year in “a top-to-bottom, fully detailed assessment of every single one of our systems and plants across our coal and gas fleet,” Allen Clare, TVA vice president for power operations performance improvement, said.

TVA's winter readiness overhaul has also included updated cold-weather response plans, training and drills, and a more rigorous approach to regular maintenance.

These process improvements will pay dividends far beyond the current winter, Clare said.

Every time equipment is disassembled and reassembled for regular maintenance, it will be checked for even seemingly minor items, such as the insulation seam placement.

“Every year, our plants conduct planned outages, which requires disassembling and reassembling equipment,” Clare said. “Freeze protection is a complex system and, if not properly reassembled, it will not function effectively.

“Proper attention has to be paid to all of these minute details during maintenance activities. We've revised our processes and programs and made them more robust.”

Flake said he's proud of the work by every TVA team member, from the site level all the way to top management.

“To make it right and get it right for our customers and the people of the Valley – it's what drives us,” Flake said.



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New ATVG Mailing Address

ATVG recently changed our mailing address due to the recent change in the ATVG program director. Ron Watkins of Henry County, TN will now be coordinating membership. Please note the new ATVG mailing address is now ATVG, PO Box 1504, Paris, TN 38242.

All TVA articles are written and taken from TVA.gov as part of their Public Information News Room.

Winter 2024 Meeting planned for February 6, 2024

Make your plans now to attend our upcoming ATVG meeting on February 6, 2024 at the Embassy Suites Conference Center in Murfreesboro, TN. Very informative presentations will be provided including 2024 Payment-In-Lieu-Of-Taxes (PILOT) program projections for local governments. See agenda and registration form on the following page and get your room reserved now!



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ATVG Meeting Agenda

February 6, 2024

Embassy Suites Conference Center
1200 Conference Center Drive
Murfreesboro, TN
615-890-4464 or 1-800-Embassy

11:00 AM- ATVG Board Meeting

Noon- Group Lunch (Spouses Welcome)

1:00 PM- Welcome- ATVG President, Judge Executive Scott Lindsey, Edmonson County, KY

- TVA Update
- Discussion with TVA Board Director Wade White
- Presentation on “Keep Tennessee River Beautiful”, Kathlene Gibi, Executive Director
- TVA “Payment-In-Leiu-Of-Taxes (PILOT) Program including 2024 Payment Projections, Byran Johnson, TVA
- More to be Announced

6:30 PM- Dinner at *Five Senses Restaurant*, 1602 W. Northfield Blvd, Murfreesboro

Please help us make necessary arrangements by letting us know if you will be attending. Send the enclosed registration form by email to: registration@atvg.org or by U.S. mail to ATVG, PO Box 1504, Paris, TN 38242

Registration Form

Association of Tennessee Valley Governments Meeting Registration Form
Registration Fee: \$175.00 for members and affiliates; \$300.00 for non-members

Name: _____

E-Mail: _____

Spouse's Name: _____

Registration Fee for spouse Is Included/No additional charge

Company/Organization: _____

Full Address: _____