POWERLINE NEWS

TVA Reverses on Kingston – Keeps Nine Coal-Fired Units Online

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Kingston Power Plant History

The Kingston Fossil Plant is a 1.4 GW nameplate coal-fired power plant near Kingston, Tennessee. It is operated by the Tennessee Valley Authority (TVA). It was built in 1951 and at the time was the largest coal-fired plants in the world. It was built primarily to provide power for the Oak Ridge National Laboratory. The plant has nine coal powered generating units and consumes five million tons of coal each year. In 2008, it experienced a 1.1 billion gallon fly ash leachate spill. Under pressure from the government, in 2024 it was announced that all nine coal-fired units would be retired in 2027. This plan included bringing new gas, solar, and battery storage power online.

Increased Power Demand Convinces TVA to Reverse Coarse

TVA has issued a new Supplemental Environmental Impact Statement (SEIS). This document is intended to address continued operations, changes in energy demand, and regional energy supply. The recent SEIS released by TVA outlines a major shift in the course of action for Kingston. They now expect to keep the nine coal-fired generating units in operation even after new gas power is brought online. Solar was planned but now will be abandoned. This reverses previous planned retirement.

The SEIS cites higher-than-anticipated regional power demand as the primary reason for altering the original retirement plan. Contributing factors include Increased data-center electricity usage, regional population growth, and rising employment. These factors caused demand to exceed forecasts used during the original decision.

TVA's reassessment also reflects broader regulatory and political changes, including federal policies that have eased restrictions on coal plant emissions (CO_2) and encouraged domestic coal production. Supplementary reports note executive orders aimed at supporting coal as part of national energy strategy. Although the SEIS identifies continued coal operation as the preferred option, TVA states that no final determination has been made. The matter remains under evaluation and is scheduled for review by TVA's board.

What Happens Now

The SEIS described in recent reporting focuses on TVA's revised preferred alternative for the Kingston Fossil Plant — specifically, whether to retire or continue operating its coal-fired units. However, none of these SEIS summaries include discussion of ELG (Effluent Limit Guidelines) compliance strategies, upgrades to NPDES-regulated wastewater systems, or any design/operational details of CCR (coal-combustion residual)

wastewater handling. The most recent published ELG update (2024 progress report) assumes retirement of the coal units, stating TVA is not planning additional upgrades to FGD or BATW systems because the plant was scheduled to cease coal combustion. This means TVA has not yet re-issued updated plans reflecting the new possibility of continued coal operations.

While not specific to the new SEIS scenario, prior ELG/NPDES compliance documentation indicates that Kingston would still be required to meet the EPA's 2024 updated ELG rule**.** If TVA officially keeps the coal units running, it will eventually need to issue updated wastewater-treatment plans to comply with the ELG rule — but it has not done so yet.

Environmental Concerns and Solutions

TVA will need to prepare a plan for meeting the 2024 EPA ELGs for flue gas scrubber water treatment. Given the history with ash ponds there, the plan should also include handling of CCRs and effluents generated from that.

Coal is an abundant and inexpensive fuel source. The reason many are against coal fired power plants is because, unlike other fuel sources, combustion gases from coal require scrubbing to remove sulfur. This generates a wastewater that if not treated properly can pose a danger to the environment. However, this fear is unwarranted. Advancements in wastewater treatment allow for treated water that is ultrapure and can even meet drinking water standards. Advanced RO membrane filtration such as the VSEP® (vibratory shear enhanced processing) system has been used for more than a decade at full-scale in power plants and can remove mercury, arsenic, sulfur, selenium and all of the potential pollutants providing clean water that can be reused or safely discharged.

The VSEP® system, manufactured by New Logic Research in Minden Nevada has been installed at and proposed for dozens of coal-fired power plants in the country. With deployment of these systems, coal could continue to be used safely, cleanly, and inexpensively to supply power to an electricity hungry country.

About New Logic Research

New Logic Research has been a trusted provider of water treatment solutions for the power industry since 1987. To explore how the VSEP® RO technology can enhance flue gas desulfurization wastewater treatment operations by recycling water: https://www.vsep.com/industries/power-gen/. To speak directly with an experienced VSEP engineer: info@vsep.com