

GAO Highlights

Highlights of [GAO-23-105375](#), a report to congressional requesters

Why GAO Did This Study

More frequent extreme weather events and other risks associated with climate change could cost utilities and customers billions of dollars from power outages, disruptions to electricity generation capacity, and infrastructure damage. Enhancing climate resilience means taking actions to reduce potential future losses by managing climate-related risks. TVA is a federal corporation and the nation's largest public power provider. TVA provides electricity to about 10 million customers in seven states, including 153 local power companies and about 60 large industrial customers and federal facilities.

GAO was asked to examine U.S. energy infrastructure resilience. This report examines (1) climate-related risks to TVA's operations; and (2) steps TVA has taken to manage climate-related risks, and additional steps needed. GAO analyzed relevant reports and financial disclosure documents; and interviewed TVA officials and knowledgeable stakeholders from consumer groups and DOE national laboratories.

What GAO Recommends

GAO is making three recommendations, including that TVA conduct an inventory of assets and operations vulnerable to climate change and develop a resilience plan that identifies and prioritizes resilience measures. TVA neither agreed nor disagreed with our recommendations.

View [GAO-23-105375](#). For more information, contact Frank Rusco at (202) 512-3841 or RuscoF@gao.gov.

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TENNESSE VALLEY AUTHORITY

Additional Steps Are Needed to Better Manage Climate-Related Risks

What GAO Found

The Tennessee Valley Authority (TVA) faces several climate-related risks to its operations. Increasing temperatures and other climate-related risks are expected to affect TVA's ability to generate and transmit electricity, according to reports reviewed and stakeholders interviewed by GAO. For example, in 2007, 2010, and 2011, TVA had to reduce power generation at its Browns Ferry Nuclear Plant because river temperatures were too high to receive discharge water from the plant without raising ecological risks. Climate-related effects, such as heavy precipitation and flooding, could also create added costs to TVA's operations—such as for infrastructure investments—that could affect TVA's ability to keep electricity rates low. For example, in 2010, a TVA substation was submerged in over 5 feet of water when 15 inches of rain fell in 2 days. TVA relocated the substation to higher ground, at a cost of about \$9 million.

Tennessee Valley Authority's Browns Ferry Nuclear Plant in Alabama



Source: Tennessee Valley Authority. | GAO-23-105375

TVA has taken several steps to manage climate-related risks. For example, TVA identified risks, such as flooding and drought, in its 2021 *Climate Action Adaptation and Resiliency Plan* and implemented several resilience measures, such as relocating certain infrastructure. However, TVA has not conducted an inventory of assets and operations vulnerable to climate change or developed a resilience plan that identifies and prioritizes resilience measures to address specific risks. According to the Department of Energy's (DOE) *Guide for Climate Change Resilience Planning*, conducting an inventory of assets and operations vulnerable to climate change can help utilities more accurately identify relevant hazards and the potential severity of disruptions to operations or damage to related infrastructure. This, in turn, would better position TVA to plan and implement appropriate actions to address climate change vulnerabilities as they become more acute, and as new and better information becomes available. In addition, developing a resilience plan that includes a portfolio of resilience measures could help TVA identify available options and determine whether mitigating certain risks is worth the investment. Doing so would help TVA better fulfill its mission of providing reliable and affordable power to its customers.