What Happened

Winter Storm Elliott – a “Once in a Generation Storm” – Caused Dramatic Increases in Power Demand and Reduced Available Supply Across the U.S.

33,425 MW

The Electricity Demand on December 23, 2022

250

Near-term mitigation actions were completed to increase resilience at generating facilities.

TVA’s objective and that of our 153 local power company (LPCs) partners is to always be a reliable energy partner. During Winter Storm Elliott, we fell short of that objective, when, for a total of eight hours in the morning hours on December 23 and 24, TVA directed LPCs to reduce their load between 5% to 10% in order to maintain grid stability as weather conditions drove record demand, and reduced supply from TVA’s generating facilities and neighboring markets.

- On December 23, 2022, TVA experienced the highest winter peak electricity demand in TVA history and the most energy delivered over a 24-hour period.
- Due to the extreme conditions, TVA requested Local Power Companies to reduce energy delivery, and Industries participating in demand response programs to reduce energy consumption, which successfully stabilized the grid until TVA and neighboring utilities could return generating assets back online.
- TVA quickly identified and completed 250 actions to strengthen assets for future events, and launched a comprehensive after-action review to identify longer-term opportunities for improvement.

What We Learned

TVA Improving System Resilience

TVA teams assembled to conduct a deep dive into what happened, how TVA responded, strengths to build upon and improvements for the future, focusing on: energy supply, operations, emergency protocols, transmission, and customer and stakeholder engagement.

TVA is also learning from this event to work with our partners to adjust our long-term strategy. Several strategic considerations were proposed to evaluate how we better respond to weather events and the dramatic increase in economic growth in our region, how we can maintain and invest in all types of generating assets to build the energy system of the future, and opportunities to better leverage technology with our customers and communities to ensure resilient and secure systems.

Recommendations include:

- Adjusting design standards to increase the resilience of generating facilities to withstand extreme events.
- Leverage data analytics to better incorporate risk and uncertainty in usage and energy markets.
- Updating emergency protocols and communication methods to improve awareness and information sharing.
What’s Next

TVA Committed to Providing Energy Security for Future Generations

TVA’s unique, longstanding mission is focused on providing energy that is affordable, reliable, resilient and clean; environmental stewardship to protect and preserve public lands and water; and economic development to attract investment and create jobs.

TVA’s robust, diverse energy portfolio allows us to accomplish each part of this mission: rates lower than 80% for retail and 95% for industrial; attracting record-setting jobs and investment to the Valley; and maintaining one of the nation’s cleanest systems, with more than half of our generation coming from carbon-free sources, and plans to further transition and modernize our system to support a clean energy economy.

TVA has been an innovation company for 90 years, and that same innovative spirit guides our work today as we navigate our region – and the nation’s – changing electricity and power demands. We are already investing in our system and building new infrastructure to address the challenges before us, and we will continue to pursue innovative technologies to achieve our goals.

While our most important job is to provide reliable, secure energy, we must also achieve our clean energy goals without sacrificing reliability or affordability – it’s what our customers and communities expect and deserve. However, we cannot do this alone, and we rely on our partnerships – with our customers, stakeholders, and policymakers – to support sustainable infrastructure investments and take the collective action required to balance each of these energy needs.

A period of transition:

- After nearly a decade of flat growth, the region is growing six times the national average – nearly 3% demand growth from 2019 to 2022.
- Southern states are the fastest-growing region in the nation.
- Over the past five years, TVA has helped attract and retain 346,000 jobs and $47 billion in investments.

TVA is committed to providing energy security by building the energy system of the future, which includes:

- **Aggressively investing in and modernizing our system**
  - $18 Billion since 2014; $3 Billion planned through 2027

- **Leveraging the market to affordably deploy clean energy**
  - 2,300 MW of solar capacity commitments, toward a total of 10,000 MW of solar by 2035
  - Requested proposals for 5,000 MW of clean energy

- **Partnering with LPCs and customers to deploy distributed energy generation, energy efficiency, and demand response.**
  - 2,000 MW potential of LPC-owned solar
  - Saved 4 GWh of energy through Home Uplift Program to help customers lower bills
  - Providing incentives and savings to businesses to suspend energy demand when supply is constrained

- **Replacing aging, less reliable capacity with flexible and diverse capacity**
  - Building 3,800 MW of new generation
  - Updating the Integrated Resource Plan to help guide future resource decisions with input from our partners and stakeholders.

- **Assessing evolving risks to and future demand of our system.**
  - Evaluating and addressing future climate-driven risks through the Climate Action Adaptation and Resiliency Plans
  - Anticipating future electrification scenarios in the Valley Pathways Study

- **Innovating and developing new clean energy technologies.**
  - Pursuing a Small Modular Reactor at the Clinch River Site
  - Exploring energy storage, including batteries and pumped hydropower, and hydrogen