USEA Enhances Grid Resilience in Georgia Through Landmark Transmission System Study

The United States Energy Association's Georgia Power System Resilience Study provided a transparent, data-driven assessment of Georgia's transmission grid to enhance its resilience against natural and man-made hazards. By providing actionable insights for modernization and resilience planning, the initiative enhanced national energy security while fostering new opportunities for U.S. engineering and technology partners.

In partnership with the Georgian State Electrosystem (GSE), the United States Energy Association (USEA) has strengthened Georgia's grid resilience through the Georgian Power System Resilience Study. This comprehensive effort identified and addressed structural vulnerabilities in the country's high-voltage transmission network.

The study provided a thorough risk and vulnerability evaluation of Georgia's transmission system, examining its susceptibility to two human-made threats – cyberattacks and military conflict – and seven natural hazards: avalanches, wildfires, earthquakes, floods, landslides, windstorms, and icing. Through geospatial and statistical analysis, USEA identified which transmission lines are most at risk and classified them by severity – offering a clear and data-driven foundation for national resilience planning.

A key element of the study was the development of hazard-specific risk registries and regional vulnerability maps, which provide stakeholders with a technical reference for assessing transmission corridors and identifying areas where resilience measures may be most beneficial. These findings help inform potential actions such as reinforcing substations, hardening transmission lines, and enhancing control and monitoring systems. The study also offers a technical foundation to support future modeling of cascading failures and considerations for large-scale disruption planning – important steps toward strengthening Georgia's grid stability and recovery capacity.

By aligning rigorous technical analysis with national infrastructure priorities, the project provides GSE and government stakeholders with the tools necessary to strengthen system redundancy, improve emergency preparedness, and mitigate the operational impacts of natural and man-made hazards.

This initiative demonstrates how U.S. technical cooperation can promote the long-term modernization and resilience of power grids in strategic partner countries. It also paves the way for ongoing collaboration with U.S.-based engineering and technology firms, demonstrating American leadership in constructing resilient, forward-looking energy infrastructure.