

USEA Strengthens Energy Security in Uzbekistan through Grid Modernization and Capacity Building



The United States Energy Association has strengthened Uzbekistan's energy security by modernizing its transmission grid, improving system reliability, and building the technical capacity needed to manage growing renewable energy integration. Through advanced planning tools, grid stability assessments, and hands-on training, USEA has empowered Uzbekistan to operate a more resilient, self-reliant power system and reduce vulnerability to future disruptions.

The U.S. Energy Association (USEA) played a critical role in enhancing Uzbekistan's energy security by

supporting the modernization of its national transmission system, improving grid stability, and building the institutional capacity needed to manage a rapidly evolving energy landscape.

As Uzbekistan pursues its national target to generate 25% of its electricity from solar and wind by 2030, the country faces growing pressure to secure a reliable power supply. An aging grid, frequent outages, and limited tools for managing variable generation have made it difficult to ensure consistent electricity delivery – posing challenges not only to the country's energy transition but to its economic

resilience and national security. In response, USEA partnered with Uzbekistan's Transmission System Operator (TSO) and the National Electricity Transmission Company (NETC) to deliver a comprehensive technical assistance program aimed at strengthening the country's power system. At the heart of the initiative were advanced static and dynamic power system models and long-term planning scenarios – spanning 5- and 10-year horizons – that help grid operators anticipate future conditions, identify vulnerabilities, and make informed decisions to maintain system reliability under increasing renewable penetration.

USEA also conducted a System Stability and Reliability Study to evaluate how large-scale integration of renewables may impact grid performance and to recommend engineering measures to mitigate those risks. To support the sustainability of these improvements, USEA provided intensive training for Uzbek engineers and system

operators in the use of DlgSILENT PowerFactory – an internationally recognized software tool for modeling and analyzing complex power systems.

Together, these interventions significantly enhanced Uzbekistan's ability to manage its energy resources independently, respond to operational challenges in real time, and reduce reliance on emergency imports or regional power support. By equipping Uzbekistan with the tools, data, and technical know-how to plan and operate a more resilient and flexible grid, USEA has helped safeguard the country's energy supply against future disruptions.

This partnership represents a major step forward in securing Uzbekistan's energy future – supporting a stable, self-reliant power sector that underpins national development and long-term energy sovereignty.