Mobile technology gives Bulgarian power grid a renewable energy boost

August 4 2021

Credit: AI-generated image (disclaimer)

Transmission grids are struggling to keep up with the growth of renewable energy. In Bulgaria, the installation of a novel mobile power flow control system is now making it possible to greatly increase the amount of renewable energy that the country's power grid can handle. It's also unlocking cross-border electricity flows.

The technology was installed in Bulgaria's transmission system as part of the EU-funded FLEXITRANSTORE project, with collaboration between the Bulgarian transmission system operator, electricity system operator (ESO) and global power technology company Smart Wires.

Power flow control technology allows grid operators to unlock their systems' currently underutilized transmission capacity, making their power grid infrastructure more efficient and resilient. Grid congestion is reduced and quicker connections are made possible between new renewables and demand. The pioneering mobile power flow control solution developed by Smart Wires was installed in north-east Bulgaria, where 750 MW of wind energy is generated. The installation took only 2.5 days.

"This project allows us to capture excess capacity on our grid to increase renewable penetration, reduce constraints and improve cross-border flows between Bulgaria and Romania," stated ESO's National Dispatching Center Director Dimitar Zarchev in a news release posted on 'CISION PR Newswire'. "ESO is proud to be part of this important work, which is vitally important to the Southeastern European network."

Good for customers, good for the environment

Further describing the benefits of the mobile power flow control technology, Zarchev explained it would enable them to vastly improve the network's capacity and flexibility and speed up the region's decarbonisation efforts. "[T]he value of Smart Wires' mobile technology is that it can be delivered in months, installed in hours and reused at multiple different locations," he continued. "Power flow control is not new, but this innovative mobile deployment method provides the industry with an incredibly flexible and high-impact solution, which ultimately delivers a faster, lower cost and better way to plan and operate power systems."

Mark Norton, Smart Wires' Vice President of European Business Development, commented on the Bulgarian undertaking: "[T]his project showcases true innovation—redeploying large scale grid infrastructure seamlessly from one grid to another to solve multiple problems. This equipment was first deployed in Greece in 2019 to reduce renewable congestion as a joint project with the Greek Independent Power Transmission Operator. ESO and IPTO [the Independent Power Transmission Operator] have shown global leadership on this project which has caught the imagination of operators from all over Europe, the US, Australia and Latin America. We're proud to partner with the FLEXITRANSTORE consortium to ensure these types of tools can be adopted across Europe."

The FLEXITRANSTORE (An Integrated Platform for Incresed FLEXIbility in smart TRANSmission grids with STORage Entities and large penetration of Renewable Energy Sources) project aims to transform Europe's power system with interventions that target the entire energy value chain.

More information: FLEXITRANSTORE project website: www.flexitranstore.eu/

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