



BRIEF ON ANCILLARY SERVICES MONITORING

APRIL 15, 2021

The USAID Energy Security Project (ESP) has been closely working with the Ukrainian electricity transmission system operator (TSO), Ukrenergo, on issues including ENTSO-E integration, network planning, system operation, and market reform implementation. ESP has been providing technical assistance to test the generation fleet, which will help certify power plants as ancillary service providers, and to develop the ancillary services market (ASM) in Ukraine. As a result, total certified reserve capacity for ancillary services could exceed Grid Code requirements and continues to increase as new plants are tested and certified. The ASM has been open continuously since spring 2020 and auctions for various ancillary services occur regularly.

Next year, the Ukrainian power system (UPS) must prove its ability to work stably in isolation during operational tests. These tests will assess the UPS's readiness for interconnection with the European power network, scheduled for 2023. During the tests, UPS must be able to balance deviations in supply and demand under normal and emergency cases to maintain the frequency level using only its internal capacities for frequency and active power control. The ASM plays a key role in supporting the power system's stability and functioning by providing a platform for certified power plants to deliver ancillary services.

After the ancillary services auctions for reserves, it is crucial that the TSO accurately monitor the provision of those services by the certified power plants selected in the auctions. With monitoring, successful providers can be remunerated fairly while failing providers are penalized accordingly. To facilitate the ASM opening in 2020, the Regulator approved a simplified monitoring methodology, while Ukrenergo and ESP were tasked with testing an advanced monitoring methodology developed by ESP. This new methodology aims to accurately monitor provision of ancillary services, including multiple products (e.g., primary, and secondary reserves) provided simultaneously by a single plant. It will ensure reliable ancillary services provision, meeting the requirements for ENTSO-E integration. ESP developed the methodology and test software based on actual metering data from the busbar and generators of certified power plants (see figure below).

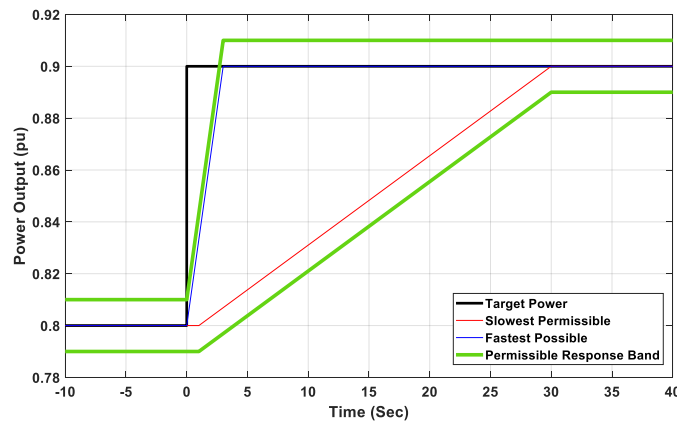


Figure: Example of ancillary services monitoring using the new methodology (in per-unit system)



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Following the tests, ESP and Ukrenergo organized a workshop on April 1 to discuss the results and data with the power plants certified in ancillary services. Participants provided positive feedback in general and expressed interest in implementing the new approach as soon as possible. Based on their comments, ESP is now working on improving the methodology. In the meantime, ESP and Ukrenergo are coordinating with the Regulator to draft changes to the secondary legislation that will underpin implementation.

In addition to providing technical assistance on testing the generation fleet, facilitating the ASM opening and enhancing its operation, ESP is very pleased to support the development and implementation of an advanced ASM monitoring methodology that will significantly contribute to ENTSO-E integration as well as to the market and system operation in general.