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## New technologies supporting the security of supply in SEE region amidst integration of Ukraine and Moldova

*Successful synchronization of ENTSO-E with the Ukrainian and Moldovan grids has impact to the power system.*

### HIGHLIGHTS

- On 16 March 2022 the European continental electricity system synchronized successfully with the Ukrainian and Moldavian ones
- Though this brought European support to a country in great need, the synchronization could lead to further impacts on the Central-Eastern and South-Eastern-European region
- The FARCROSS project is working on hardware and software tools to enhance cross-border capacity for the electricity flows that could effectively mitigate these new risks already on the short term.

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Responding to an urgent request, the European Network of Transmission System Operators for Electricity (ENTSO-E) successfully coordinated the synchronization of the electricity system of Continental Europe with Ukraine and Moldova. Though this step was already in preparation since 2017, the war in Ukraine introduced a new, extremely challenging situation to be handled for the country's electricity power system.

The synchronization means support for Ukraine, but at the same time, this can have impact on the power systems of the countries in the Eastern- and South-Eastern Europe operating within the synchronous area. On one hand, this link introduces a new critical oscillation mode, which – without proper damping – can damage network equipment, generators, or lead to disturbances in some part of the European power system. The damping can be done also with modern grid technology such as SSSC.



On the other one, the synchronization can put the reserves of the region to a test, if Ukraine requires emergency power delivery to maintain their system balance. Such situation would highly impact the reserves of the transmission system operators (TSOs) of the region in case there is any major disturbance further on in their own systems.

Horizon2020 project FARCROSS is operating in the neighboring region with the aim of improving the security of supply by enhancing cross-border electricity exchange capacities. One of the main goals of the project is to increase available cross-border power flows using digital technologies by 10 % at least, which would greatly enhance the resilience of the power systems.

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As to achieve this goal the partners of FARCROSS develop and test grid enhancing technologies, such as dynamic line rating (DLR) or modular power flow control (M-SSSC). These tools are complemented with new software solutions to optimize cross-border power transmission capacity.

On top of this, FARCROSS project consortium also enhances the use of the wide area protection, automation, and control (WAMPAC) system to provide further ability to monitor malfunctions and instability indications. The project will also introduce the EUROPLAN platform for improved planning, operation and resource utilization on a TSO level, which provides forecasting of weather conditions, generation and demand, losses and reserves and hazardous system conditions.

“These state-of-the-art hardware and software solutions are essential to provide more observability to the grids and extra capacity to the cross-border electricity flows in the region, especially in these challenging times” – said Anastasis Tzoumpas, Project Manager of the FARCROSS project. “Such developments are key to improve security of supply in the Central-Eastern- and South-Eastern-European region very fast, without adding more lines, as those take more time” - he concluded.

*About FARCROSS project:*

*Horizon2020 funded project FARCROSS aims to connect major stakeholders of the energy value chain and demonstrate integrated hardware and software solutions that will facilitate the 'unlocking' of the resources for the cross-border electricity flows and regional cooperation. FARCROSS will promote state-of-the-art technologies to enhance the exploitation/capacity/efficiency of transmission grid assets.*

*Project duration: 01/10/2019 - 01/10/2023*



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## Partners



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