

Activation of first-level protections prevented potential outages for users

EUROPEAN ELECTRICITY SYSTEM SECURED THANKS TO TERNA'S QUICK INTERVENTION

Disconnection of 400 MW of interruptible industrial customers, by the company managing the Italian high-voltage grid, helped to maintain balance in the national and continental electricity system, which was struck by an unexpected frequency drop

Rome 15 January 2021 – The Italian electricity grid managed by Terna promptly reacted to a sudden drop in frequency affecting the transmission systems of all countries in continental Europe, quickly contributing to the service being progressively secured and continuity of supply without consequences for users.

With its internationally cutting-edge defence system in terms of performance, speed and efficacy, Terna activated the first level of system protection by disconnecting around 400 MW of consumption from “interruptible” industrial customers. In coordination with the other measures adopted by European grid operators, this action allowed restoration of normal continental electricity frequency, avoiding possible widespread outages and disruption.

Terna was prompted to take this action on 8 January. At 14:05 a frequency drop was identified (around 250 mHz) due to a series of “openings” of lines in the Balkan area, literally dividing the European electricity grid in two. The fault, a rather rare event which is still under investigation by Entso-e (European association of transmission system operators) to understand the causes, decoupled the South-East area from the Centre-West area, which are usually synchronously interconnected, for almost an hour. To reduce the frequency deviation and guarantee the stability of the whole electricity system, Terna promptly disconnected 400 MW of interruptible services, the amount required to stop the variation immediately after the disconnection (in France, around 1200 MW of interruptible services were disconnected by the operator RTE). The European electricity grid returned to normal conditions in around one hour.

The interruptible service is fundamental for the secure management of the Italian electricity system and is offered by customers, generally large industrial energy consumers in sectors such as metallurgy, paper, ceramics, cement and chemicals, etc., which are contracted to allow immediate disconnection of their electricity supply from the grid in the event of situations that threaten the security of the electricity system (unexpected outages of lines or disconnection of large generation plants).

Terna prepares an annual Defence Plan for the Italian grid, detailing actions planned to maintain the high standards of security of the Italian electricity system, including works for grid stability, innovative actions to increase resilience and defence systems. Specifically, within the 2021–2025 Industrial Plan, Terna has earmarked € 1.2 billion to fund the Defence Plan, primarily financing the work

needed to ensure voltage regulation and the dynamic stability of the electricity system, including, for example, the installation of synchronous compensators at critical points on the grid. This plan also covers all the steps necessary to respond to the risks linked to the occurrence of increasingly extreme weather events, the frequency of which has intensified in recent years as a result of climate change. This involves targeted investment and innovative solutions, designed also to boost the electricity system's resilience.