

At approximately 14:05 CET, the frequency in the north-west area of continental Europe initially decreased to a value of 49.74 Hz within a period of around 15 seconds. Afterwards, the frequency reached a steady state value of approximately 49.84 Hz. At the same time, the frequency in the South-East Area initially increased to a value of up to 50.6 Hz before settling at a steady state frequency between 50.2 Hz and 50.3 Hz.

On 8 January 2021 at 14:05 CET, the synchronous area of continental Europe was separated into two separated areas due to outages of several transmission network elements in a very short time. European Association of Transmission System Operators for Europe (ENTSO-E) is investigating the causes of the incident.

Due to the underfrequency in the north-west area, contracted interruptible services in France and Italy, in total around 1.7 GW, were disconnected in order to reduce the frequency deviation. These services are large customers who are contracted by the respective Transmission System Operators (TSOs) disconnected if frequency drops under a certain threshold. In addition, 420 MW and 60 MW of supportive power were automatically activated from the Nordic and Great Britain synchronous areas respectively. These countermeasures ensured that already at 14:09 CET the frequency deviation was limited to a deviation of around 0.1 Hz in the north-west area from the nominal frequency of 50 Hz.

Due to the large overfrequency in the south-east area, automatic and manual countermeasures were activated (i.e. the reduction of the feed-in of generation units) in order to stabilize the frequency. Thus, at 15:05 CET the frequency deviation in the south-east area could be limited to +0.1 Hz from the nominal frequency of 50 Hz.

The automatic response and the coordinated actions taken by the TSOs in Continental Europe ensured that the situation was quickly restored to normal operations. Actions were coordinated between the TSOs in order to reconnect the two areas as fast as possible again. Therefore, the contracted interruptible services in Italy could be reconnected at 14:47 CET and in France at 14:48 CET. At 15:08 CET, both areas were connected again to one synchronous area in continental Europe.

Soon after the incident, Austrian electricity transmission system operator APG said that a power outage in part of Romania is to blame for a drop in frequency in Europe's electricity system on Friday afternoon. According to Romanian electricity transmission system operator Transelectrica, northwestern part of Romania was left without electricity at around 15:00 on 8 January, in some places for up to an hour and a half, while in other parts of the country, the voltage dropped to even 90 V.