Norway grid stabilization

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The report presents our joint view of the development in the power system, and the status of grid development projects of Nordic importance. In this edition, we have also put extra focus on how the power system"s technical characteristics change with more production from solar and wind power generation.

"The Nordic countries are part of the same synchronous area and depend on each other to ensure stable operation. We must jointly develop new solutions that can ensure stability also in a future with even more solar and wind power," says Martine Moe Winsnes, director of Long-term power system development in Statnett.

Through the collaboration between Vattenfall, Sympower and Statnett, ferro-alloy company, Eramet Norway, has gained access to FFR (Fast Frequency Reserve) from May - October 2021. This means that the company can contribute to a stable power grid, not only in Norway, but throughout the entire Nordic electricity grid, should a power failure occur.

Energy sources such as wind and solar power put new demands on the electricity system. As more weather-dependent energy increases, larger reserves are required. Nordic system operators have therefore agreed to trade in synthetic inertia, or FFR, to ensure electricity network stability. This solution means that substantial electricity consumers such as Eramet Norway can quickly reduce their electricity consumption and help to achieve stability in the power grid when there is an imbalance.

"FFR is a necessary component if we want a future power system consisting of more renewable electricity. Norway has recently expanded its cable capacity to Germany and can thus export more fossil-free electricity from hydro power to the continent and import electricity when demands are high in the Nordic region. If a fault occurs in the cable, it can lead to a sudden shortage, for which FFR is a quick and effective solution," says Viktor Gårdö, Manager Flexibility Products at Vattenfall.

The company’s goal is to enable fossil-free living within one generation. "It’s a win-win situation. The customer contributes to a fossil-free society and gets paid for it," says Gårdö.

Statnett, the system operator of the Norwegian power system, has bought 119 MW to be used for frequency control (at a value of approximately NOK 22.5 million). Of these, Vattenfall as the single largest operator is responsible for 58 MW, together with technology supplier, Sympower. The deal is worth approximately NOK 11.5 million. Eramet Norway, an electricity customer of Vattenfall, produces alloys for the world"s industrial industry. The company has an FFR readiness of approximately 400 hours.

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The power system depends on a balance between production and consumption. When the system is in balance, the frequency is 50.00 Hz. If there are major disturbances in the frequency, it can cause faults in electronic equipment and power failure.

The Spring issue of Energy Global features a varied spectrum of in-depth technical articles detailing recent projects, future projections, and technological advancements in the renewables sector, from companies including GlobalData, Atlas Copco, Watlow, QED Naval, TRACTO, AB Energy, and more.

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