EATON
Powering Business Worldwide

Flexibility Solutions for High-Renewable Energy Systems

Bloomberg New Energy Finance economic study, commissioned by *Eaton* and *Statkraft*

Flexible energy options, such as energy storage, smart-charging electric vehicles, demand response and interconnectors, are needed to ensure that the energy transition proceeds on an optimal path. Our expensive power system would otherwise be reliant on fossil-fueled backup and installing excess wind and solar capacity. These four types of flexibility can accelerate the transition to a cleaner power system and ultimately enable the efficient integration of 80% or more renewable energy by 2040.

- **Energy storage** and **smart electric vehicle charging** provide flexibility by moving large volumes of renewable energy to periods of high demand, or moving demand to periods of high renewable generation.
- **Dispatchable demand response** reduces the need for fossil-fired backup plants in the power system, reducing emissions.
- **Interconnecting to Nordic hydro** can address periods of both excess supply and excess demand, providing different benefits over the decades as the needs of the system evolve.

Learn more: eaton.com/tippingpoints

UK

25% Lower U.K. power sector emissions in **2030** with Nordic interconnectors

12% Less backup fossil capacity required in **2030** with faster battery deployment

13% Higher power generation system costs in **2040** without new flexibility technologies

Germany

8% More expensive power system by **2040** without new sources of flexibility

26% Net emissions reduction by **2040** from a higher uptake of flexibly-charged electric vehicles

11% Lower emissions if batteries become even cheaper or additional interconnections to the Nordics are built