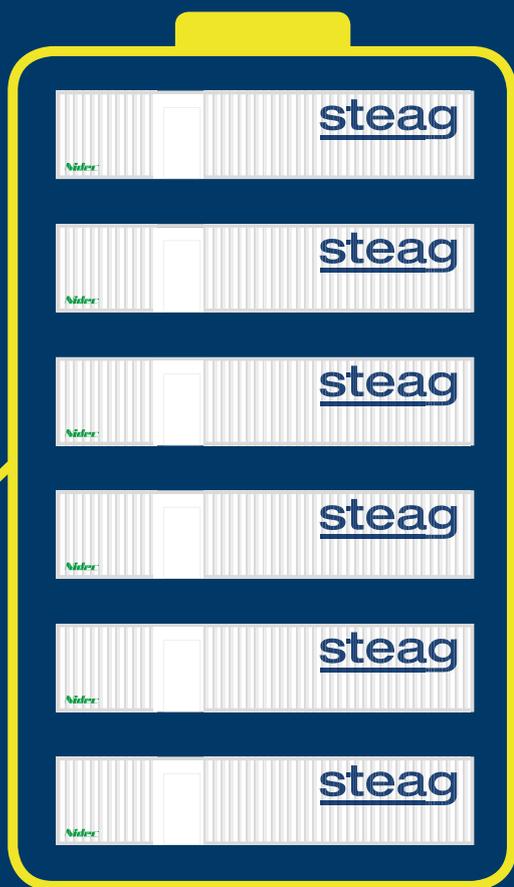


Consistent potential



STEAG secures the energy transition:
As shown by investment of 100 million euros
in six large-scale battery systems.



An important component in stable power supply: primary control power from resource-saving large-scale battery systems

The share of energy from renewable sources in the German electricity mix is continuously increasing – with a target of 55 to 60 percent by the year 2035. This pleasing development does however also contribute to fluctuations in the electricity grid – for production of solar or wind power is uneven and cannot be precisely forecast. Excessive fluctuations in the grid have to be compensated for immediately. The transmission system operators obtain bids on a weekly basis for supply of the primary control power required for that purpose. In future, STEAG is to take a new direction for the cost-effective and resource-saving provision of this service. From mid-2016 to early 2017, STEAG, as the first company to do so, will be investing around 100 million euros in new large-scale battery systems. These batteries will be able to store electricity from the grid or feed electricity into the grid in a matter of seconds, compensating for the fluctuations caused by renewables or resulting from power plant outage or irregularities in consumption. In doing this, STEAG is taking on a pioneering role in the establishment of large-scale batteries – and making a further contribution to securing the energy transition.

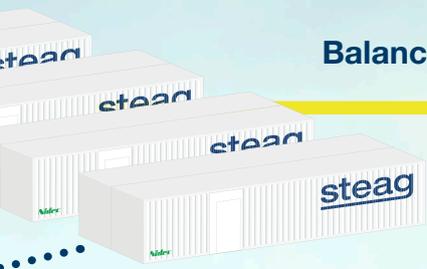
More resource-efficient primary control power

Primary control power has up to now been predominantly supplied by conventional power plants. To do so, those plants have to generate a certain minimum load at all times, and burn coal, oil or gas. In the case of large-scale batteries, this is not necessary. Consequently, valuable resources are conserved, CO₂ emissions are reduced, and costs are lowered.

At least

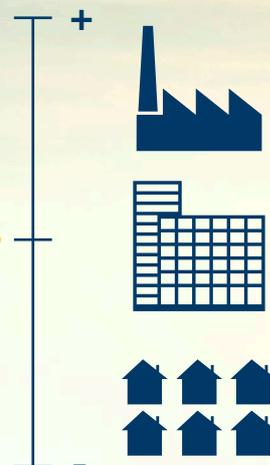
30 min.

balancing per disturbance
in both directions



Balance maintained by control power

Consumption



90 MW

total capacity from the six locations of the new large-scale batteries

15 MW
capacity per installation

Highly efficient storage systems with 90 MW total capacity

The six systems use the latest generation of high-efficiency lithium-ion batteries. They are optimally suitable for operation at medium charge, which is necessary for the provision of primary control power. Each system has a capacity of 15 MW, and therefore a total capacity of 90 MW will be available from the start of 2017 onwards. STEAG has been using a large-scale battery (1 MW capacity) in the form of the LESSY system installed at the Völklingen-Fenne power plant for primary control power since February 2014, so gaining important experience. The development of that lithium-ion electricity storage system was sponsored by the German Ministry of Economic Affairs and Energy, and provides know-how for the further steps in commercial application.

100 million euro investment in the energy future

STEAG is convinced of the cost-effectiveness and future viability of this large-scale storage technology and is making this investment without claiming any subsidies. In order to ensure distribution throughout the grid, the large-scale batteries are not to be grouped in a single location, but rather installed at six STEAG power plant sites in Herne, Lünen and Duisburg-Walsum (all in North Rhine-Westphalia) and in Bexbach, Fenne and Weiher (all in the Saarland). The batteries will use the power plant infrastructure, but will be operated independently of the plants. The systems will fulfil all the currently applicable criteria for power supply from battery storage in primary control – including the minimum feed-in duration of 30 minutes. The primary control power will be marketed by STEAG's Trading & Optimization unit.

100 million
euros investment volume without drawing subsidies

About STEAG

STEAG GmbH has been active in power generation for over 75 years now. As a business with international operations, STEAG offers its customers integrated solutions in the fields of electricity and heat production and engineering services. Our core competencies include design, construction and operation of both major power plants and distributed facilities, and the marketing of electricity from generating plants. Power generation is based on both fossil fuels and – for over a decade now – renewable energy sources. Trading & Optimization is the trading unit of STEAG GmbH with a broad range of products and services in the field of energy trading, and will also be marketing the large-scale battery system.

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