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Uniper appoints Siemens Energy to deliver grid stability technology at UK power station sites

- **Uniper has appointed Siemens Energy to deliver grid stabilisation technology at its Killingholme and Grain power station sites in the UK**
- **Follows Uniper successfully securing four six-year contracts to deliver innovative inertia services to National Grid ESO**
- **Killingholme and Grain expected to be operational and delivering stability services from 2021**

Uniper has appointed Siemens Energy to deliver the rotating grid stabilisation technology that will enable Uniper to provide dedicated grid stability services to the British electricity system operator National Grid ESO at our facilities in Killingholme, Lincolnshire and Grain, Kent.

This follows Uniper being awarded four six-year contracts by National Grid ESO earlier this year, to provide inertia services and voltage control to the grid under phase 1 of its Stability Pathfinder.

Siemens Energy will be responsible for installing and commissioning synchronous condenser units at both facilities. Two steam turbine generators will be repurposed and flywheels installed at the Killingholme site; and two new synchronous condenser units will be built on the site of the old oil fired power station at Grain. These units will be connected to the existing grid connections at each site.

The services provided by Uniper through this innovative solution will make an important contribution by keeping the power system stable and our electricity supply at the required frequency as more renewable generation comes online.

Traditionally, inertia has been provided as a by-product of generating electricity at thermal power stations with large synchronous spinning generators. However, as many of these facilities reach retirement, the job of managing grid stability has become more challenging for National Grid ESO, as renewable generation is not connected to the grid in the same way and cannot provide inertia.

Working together with Siemens Energy, Uniper has developed a custom designed solution for each of our facilities that will provide the same grid stabilising services to National Grid ESO without the need to generate power - this is a significant step forward in helping to deliver a net zero future for the UK.

Mike Lockett, Uniper UK Country Chairman and Group Chief Commercial Officer Power, commented: “I’m delighted that we’ve been able to work closely with Siemens Energy to create a bespoke solution that meets the needs of National Grid ESO, and which is the right fit for our Killingholme and Grain facilities.

Mike continues: The services provided by Uniper will make an important contribution in supporting the energy transition by maintaining grid stability and security of supplies whilst enabling more renewables to be integrated into the energy system. Creating these innovative solutions based at our sites, puts Uniper at the forefront of this market, demonstrating our ongoing commitment to meeting the challenge of a zero-carbon future.”

Steve Scrimshaw, Vice President, Siemens Energy Ltd UK&I, said: “Great Britain is leading the way in integrating renewable power to replace fossil-based generation to decarbonise its electricity system. To go further, we will need to see more projects, like these, which enhance grid stability, and will ultimately enable the net zero goal to be achieved.”

Julian Leslie, Head of Networks and Chief Engineer at National Grid ESO commented: “The GB electricity system is one of the most advanced in the world, both in terms of reliability and the levels of renewable power.

"We’re really excited to be building on that and see Siemens Energy and Uniper deliver another development in our Stability Pathfinder programme.

“Contracts and technologies such as these are cheaper and greener, helping us as the system operator to reduce emissions and save money for electricity consumers – a huge step forward in our ambition to be able to operate the GB electricity system carbon free by 2025.”

Uniper will be the biggest provider of dedicated inertia and voltage control, and will deliver services at both Killingholme and Grain up to 2026.

Following this initial success, Uniper will continue to seek further opportunities to utilise our assets, engineering and market expertise in this fast-developing sector of the energy transition.

Work to build the synchronous condenser units at both facilities is due to start later this year with contracted services to begin from 2021.

Notes to editors:

What is inertia and why is it needed?

The National Grid Electricity System Operator (NGESO) must maintain the electricity system at 50 Hz in order to keep power supplies secure. In the UK, electricity is generated at power stations at the same frequency. Rapid changes in the frequency of electricity can create instability in the system if demand for power exceeds supply, or there is too much power being supplied to the system. If this breaches a certain limit, this can cause equipment and domestic appliances to disconnect or be damaged, as well as power cuts. Inertia in the energy system slows down the rate at which frequency changes, helping the grid to remain stable at the right frequency and voltage level. The more inertia in the system, the slower the change in frequency, which gives the grid operator more time to react and manage system stability effectively.

As we move towards a net zero future and more of our electricity is generated from renewable sources, one of the challenges for the energy system operator is how to replace the inertia services that are, in the main, provided as a by-product of thermal generation. The new and repurposed synchronous condenser units at Killingholme and Grain will consist of a large piece of spinning machinery which connects to the grid but doesn't generate any power. Instead, the mass of the generator, connected to a flywheel rotating 3,000 times per minute, retains kinetic energy, known as inertia, in the electricity system, which helps the grid remain stable at the right frequency and voltage level.

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About Uniper

Uniper is a leading international energy company with around 11,500 employees and activities in more than 40 countries. With about 34 GW of installed generation capacity, Uniper is among the largest global power generators. Its main activities include power generation in Europe and Russia as well as global energy trading, including a diversified gas portfolio that makes Uniper one of Europe's leading gas companies. The company is headquartered in Düsseldorf, being the third-largest listed German utility. Under its new strategy, Uniper aims to become climate neutral in its European power generation by 2035.

About Uniper UK

In the UK, Uniper operates a flexible generation portfolio of seven power stations, and a fast-cycle gas storage facility. A broad range of commercial activities are offered through the Engineering Services division, while the Uniper Engineering Academy delivers high-quality technical training and government-accredited

apprenticeship programmes for the utility, manufacturing and heavy industry sectors.

Siemens Energy is one of the world's leading energy technology companies. The company works with its customers and partners on energy systems for the future, thus supporting the transition to a more sustainable world. With its portfolio of products, solutions and services, Siemens Energy covers almost the entire energy value chain – from power generation and transmission to storage. The portfolio includes conventional and renewable energy technology, such as gas and steam turbines, hybrid power plants operated with hydrogen, and power generators and transformers. More than 50 percent of the portfolio has already been decarbonized. A majority stake in the listed company Siemens Gamesa Renewable Energy (SGRE) makes Siemens Energy a global market leader for renewable energies. An estimated one-sixth of the electricity generated worldwide is based on technologies from Siemens Energy. Siemens Energy employs more than 90,000 people worldwide in more than 90 countries and generated revenue of around €27.5 billion in fiscal year 2020. www.siemens-energy.com.

About National Grid Electricity System Operator

National Grid Electricity System Operator – a legally separate business within the National Grid Group – relies on a mix of power generation to balance Great Britain's electricity system and ensure that, whatever the mix, electricity is always there when its needed.

Our mission is to enable the transformation to a sustainable energy system and ensure the delivery of reliable affordable energy for all consumers. We are working with stakeholders across the whole energy system to plan for future requirements on the electricity networks. We use the insight we gather to make sure we can balance the system today and find opportunities to transform the way we operate the system in the future.

We are proud of the role we play enabling and accelerating progress towards a low-carbon energy future. In June 2020, we facilitated 67 days of coal-free operation of Great Britain's system, showing further progress towards our ESO ambition of being able to operate a zero-carbon electricity system by 2025.

You can find out more on our Stability Pathfinder programme here

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