

## National Grid ESO, SP Energy Networks and TNEI awarded £10 million for Black Start innovation project

Ofgem award £10 million to National Grid Electricity System Operator and partners for a major innovation project exploring whether distributed energy resources can restart the restoration of electricity supplies.

**29 Nov 2018**

A globally ground-breaking £11.7 million project, which will look to prove whether distributed energy resources can restart the restoration of electricity supplies, has been given the go ahead by energy regulator Ofgem.

The partnership project between National Grid Electricity System Operator (ESO), SP Energy Networks and TNEI, will explore how distributed generation can be put to use to get the grid up and running should a 'Black Start' event occur.

Black Start is the procedure used to restore power in the highly unlikely event of a total or partial shutdown of the National Electricity Transmission System. Traditionally, large power stations would have been used to restore the system. However, as the UK moves to cleaner, greener energy generation, the changes in generation mean that new options must be developed.

The enormous growth in Distributed Energy Resources (DER) presents an opportunity to develop a radically different approach to Black Start. However, there are significant technical, commercial, regulatory and organisational challenges to address when considering Black Start from DER, particularly in security and reliability of supply.

The project will test how this new approach could work across both electricity transmission and distribution networks, potentially paving the way for the future of electricity system restoration around the world, while supporting the shift to a decentralised low-carbon energy system, to meet climate change targets without compromising network reliability.

In 2017, ESO published an open call to the industry for ideas for innovative solutions to its Innovation Priorities. ESO received 37 applications, of which the TNEI proposal of Black Start from DER was selected to progress.

The need for a Transmission Owner/Distribution Network Operator partner was identified, and an open call was put to all networks. SP Energy Networks was selected as a project partner and the collaboration, skills and expertise across the three organisations have been essential in the success in achieving funding.

Ofgem has today confirmed the award of £10.3m from the Network Innovation Competition (NIC) fund towards this project. The NIC provides funding for innovation projects by electricity network companies to develop and deliver pioneering solutions to future challenges across the industry. The remaining project costs will be met by the three project partners.

**Roisin Quinn, Head of National Control at National Grid Electricity System Operator said:** "We are thrilled that Ofgem has agreed to fund this ground-breaking project, which we are very proud to deliver in partnership with SP Energy Networks and TNEI.

"The GB electricity system is going through a period of unprecedented change, driven by the forces of decarbonisation, decentralisation and digitalisation, and it is essential that we as an industry revolutionise the way we operate to ensure that we deliver the best outcome for consumers.

"This project, the first of its kind in the world, is a vital next step in our shift to a 'whole electricity system' way of thinking and operating, and has the potential to reap significant financial and environmental benefits for consumers."

**Eric Leavy, Head of Transmission Network at SP Energy Networks said:** "We are delighted that Ofgem has given this project approval. The team has already started on preparatory work and will move quickly to get the project up and running by the start of the new year.

"Large power stations are closing and there is massive growth in distributed energy resources. As an industry we agree that Black Start from DER should be an option but we do not know yet how this would work in practice. This project will determine how the theoretical approach can be made a practical reality."

**Rachel Hodges, Managing Director at TNEI added:** "TNEI is proud to partner with NGENSO and SP Energy Networks on this ground-breaking innovation project, contributing our GB-wide network modelling expertise and technical knowledge of distribution energy resources. It is also fantastic that we have reached out to industry and they have responded with resounding support for this project.

"During the NIC bid development, collaboration between all partners has been excellent and we look forward to building on this strength during delivery."

The project will use case studies in SP Energy Networks' licence areas to explore the requirements and then design and test solutions, while ensuring that those solutions will be applicable across Great Britain.

SP Energy Networks has a diverse range of Distributed Energy Resources connected to its distribution systems and several potential trial areas in Scotland, England and Wales have already been identified where electricity generators are keen to participate in live trials. These trials will include local combinations of technologies such as biomass, hydro, wind, batteries, energy from waste and CHP facilities.

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Notes for editors

#### **SP Energy Networks**

SP Energy Networks (SPEN) is the licensed Electricity Distributor (DNO) for central and southern Scotland and for Merseyside, Cheshire, north Wales and north Shropshire. It operates 30,000 substations (one substation for every 100 customers), 40,000km overhead lines (once around the globe), and 70,000km underground cables.

SPEN also operates the Transmission Network in central and southern Scotland. It takes electricity generated from power stations, windfarms and various other utilities and transports it through a vast transmission network, consisting of over 4000 kilometres of overhead and 320 kilometres of underground lines. SPEN has 129 transmission substations in its network to manage extra high voltage electricity supplies.

From 2015 to 2023 SP Energy Networks plans to invest approximately £5 billion into the electricity network.

## TNEI

TNEI is an independent specialist energy consultancy providing technical, strategic, environmental and consenting advice to organisations operating within the conventional and renewable energy sectors.

TNEI has a range of skills tailored specifically to answer the issues associated with increased distributed renewable generation and the integration of low carbon technology. Its consultants have industry leading expertise in grid code compliance studies, noise assessment and modelling of innovative, smart grid technologies. These skills are complemented by a number of other technical services; from GIS and consenting, to civil engineering and energy market analysis, allowing TNEI to confidently guide clients through projects from concept to delivery.

TNEI advises a large number of utilities and developers, both in the UK and internationally, helping them understand the challenges and opportunities that are emerging with increasing connection of DERs and with transition to DSO models.

## Notes to Editors:

National Grid is pivotal to the energy systems in the UK and the north eastern United States. We aim to serve customers well and efficiently, supporting the communities in which we operate and making possible the energy systems of the future.

### National Grid in the UK:

- We own and operate the electricity transmission network in England and Wales, with day-to-day responsibility for balancing supply and demand. We also operate, but do not own, the Scottish networks. Our networks comprise approximately 7,200 kilometres (4,474 miles) of overhead line, 1,500 kilometres (932 miles) of underground cable and 342 substations.
- We own and operate the gas National Transmission System in Great Britain, with day-to-day responsibility for balancing supply and demand. Our network comprises approximately 7,660 kilometres (4,760 miles) of high-pressure pipe and 618 above-ground installations.
- As Great Britain's System Operator (SO) we make sure gas and electricity is transported safely and efficiently from where it is produced to where it is consumed. From April 2019, Electricity System Operator (ESO) is a new standalone business within National Grid, legally separate from all other parts of the National Grid Group. This will provide the right environment to deliver a balanced and impartial ESO that can realise real benefits for consumers as we transition to a more decentralised, decarbonised electricity system.
- Other UK activities mainly relate to businesses operating in competitive markets outside of our core regulated businesses; including interconnectors, gas metering activities and a liquefied natural gas (LNG) importation terminal – all of which are now part of National Grid Ventures. National Grid Property is responsible for the management, clean-up and disposal of surplus sites in the UK. Most of these are former gas works.

Find out more about the energy challenge and how National Grid is helping find solutions to some of the challenges we face at <https://www.nationalgrid.com/group/news>

National Grid undertakes no obligation to update any of the information contained in this release, which speaks only as at the date of this release, unless required by law or regulation.

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