

**SP Energy Networks
Future Networks**
2 September 2019

**Innovation
Partnership
Opportunities**

Innovation Partnership Opportunities

Who are we?

We are SP Energy Networks, part of the Iberdrola Group, leaders in sustainable innovation. As a Distribution and Transmission Network Operator we keep electricity flowing to homes and businesses throughout Central and Southern Scotland, North Wales, Merseyside, Cheshire and North Shropshire.

We do this through the network of overhead lines and underground cables which we own and maintain.



Our aim is to deliver a safe and reliable electricity supply 24 hours a day, 365 days a year whilst providing exceptional value for money.

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The opportunity

We are formally inviting third parties to submit proposals to support our two strategic innovation project focus areas (See 'Our Focus' below). Successful proposals could align to any of the following (please note this list is not exhaustive):

1. Address issues associated with the move to a low carbon economy, as outlined below.
2. Deliver wider environmental and/or cost benefits to customers.
3. Provide access to a large volume of related equipment.
4. Provide expert support on an innovative technology in the related area.
5. Provide experience and/or data in the focus area, giving insight into the problem and the associated method.

Our preferred outcome is to build a solution to our two focus areas using a **Network Innovation Competition (NIC)** proposal. A NIC project will represent a GB first network level demonstration. Alternatively, we may opt to align the project to a **Network Innovation Allowance (NIA)** proposal which would accommodate projects with a lower expected budget and lesser Technology Readiness Level (TRL). Please refer to page 5 for further information on both funding mechanisms.

Whilst each mechanism has strict governance stipulations, we are not asking for suggestions to meet all of these criteria at this stage. We are looking for partners who are ready and capable to share in the technical development and financial responsibilities with us. We welcome all related ideas and are open to receiving information on any possible partnership.

The purpose of this document is to provide guidance to potential applicants on the areas in which we are looking to progress innovative projects, and the application process for those interested in partnering with us on these. It is important to note that proposals cannot repeat projects that have been awarded funding previously within the UK. **Third parties should review the [ENA portal](#) to ensure proposals are unique in this respect.**

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Our focus

We have two strategic innovation focus areas for this call which we've provided details on below, and submissions can be submitted for either.

1. Heat

The electrification of heat is expected to accelerate with the reduction in Natural Gas being used for heating to accommodate the UK's recent 2050 Net Zero Carbon targets, which is why we have a strategic focus on the decarbonisation of heat.

A priority area for us is off-gas grid customers. A recent study by Delta EE¹ for The Department for Business, Energy and Industrial Strategy (BEIS) found that the proportion of rural off-gas grid homes which could be electrified is 97%. It is expected that these dwellings will be a short term priority for BEIS during the 2020's. We want to develop and trial methods to mitigate the peak demand on the electricity network that will otherwise result in extensive reinforcement requirements.

The problem however, is much bigger than just off-gas grid. A further report by Delta EE² for the Scottish Government shows that on a peak winter's weekday in Scotland, peak electricity demand is expected to increase by 66% due to the electrification of heat, reaching 10GW by 2050. **Since the long term problem extends beyond off-gas grid customers we want partners to help us undertake a large scale trial of electrification of heat which covers a large number of building types and heating solutions.** Again, we want to trial methods that will mitigate peak demand on the electricity network.

2. Whole Network (Electrical)

In order to support ambitious carbon targets at both national and local level, SP Energy Networks needs to adapt to the challenges set by rapid decarbonisation: increased demand on the network as more low carbon technologies like electric vehicles come online, increasingly variable and distributed generation from renewable sources, and, in Scotland in particular, the potential for operating scenarios with no large synchronous generation.

Part of our response will be in adopting a smart, flexible approach, spanning our role within Distribution and Transmission networks, towards utilising these variable resources in such a way that we can achieve a predictable, reliable service to our customers. This type of whole system planning is a key step in transitioning to the energy system of the future. This will allow the benefits of existing innovations to be fully leveraged as we move to a Distribution System Operator (DSO) model.

We want to facilitate more frictionless co-ordination across Distribution and Transmission to ensure we can maximise the benefit that customers experience from the DSO model.

An example of specific challenges our network faces include:

- Conventional primary frequency response alone no longer being fast enough to reliably halt a frequency deviation in systems with low inertia
- A DSO being unable to access frequency services in an efficient manner with the conventional monitoring and control system
- Increased distributed renewable resources requiring location sensitive control

We seek innovative project proposals from interested parties that will take strides towards mitigating these challenges and help us unleash the benefits of low carbon technologies and ensure cost effective, reliable supply to our customers.

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How to get involved

To express an interest, please email your submission on either (or both) of our focus areas, to spinnovation@spenergynetworks.co.uk

Please ensure submissions are marked '**2020 SPEN HEAT Proposal**' or '**2020 SPEN Electrical Proposal**' on your document title and email subject line. We also ask that you ensure your submission provides as much information as you can possibly provide at this stage.

Deadline for submissions is Friday 18th October 2019.

Timeline

NIC Proposals	Date
SP Energy Networks invitation to third parties	3 September 2019
Submission of third party proposal to SP Energy Networks	By 18 October 2019
Face to face meetings to discuss proposals	Nov - Dec 2019 (dates to be advised)
Notification of decision to third parties	31 December 2019
Submission of initial proposals (ISP) to Ofgem	Early April 2020
Ofgem decision to progress ISP	Late April 2020
Submission of full proposals (FSP) to Ofgem	Early August 2020
Ofgem evaluation period of FSPs	August – October 2020
Bilateral interviews with Ofgem	September 2020 and October 2020
Ofgem notification of funding award	Late November 2020

NIA Proposals	Date
SP Energy Networks invitation to third parties	3 September 2019
Submission of third party proposal to SP Energy Networks	By 18 October 2019
SP Energy Networks initial assessment of proposals	November 2019
Notification of unsuccessful proposals	29 November 2019
Face-to-face meetings with third parties	Nov - Dec 2019 (dates to be advised)
Final decision to present proposals to SP Energy Networks innovation technical board	31 December 2019
SP Energy Networks notification of funding award	Early April 2020

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Funding mechanisms

Network Innovation Competition (NIC) requirements

The NIC is an annual opportunity for electricity network companies to compete for funding for the development and demonstration of new technologies, operating and commercial arrangements that deliver value for money to UK electricity consumers. We are looking for project partners who can deliver the proposal and subsequent projects in partnership with SP Energy Networks.

Up to £70m per year is available to fund large scale innovative projects which can demonstrate a strong business case. As set out in Ofgem's Electricity NIC Governance Document, a NIC project must involve the development or demonstration of at least **one** of the following:

- A specific piece of new (i.e. unproven in GB) equipment (including control and/or communications systems and/or software);
- A specific novel arrangement or application of existing electricity transmission and/or distribution equipment (including control and communications systems software);
- A specific novel operational practice directly related to the operation of the electricity Transmission System/Distribution System; or
- A specific novel commercial arrangement.

Furthermore, it must be demonstrated that any proposal meets all the following criteria:

- Accelerates the development of a low carbon energy sector and/or delivers environmental benefits while having the potential to deliver net financial benefits to existing and/or future network customers;
- Delivers value for money for electricity customers;
- Creates knowledge that can be shared across energy networks in Great Britain (GB) or create opportunities for roll-out across a significant proportion of GB networks; and
- Is innovative (i.e. not business as usual) and has an unproven business case where the innovation risk warrants a limited Development or Demonstration Project to demonstrate its effectiveness.

Network Innovation Allowance (NIA) requirements

The Network Innovation Allowance (NIA) provides an allowance of 0.5% of annual revenue per Licensee to spend on innovation projects. All spend must be in compliance with NIA Governance as set out by Ofgem.

Projects must involve the Research, Development, or Demonstration of at least one of the following:

- A specific piece of new equipment
- A specific novel arrangement or application of existing equipment
- A specific novel operational practice directly related to the operation of the network
- A specific novel commercial arrangement
- Any proposal must also meet all of the following requirements:
- Has the potential to develop learning that can be applied by all Relevant Network Licensees
- Has the potential to deliver net financial benefits to electricity Customers
- Does not lead to unnecessary duplication

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Supporting documentation

Heat

- 1: [Delta EE report – Electric Heating in Rural Off-Gas Grid Dwellings: Technical Feasibility](#)
- 2: [Delta EE report – Electrification of Heat and the Impact on the Scottish Electricity System](#)
- [BEIS – Updated Energy and Emissions Projections 2017](#)
- [BEIS – Clean Growth – Transforming Heating, Overview of Current Evidence, Dec 2018](#)
- [Committee on Climate Change \(CCC\) - Reducing UK emissions – 2018 Progress Report to Parliament](#)
- [National Grid – Future Energy Scenarios \(FES\)](#)

Whole Network (Electrical)

- [The Enhanced Frequency Control Capability \(EFCC\) Electricity Network Innovation Competition Full Submission](#)
- [The Enhanced Frequency Control Capability \(EFCC\) project closing down report](#)
- [Interim Report into the Low Frequency Demand Disconnection \(LFDD\) following Generator Trips and Frequency Excursion on 9 Aug 2019](#)
- [National Grid – Future Energy Scenarios \(FES\)](#)
- [SP Energy Networks – Business Plan July 2019](#)

NIC Documentation

- [Ofgem's NIC submission documentation](#)
- [Ofgem's Electricity Network Innovation Competition Governance Document](#)

NIA Documentation

- [Network Innovation Allowance Governance Documentation](#)