Electricity / Gas Network Innovation Competition Screening Submission Pro forma

Notes on completion
Before completing this form, please refer to the relevant Network Innovation Competition (NIC) Governance Document(s). Please use the default font (Verdana size 10) in your submission. We will only accept the text visible in the text entry areas. The text entry areas are predetermined and should **not** be changed. The full-completed submission should not exceed 10 pages in total. Ofgem will publish all the information contained within this Screening Submission.

Is the application for the Gas or Electricity NIC?	Gas NIC ☐	Electricity NIC ☒
Cross Industry Project	YES ☒ *If yes, please fill out Cross Industry Projects section*	NO ☐

Funding Licensee(s)
SP Distribution plc

Network Licensee Project Partners
WSP UK Limited

Funding Licensee area(s)
SP Manweb plc. and SP Distribution plc.

Project Title
Project Vision

Project Summary
The Licensee(s) must provide an approximate Project start and end date.
Project Vision will use the latest thinking in life cycle assessment techniques to assess the current environmental impact associated with the power sector's value chain and take practical action to reduce its impact. The ultimate aim is to implement a tried and tested pan-industry programme across Electricity Transmission and Distribution and Gas Distribution to reduce greenhouse gas (GHG) emissions and at least 5 other environmental impact categories. The project aims to achieve the above by taking a leadership role and: • Conducting a screening Life Cycle Assessment (LCA) for the power sector; • Developing common streamlined LCA methodology and tools for licensees and suppliers; • Testing the methodology and tools in real-life procurement and design applications; • Supporting the roll-out of the methodology across the power sector and beyond; • Implementing an enduring commercial process to value environmental benefits • Enabling practical action to reduce environmental impacts of products and activities using LCA The project is expected to begin in January 2019 and be completed by December 2022 (48 months); it will be delivered by a partnership between SPEN and WSP with support from a range of key industry and academic stakeholders.

Estimated Project funding			
The Licensee must provide an approximate figure of the total cost of the project and the NIC funding it is applying for.			
Total Cost of Project	£5.35m	**NIC funding requested**	£4.815m
Is the TRL of the Project at start date between 4 and 8?	YES ☒	NO ☐	

What is the Problem?

The Licensee must provide a narrative that explains the Problem(s) that the Project is seeking to address.

According to the UK Government's Carbon Plan, industry makes up nearly a quarter of the UK's total emissions and is expected to have delivered its fair share of emissions cuts (of up to 70% by 2050 from 2009 levels). In the short term, The Carbon Plan expects industry to focus on cost effective measures such as energy, process and material efficiency this decade. The latter will only be achieved through an understanding of the value chain and supplier collaboration.

Whilst there has been action by organisations within the industrial sector to reduce environmental impacts from their own operations, progress in addressing those associated with the value chain has been limited. Project Vision will seek to address these key problems:
1. Value chain or Scope 3 reporting is gradually becoming standard practice, however supplier data is challenging to obtain, often inaccurate and inconsistent, making it difficult for operators to report data to regulators, other stakeholders and for programmes such as CDP and SBTi;
2. There is currently no concerted industry action in the power sector for measuring environmental impacts across the value chain, meaning opportunities to act are being lost
3. There is no strong industry wide methodology and available methodologies aren't practical;
4. Industry is unaware of the green or 'low carbon' products which are available to the sector - there is no platform to enable suppliers to build market awareness against BaU products;
5. There are no 'low carbon' solutions that are widely accepted within the power sector's procurement process;
6. There is a lack of direct engagement with second tier suppliers (e.g. steel, concrete etc.) – this is where many of the material efficiencies can be gained;
7. Current procurement models do not fully recognise the environmental impacts or benefits of decisions taken. This system acts as a barrier to both suppliers, who see the benefits of improving, and to licensees.

As a direct example; SPEN recently completed an environmental LCA project on the Kilgallioch windfarm connection highlighting both the difficulties and opportunities that an effective LCA could deliver. It showed the difficulties in delivering LCA and the necessary improvements as a business as usual project by a single licensee including cost, staff-time and technical complexity. It also showed that a standard Product/Sector Category Rule (PCR) for the power sector, guiding both LCA and Environmental Product Declaration (EPD) methodology, and one that measures the whole value chain, is absent. Crucially, it showed that supply chain emissions accounted for a significant majority of the environmental impacts of the project across the entire life cycle.

What Method(s) will be used?

The Licensee must describe the Method(s) that are being demonstrated or developed. It must also outline how the Method(s) could solve the Problem. The type of Method should be identified where possible eg technical, commercial etc.

SPEN propose six related work packages to deliver this pan-industry project which will deliver a significant and measurable impact in the environmental life cycle impacts of the power-sector:

Package 1: Convene project working group and stakeholder panels
Scope: This package of work provides the structure and the programme governance for the duration of the project. It covers three principal groups.
1. A working group which will have overall responsibility for the project. This will include core project participants such as licence operators, industry bodies and 1st and 2nd tier suppliers
2. A stakeholder forum to provide input through the project involving key T1 and T2 suppliers, standards and advisory organisations (eg ISO) and EPD programme operators (eg Environdec)
3. A secretariat responsible for programme management, governance, and day to day delivery

Package 2: Develop, trial and refine a practical power-sector environmental LCA tool
Scope: This package develops a practical environmental LCA tool, providing a consistent, intuitive and relevant way to measure the whole life footprint of T/D/G infrastructure projects.
• Principally focussing on GHG emissions but will also include other life cycle impacts
• Cover the design, construction, operation and end of life of energy infrastructure.
• Be a practical tool that makes it easy for companies to measure LCA impacts of their products and for project teams to compile these together into overall project footprints.
• Allow teams to identify the environmental 'hot spots' of their designs and compare solutions
• Allow teams to compare the environmental footprint of different solutions consistently.

Method(s) continued

The tool could be structured in three ways.
1. Methodology for suppliers to provide a simplified Environmental Product Declaration (EPD)
2. Methodology for project teams to use EPDs to build a project life cycle footprint of schemes.
3. A user-friendly online platform for suppliers and project teams.

The tool will be developed in a structured way.
1. Vision will develop a practical methodology, based on international standard EPD and LCA approaches, but simplified to enable easier industry adoption. The project would take the opportunity to update the standard LCA factors commonly used in the UK which are outmoded.
2. We'd test the methodology on three practical projects – working with the supply chain to develop EPDs using the methodology, and working with the energy industry to test the LCA method on practical projects. The methodology would be refined following this.
3. We'd build the tool based on the final draft methodology and refine this further with the industry following based on practical user testing.

Package 3: Test how the tool can be used to procure low impact, best value infrastructure
Scope: This package works with the industry's procurement teams to test how a consistent measuring tool can be used to incentivise lower environmental footprint products:
1. We will agree up to three potential procurement models which could be used to incentivise low carbon infrastructure design, using existing tools used – such as Isle of Wight Highways PFI and the Dutch low CO2 procurement model – or could be new procurement approaches.
2. We will identify long lead-time tenders which SPEN or others in the project team will be procuring. We'd use the 'as is' procurement model for the industry for the procurement and also desk-trial the Project Vision procurement models to test how these might deliver better projects. We'd work with suppliers to further test the LCA model as part of this process.
3. We'd convene the results from the desktop trial tenders, working with procurement teams to develop an approach which meets tender rules, delivers best value and environmental benefit.
4. We'd live-trial the preferred approach on a long lead-time project.

Package 4: Identify and develop practical lower carbon and environmentally sound approaches.
Scope: Using data from Package 2 we'll take practical action to reduce GHG and environmental LCA impacts at key hot spots. Our Kilgallioch LCA project suggests that the highest footprint activities are linked to use of copper, rare earths, plastics and on-site construction works.
This package works with the industry to
1. Run a competition to identify practical solutions for each area which are ready for market application, but which lack commercial scale to test at this stage.
2. Provide a systematic test then onsite pilot of potential solutions.
3. Review industry standards to identify barriers to the application of lower footprint solutions:
• Equipment with lower environmental footprint at manufacture e.g. modular equipment
• Equipment which is more efficient in operation e.g. a longer life
• Leasing models in line with circular economy thinking or improve demolition design

Package 5: Roll out the tool, and the procurement approach across the industry as new BaU
• Provide the tool, methodology, communications materials and more detailed guidance notes.
• Run practical workshops and training with procurement teams, industry, and T1 & T2 suppliers to explain the tool and to encourage day to day use of the EPD and LCA tools.

Package 6: Capturing outputs and knowledge dissemination
1. A clear and consistent way to measure the current and future impact of the project in terms of carbon and wider LCA benefits on a project by project basis
2. The lessons and impact of the carbon tool development
3. The lessons from the procurement exercise
4. The results of the low carbon innovation competition.

The project secretariat would produce these materials. We'd share these results widely with the sector, although we'd see that the main beneficiaries of this stage will be Ofgem and also other sectors such as water and transport infrastructure who will be able to make faster progress based on the lessons from this project.

Funding Commentary

The Licensee must provide a commentary on the accuracy of its funding estimate. If the Project has phases, the Licensee must identify the approximate cost of each phase. OFTOs should indicate potential bid costs expenses

The costs outlined below have been estimated for each individual work package. These costs will be further developed throughout the FSP drafting stage.

Package 1: Convene project working group and stakeholder panels
Output: Established working groups/stakeholder forums with clearly defined roles and support platforms in place, working over the duration of the project.
Cost: £500,000

Package 2: Develop, trial and refine a practical environmental LCA tool for energy infrastructure
Outputs: A working practical tool which can be used across the industry to measure the environmental footprint of products supplied to the energy industry and to measure the environmental life cycle of energy infrastructure projects. Identification of practical projects to work to reduce carbon and wider environmental impacts of energy infrastructure.
Cost: £950,000

Package 3: Test how the tool can be used to procure low impact, best value infrastructure
Output: A tested and refined infrastructure procurement approach which incentivise lower carbon and lower environmental impact solutions.
Cost: £2,000,000

Package 4: Identify and develop practical lower carbon approaches.
Output: Developed practical approaches ready to be brought into mainstream application which specifically address the key hot spot areas identified by initial early stage design.
Cost: £700,000

Package 5: Roll out the tool, and the procurement approach across the industry
Output: Ensure adoption of the new procurement process (which utilises the tool and methodology from packages 2 and 3 and has had commercial sign off) is adopted by the power sector.
Cost: £1,000,000

Package 6: Capturing outputs and knowledge dissemination
Output: All documents shared through the agreed channels, a mechanism to make the outputs available to relevant stakeholders in the future and to continue to disseminate knowledge, and measuring of the impact of the project outputs post-rollout.
Cost: £200,000

Total cost estimate at this time: £5,350,000

Which Specific Requirements do the Project fulfil?(Please tick which of the Specific Requirements this Project fulfils)

	Electricity	**Gas**
A specific piece of new (ie unproven in GB) equipment (including control and/or communications systems and/or software)	☐	☐
A specific novel arrangement or application of existing electricity/gas transmission and/or distribution equipment (including control and communications systems software)	☐	☐
A specific novel operational practice directly related to the operation of the electricity/gas transmission and/or distribution systems	☒	☐
A specific novel commercial arrangement	☒	☐

How does the Project accelerate the development of a low carbon energy sector & have the potential to deliver net financial benefits to existing and/or future customers?
The Licensee must demonstrate that the Solution has the potential to accelerate the development of the low carbon energy sector in GB and/or deliver wider environmental benefits to GB customers. The Licensee must demonstrate the potential to deliver net financial benefits to existing and/or future customers.
Project Vision has the potential to accelerate the development of the low carbon energy sector in GB and deliver wider environmental benefits to GB customers by showing leadership in highlighting opportunities for environmental improvement, creating the supporting mechanisms to enable the change, and taking the practical steps to deliver the change across the power-sector. Project Vision also has the potential to deliver net financial benefits to existing and/or future customers through efficiency improvements within the value chain. Whilst these will be focused on environmental improvements, these typically also lead to net financial benefits such as material efficiency and energy efficiency which leads to a win-win situation of costs savings and a reduction in environmental impact. The Carbon Plan Project Vision facilitates two key aspects of the UK Government's current strategy for reducing GHG emissions, as set out in "the Carbon Plan" published by DECC: - 2.121 - New technology will be needed to make the transition to low carbon industry - 2.122 - Cost effective measures such as energy, process and material efficiency Project Vision will facilitate an understanding of where the significant environmental impacts are within the value chain – this will identify where the opportunities are for energy, process and material efficiencies. The roll-out of the methodology will also identify innovative and new technological solutions which will directly facilitate the transition to a low carbon economy. There are currently no methodologies for the power sector which address the problem with value chain environmental impact; as such the roll-out of this method would make a great contribution to achieving the goals set out in the Carbon Plan. Deliver environmental benefits to customers The delivery of standardised and simplified LCA data collection and decision support tools, alongside a supportive methodology, are needed to help focus licensees efforts in innovating to improve environmental performance in the fight against climate change, enabling licensees to do what they do best: action and delivery. The results of a successful project will target priorities for action, directing new innovation work with suppliers and providing customers, regulators and other stakeholders the tools to compare progress between the licensees. If, as we suspect, supply chain emissions are significant across the network licensees operations, proving this will be the first step in creating the joint impetus to all licensees to confidently request delivery of environmental data associated with manufacturing. Project Vision will give a clear, unambiguous and long lead-time statement of intent that the power sector is evolving and that suppliers need to invest the time and money to gather the data required and adopt innovative behaviours, while providing support to make the whole value chain more transparent, in advance of Project Vision outputs becoming business as usual. Financial benefits the Project will deliver to customers. The first key financial benefit of this project is the undertaking of a central project for the use of all licensees, avoiding the undertaking of multiple well-funded projects. The second key financial benefit to both existing and future customers is that the project will result in the formal recognition and inclusion for the first time of the triple bottom line (people, environment, profit) in procuring and designing for the power network. The triple bottom line definition acknowledges that a purely profit driven enterprise risks passing on its negative impacts (and their costs) to society i.e. not a net financial benefit to customers. Vision will record the true environmental impacts of licensee activities and their supply chain, and subsequently value their costs as a true measure of profitability.

How will the Project deliver value for money for electricity / gas customers?
The Licensee must demonstrate that the Method(s) being used can derive benefits and resulting learning that can be attributed to or are applicable to the electricity/gas transmission and/or distribution systems.
Project Vision will direct licensees and the value chain to review innovation activity in line with where the environmental impacts lie, valuing the positive effects of the improvements more clearly than before to stakeholders and shareholders, and positively affecting the triple bottom line of the companies involved. It will encourage disruptive innovation and support the business as usual condition based risk management approach to replacement of older assets within the network. Value chain emissions accounted for 80% to 90% of environmental impacts based on the Kilgallioch windfarm connection LCA project. If this is replicated across other asset construction projects it is a significant challenge for licensees to address alongside the necessary network modernisation programmes. There is no programme in place to understand and reduce the environmental impact within the value chain in comparison to core operations. The pan-industry leadership of Project Vision can influence the whole value chain of the power sector, playing a key part in meeting the ambitious targets set out in the UK Government Carbon Plan. Project Vision has been designed to be a genuinely collaborative pan-industry project across electricity and gas licences and their value chains. By doing so, a joint approach will be developed that will avoid unnecessary duplication of effort between electricity licence operators and between gas and electricity operators. A number of stakeholder forums will be set up for the project, including a forum for the power sector where ideas and objectives will be communicated. A consultation exercise will be conducted to ensure the scope of the project is refined to capture relevant needs so that once completed, the appropriate aspects are considered to deliver value for stakeholders and benefits to licensees. Project Vision will drive the value chain to take appropriate joined-up action to reduce environmental impacts whilst delivering value for money for licensees and their customers.
How will the Project generate knowledge that can be shared amongst all relevant Network Licensees?
The Licensee must explain the learning that it expects the Method(s) to deliver, and how it will be shared. The Licensee must demonstrate that it has a robust methodology in place to capture the learning and how the learning is disseminated.
What new knowledge is intended to be generated from completing the Project; - A full picture of the power sector's value chain in terms of environmental impact – with significant areas/hot spots clearly identified; this will provide a road map for the sector to focus efforts to mitigate its environmental impact. - An understanding of the current barriers preventing these hot spots from being tackled (i.e. outdated industry standards, inefficient practices, poor communication channels etc). - An overview of the innovative technologies and new business models which could be implemented into the power sector to minimise the environmental impact of the value chain. What methodology will be used to capture results from the Project and how the Project's results will be disseminated to other Network Licensees; and Electricity Network Innovation Competition Governance Document - A mechanism to ensure this knowledge (both the value chain data and the technological solutions) is continually made available for ongoing improvements - The project will deliver detailed training and briefings to enable supporters of the project to keep up with the practical application of the tools and methodology developed, and include mock trials in the industry, live trials within partner organisations, and a supported roll-out of the tools and methodology within partner organisations, supporting organisations and the GB power sector. The scope of this training and support will be determined through engagement with attendees of the stakeholder forum.

Does the Project conform to the default IPR arrangements set out in	YES	NO

the NIC Governance Document?	☒	☐

By selecting NO, the Licensee wishes to deviate from the default requirements for IPR. If this is the case, it must demonstrate how the learning will be disseminated to other relevant Licensees and how value for money will be ensured. The Licensee must also outline the proposed alternative arrangements and justify why the arrangements are more suitable than the default arrangements.

At this time, we propose that the project will conform to the default IPR arrangements as set out, pending agreement with the supply chain and with suppliers of baseline datasets e.g. Ecoinvent. This will be fully investigated and confirmed within the FSP.

How does the project demonstrate it is innovative (ie not business as usual) and has an unproven business case, that the innovation risk warrants a limited Development or Demonstration Project to demonstrate its effectiveness?

Demonstrate why the Licensee has not previously used this Method (including where the Solution involves commercial arrangements) and why NIC funding is required to undertake it. This must include why the Licensee would not run the Project as part of its business as usual and why the Solution is not Research.

Project Vision has an unproven business case and is innovative in that it will deliver:
- A streamlined and efficient mechanism for the value chain and the industry to make sense of their environmental impact which will in turn catalyse mitigation actions;
- A decision support tool for procurement and project design teams, based on the LCA data, creating an equipment library with corresponding environmental data to drive improvements;
- Tried and tested innovative solutions, both in terms of technology and new business models, which will make a direct reduction in the value chain's environmental impact.
- A practical trial of different procurement models which aligns best value and low impact. It will challenge the perception that low carbon = higher cost and will builds strong business case that alternative approaches can deliver good value.

Network Licensees cannot fund such a project as it is not part of its business as usual activities:
- Cutting carbon at scale is a challenge which faces the whole power sector. While a single Network Licensee could take action, it would not have anywhere near the same impact.
- If funded by a single Network Licensee, opportunities to pool and share knowledge and experiences that would make it universally adopted across the sector would be lost or delayed.
- The required budget for this project is beyond the means of any single Network Licensee.

Without the NIC support we don't believe that this project will be funded. It's an ambitious large scale pan-industry project never attempted before that aims to take low carbon leadership for the sector as a whole and develop a workable policy, but presents risks:
- The value chain might not engage fully to provide data or participate in tests
- Developing a practical tool which is easy to use becomes difficult to deliver
- Procurement teams don't engage fully with the tests, harming methodological evaluation
- The innovation competition doesn't identify strong new low carbon approaches, and the ones that are identified are not judged suitable.

How were project Partners, external resourcing/funding identified, and what are

their roles?
The Licensee must provide evidence of how Project Partners were identified and selected, including details of the process that has been followed, and the rationale for selecting partners and ideas for the Project. *The Licensee should provide details of any Project Partners who will be actively involved in the Project and are prepared to devote time, resources and/or funding to the Project. If the Licensee has not identified any specific Project Partners, it should provide details of the type of Project Partners it wishes to attract to the Project.*
WSP have been selected as consultant partners for Project Vision on the basis of working with SPEN on successful delivery of several innovation projects in recent years, their track record in undertaking LCA in GB, their recognition as LCA consultants by the International EPD System, that they have EPD verifiers in their team, and track record in supporting innovation to reduce environmental impacts. WSP will be an enduring partner throughout Project Vision. - SSEN were approached to become partners because of their historic innovation project "Sustainable Commercial Model NIA_SHET_0001" which shares the values of Project Vision, the spirit of their draft Sustainability Strategy which outlines commitments to reduce greenhouse gas emissions and develop and build sustainably, and to represent TO licence interests. - ENW were approached to become partners as their innovation projects aim to determine environmental benefits which indicate a desire to go beyond BaU, to represent DNO interests. - SGN were approached to become partners because of their geographic area of interest and to represent GDN interests. The specific involvement of the 3 potential partners will be developed through the FSP drafting and it is heartening to note that all recognise the gap that Project Vision aims to close. SPEN also provided a briefing to ENA attendees on Project Vision on 14.03.2018, requesting interested parties consider the project with a view to engaging in the project. We have approached Bath University, IEMA, and the International EPD System (Envirodec) on data verification and methodology standardisation. We have approached tier 2 suppliers to gauge interest in the project, and noted this to be high (Tarmac and Tata Steel as tier 2 suppliers), and will identify tier 1&2 suppliers during FSP.
Will the Project require any derogations or exemptions?
The Licensee should outline if it considers that the Project will require any derogations, exemptions, or changes to the regulatory arrangements.
No.
How will the Project activities impact customers?

The Licensee should outline any planned interaction with customers or customers' premises as part of the Project, and any other direct customer impact (such as amended contractual or charging arrangements, or supply interruptions).
We do not envisage that the project will impact directly on customers.
What funding is being requested from each NIC? (Cross Industry Projects only)
The Licensee must outline funding that is being requested from the Electricity and the Gas NICs and include a justification for the funding split.
At this time, funding is only being sought from the Electricity NIC. However, this is likely to change during the FSP drafting stage on confirmation of the extent of involvement from SGN. We will inform Ofgem of any changes to the funding area request ahead of FSP submission.
Are there any further details the Licensee feel may support its submission?

Due to the pan-industry nature of Project Vision and the opportunities available to the whole power sector, SPEN would welcome Ofgem involvement on the implementation of the project.

For the benefit of the reader, we have sought to add further information around some terms used in this document:

CDP – Formerly known as the Carbon Disclosure Project, this organisation maintains a global database of self-submitted environmental data from cities, states, regions and companies which seeks to drive environmental improvements and GHG reductions

Downstream impacts – Specifying a part of the value chain, with downstream impacts for licensees considered to be those that are incurred during the decommissioning and disposal of the equipment used for transmission and distribution of power.

SBTi – Shorthand for Science Based Targets initiative, this is a programme of action led by CDP, World Resources Institute, the World Wide Fund for Nature, and the United Nations Global Compact aimed at encouraging businesses to adopt science based targets and independently assesses and approves those targets.

Scope 3 emissions – Indirect GHG emissions associated with the supply chain e.g. waste disposal and purchased goods and services.

Upstream impacts – Specifying a part of the value chain, with upstream impacts for licencess considered to be those which are incurred by our purchase, installation and operation & maintenance of equipment and services.

Value-chain – The whole range of business activity that Licensees participate in, for example the purchase of manufactured equipment, its installation and operation & maintenance to enable the transmission and distribution of power, and its eventual disposal of manufactured equipment at its end of life.

Contact Name

Darren Jameson

Contact Address

SP Energy Networks
10 Technology Avenue
Hamilton International Park
G72 0HT

E-mail

darren.jameson@scottishpower.com

Direct Telephone Line

0141 614 0405

Job Title

Sustainability Policy Specialist