WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

Date of Submission

Mar 2018

NIA Project Registration and PEA Document

Notes on Completion: Please refer to the appropriate NIA Governance Document to assist in the completion of this form. The full completed submission should not exceed 6 pages in total.

Project Registration

Project Title

Visibility Plugs and Socket

Project Reference

NIA_WPD_029

Project Licensee(s)

Western Power Distribution

Project Start Date

February 2018

Project Duration

2 years and 2 months

Nominated Project Contact(s)

Jenny Woodruff

Project Budget

£178,667

Problem(s)

As part of DSO transition, DNOs expect to make greater use of flexibility services to delay or avoid reinforcement. Recruiting and operating flexibility services can be expensive and methods used to date have not encouraged the development of a wider market or the exchange of data with third parties. The development of a market platform to simplify the process of trading flexibility services, could not only reduce procurement costs for DNOs but would also improve the information available to third parties to avoid conflicts in resources and to monitor the operation and development of the flexibility market. Similarly, the advantages and disadvantages of the potential market models have not yet been fully explored. Testing different ways of matching buyers and sellers such as through a spot market, potentially including local regional pricing, will inform the DSO transition.

Method(s)

The visibility plugs and socket project seeks to investigate the use of a market platform to procure and dispatch flexibility services. The process of designing, building and testing the market platform will provide learning that will inform the way flexibility markets operate, DNOs procure services and data is exchanged between interested parties.

Centrica are creating a market platform which will enable sellers of flexibility services to see the requirements in a local area from multiple purchasers, similarly it will enable buyers of flexibility services to select from a range of potential suppliers including multiple aggregators or larger customers providing services without an intermediary. The platform can then be used for the arming and dispatching of services and will support the processes for validation of service delivery and settlement. The information on the platform can then be used for notifications between parties to reduce the negative impact that one party's use of flexibility services may have on another, but in the longer term could be analysed to ensure that flexibility markets are growing and operating as expected.

WPD are assisting in the design, testing and trial of the platform. The trial of the market platform will include different seasons and market models and will investigate the impact of purchasing at different timescales or volumes on prices.

A market platform is expected to deliver the following benefits;

Reduced cost in recruiting flexibility services as the central point is easily accessible to all aggregators and larger companies that may choose to act as their own aggregator if the process is simplified.

Encouraging new entrants into the market, making flexibility services a realistic option more often, and also reducing the average prices for flexibility services from having greater competition in supply.

Avoiding wasted payments on flexibility services that are negated by other parties via the exchange of information.

Improved planning by having better information on the availability of flexibility resources and the viability of non-network solutions.

Scope

The project will trial the market platform in Cornwall, by simulating constraints to demonstrate the use cases of

Seasonal peak lopping

Maintenance window extension

Post fault response

These will be operated with two market mechanisms

Quote and tender model (with variations in notice periods)

Spot market

And will be simulated for both transformers and circuits at 132kV and 33kV.

Objectives(s)

- To assist Centrica with the design, testing and trial of the market platform known as the Cornwall local energy market.
- To determine the data exchanges that are required to support the platform and the practicalities of purchasing and operating flexibility services via a market platform.
- To determine a means of optimising the selection of services from those available, which may include other factors than price, such as reliability.
- To investigate the impact of varying attributes such as market model, purchasing timing etc.

Success Criteria

The project will be successful if it delivers the following outcomes;

- Business processes validated and we have understanding of their practicality / limits.
- Data exchanges validated and can be used as a specification for future systems.
- Process to optimise and combine offers of flexibility services trialled and refined for inclusion in future systems.
- Service delivery validation explored and options understood, including whether half hourly metering data can provide sufficient information.
- Understanding of whether load modelling and optimal service selection are best placed within the “socket” of a market platform or the “plugs” of associated software.

Technology Readiness Level at Start

TRL 5

Technology Readiness Level at Completion

TRL 7

Project Partners and External Funding

While not providing direct funding to the NIA project, this project is running in parallel with the ERDF funded, Cornwall Local Energy Market.

Potential for New Learning

There is a wealth of learning to be gained on how market platforms can support local flexibility markets and data exchanges which will be relevant to all DNOS. As well as gaining knowledge directly relevant to DNOs, there will be some that affects the growth of flexibility markets as a whole, such as;

Customer / Aggregator reaction to market platform.

Likely operating cost of market platform and whether it will encourage customers to by-pass aggregators and sign up directly to provide services.

Scale of Project

The project is limited to Cornwall by the associated ERDF project, but given the proliferation of renewables in Cornwall, and the new installations to provide flexibility services, this will be of sufficient size to demonstrate the market platform. The platform is not being used to remediate real constraints and therefore the number of services trialed and the number of times the services are called upon is the minimum to allow for conclusions to be drawn balancing the need to support the learning with keeping down the cost of DSR payments.

Geographical Area

Cornwall – focusing on the 33kV and 132kV Networks.

Revenue Allowed for in the RIIO Settlement

None

Indicative Total NIA Project Expenditure

£160,800

Project Eligibility Assessment

Specific Requirements 1

1a. A NIA Project must have the potential to have a Direct Impact on a Network Licensee's network or the operations of the System Operator and involve the Research, Development, or Demonstration of at least one of the following (please tick which applies):

A specific piece of new (i.e. unproven in GB, or where a Method has been trialled outside the GB the Network Licensee must justify repeating it as part of a Project) equipment (including control and communications systems and software)	X
A specific novel arrangement or application of existing licensee equipment (including control and/or communications systems and/or software)	
A specific novel operational practice directly related to the operation of the Network Licensee's System	
A specific novel commercial arrangement	X

Specific Requirements 2

2a. Has the Potential to Develop Learning That Can be Applied by all Relevant Network Licensees

Please explain how the learning that will be generated could be used by relevant Network Licenses.

All DNOs can benefit from better processes to purchase and execute flexibility services. This is an enabler of the DSO transition.

Please describe what specific challenge identified in the Network Licensee's innovation strategy that is being addressed by the Project.

Our innovation strategy includes for investigating the commercial arrangements and practical implications of applying DSM and DSR.

2b. Is the default IPR position being applied?

Yes	X

2c. Has the Potential to Deliver Net Financial Benefits to Customers?

Yes	X

Please provide an estimate of the saving if the Problem is solved.

Implementing the platform is expected to reduce the number of staff required to procure and operate flexibility services. A broad estimate would suggest that this could equate to around £200k a year in staff costs. However assuming that the platform also encourages and develops the market in flexibility services while saving wasted payments on services that cancel each other out then the real financial benefits should include an element of the savings from using flexibility services as an alternative to traditional reinforcement. A recent research paper "Stochastic Intra-Day Engagement of Flexibility Services for Cornwall Local Energy Market" has suggested that for Cornwall, the benefits of a market that operated perfectly could be over £2m, allowing for savings with realistic market imperfections to still be significant.

Please provide a calculation of the expected financial benefits of a Development or Demonstration Project (not required for Research Projects). (Base Cost - Method Cost, Against Agreed Baseline).

This project is not seeking to manage actual const resulting from the project. The potential financial

Please provide an estimate of how replicable the Method is across GB in terms of the number of sites, the sort of site the method could be applied to, or the percentage of the Network Licensees system where it could be rolled-out.

There is the potential either to develop a further number of local market platforms or to use the knowledge to develop competing market platforms. The costs for developing and testing new platforms would be in the order of £1-2m but the cost of replicating existing platforms would be significantly lower, likely to be under £300k. They would be valid options for all network Licensees systems.

Please provide an outline of the costs of rolling out the Method across GB.

The full development cost of the platform will involve Centrica costs that are part of the ERDF project which would be difficult to ring-fence.

2d. Does not Lead to Unnecessary Duplication

Yes	X

Please demonstrate below that no unnecessary duplication will occur as a result of the Project.

This project has been under development for some time and registration is rather late in the process due to the significant work required to determine the scope and therefore cost of the testing. This project will therefore lead the learning in developing market platforms and can share that learning with the projects that follow it, such as Transition and Fusion.

If applicable, justify why you are undertaking a Project similar to those being carried out by any other Network Licensees.

N/A

Additional Governance Requirements

Please identify

that the project is innovative (ie not business as usual) and has an unproven business case where the risk warrants a limited Research and Development or Demonstration Project to demonstrate its effectiveness	X

i) Please identify why the project is innovative and has not been tried before

This involves trading of flexibility services using a market platform which is innovative. It has not been tried before due to the limited use of flexibility services by DNOs but these are expected to increase significantly. The platform is also innovative in that it could be extended to support a local energy market. The use of the market platform for exchange information with third parties is also novel as is the work to optimize service selection and introduce reliability metrics.

ii) Please identify why the Network Licensee will not fund such a Project as part of its business as usual activities

The platform development is speculative in nature and it is far more certain that the project will deliver learning than it is that the platform will be scaled up to cover all the WPD regions and support a business as usual function. The funding of NIC projects Fusion and Transition, which both involve developing market platforms, suggests that Ofgem have already recognized that this is an area of innovation, rather than business as usual.

iii) Please identify why the Project can only be undertaken with the support of the NIA, including reference to the specific risks (eg commercial, technical, operational or regulatory) associated with the Project

The project has commercial risks because the continuation of the platform is not guaranteed. Given that the work to consider the market models, services and communications by the Open Networks project is far from complete, the platform is supporting the “best guess” at how services will be traded in the future which will almost certainly require revisions as the industry position evolves. The lack of an industry position also suggests a regulatory risk with the possibility that there may be a centralized organization appointed to be the neutral market facilitator.

Approved by senior member of staff