

NIA Project Registration and PEA Document

Date of Submission

Mar 2014

Project Reference Number

NIA_NGGT0047

Project Registration

Project Title

Resource and asset reuse toolkit

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NIA_NGGT0047

Project Licensee(s)

National Gas Transmission PLC

Project Start

February 2014

Project Duration

2 years and 1 month

Nominated Project Contact(s)

Andy Ross, Selena Bray,
box.GT.innovation@nationalgrid.com

Project Budget

£189,000.00

Summary

This project aims to overcome the identified problems by developing and demonstrating a resource and asset reuse toolkit, as a more sophisticated mechanism to support decisions to deliver circular economy opportunities, including making surplus assets and materials visible, defining processes and making it easier to reuse.

This project does not include activities to establish what needs to be done to enable refurbishment of assets e.g. the physical or technical changes to an asset), but will focus on facilitating reuse in order to maximise these opportunities.

Whilst the potential economic benefit of increased resource reuse is recognised, a number of challenges need to be overcome including lack of technical data on resources and assets, regulatory issues associated with the sale or transfer of assets between the different regulated businesses, internal procedures for asset management and approval and the actual (or perceived) risks to infrastructure/project delivery.

The use of a 'one stop portal' is an innovative approach, to break down the economic, practical and cultural barriers to achieve a step-change in behaviour. More widely, the project is a significant opportunity to drive Circular Economy principles into the mainstream and could ultimately shape the development of approaches to resource reuse across the Transmission and Distribution sector via a possible sector wide portal.

Third Party Collaborators

Sinclair Knight Merz (Europe)

Nominated Contact Email Address(es)

Box.GT.Innovation@nationalgrid.com

Problem Being Solved

National Grid is committed to integrating sustainability into decision making to create value, preserve natural resources and to respect the interests of our communities. We want to identify and deliver Circular Economy opportunities, and circulate and preserve the value in materials resulting from our activities (see <http://www.ellenmacarthurfoundation.org/business/reports>.) Our Environmental Policy 2013 has the following commitment:

"We will look for ways to use resources more efficiently through good design, use of sustainable materials, responsibly refurbishing existing assets and reducing and recycling waste"

There have been significant successes to date on this commitment, with a number of initiatives delivered by different business units. Of particular note is the Surplus Material Working Group (SMWG) which has developed a spreadsheet to itemise resources for reuse and the Circular Economy Asset Reclamation Project which has sought to identify asset classes that might be suitable for re-use. These initiatives illustrate the developing cultural change and appetite within the business for increasing resource reuse, however, they have been developed on a piece meal basis, often in isolation. The problem with this approach means:

- There has been little cohesion and opportunity for shared learning between different initiatives;
- There is a risk of duplication of effort and different interpretations of reuse and the Circular Economy;
- Initiatives have been relatively small scale, often working in only one part of the business collating data on a small number of resources. This limits the visibility of resource availability and quantity of resources identified, overall resulting in reuse opportunities being missed;
- Working within one part of business means that there are regulatory issues associated with the sale or transfer of assets between different lines of business have not been addressed through the small initiatives that have taken place to date.
- The approach has been reactive and unsystematic, dealing with challenges/barriers/limitations to reuse as they arise;
- Tools and mechanisms developed to date are only appropriate to manage small quantities of data and have limited technical functionality. This limits the number of resources and assets they can contain, and the amount of information that could be included for assessing the suitability of a resource or asset in another project or activity. It is unlikely that these tools could be scaled-up across the business to facilitate greater resource reuse;
- Opportunities for identifying wider resource re-use potential in the transmission and distribution sector as a whole have been limited.

There also remain many complex barriers to working effectively between UK businesses (and ultimately the wider business and the transmission and distribution sector as a whole); a degree of behaviour change and engagement is required to realise greater resource reuse.

Method(s)

The strategic review has been successful to date however there is a requirement for additional time to complete due to the complexities of working across businesses with different drivers and priorities.

The initial phase is a **strategic review**, an in-depth analysis of the toolkit concept and issues to consider when deciding to reuse – only this element of work has been costed at this stage. If successful, phase 2 will involve development and testing of a practical toolkit, focused around a **Resource Portal** and Functional **demonstration pilot** of the toolkit, to test its fitness for purpose. This work is not costed at this stage.

In the context of this project, a **resource** is a material (e.g. aggregate) which may otherwise be a waste; an **asset** is surplus or part used equipment / capital item retaining usable operational life.

Strategic Review

The Strategic Review will explore the concept for a Resource and Asset Re-Use Toolkit, consult with business stakeholders to better understand how to facilitate greater reuse within National Grid and to inform the functionality of the toolkit, through a series of study topics including consideration of resource and asset mapping, lessons learned, barriers and opportunities. This stage will require the identification of stakeholders that can influence increased reuse throughout the whole life of that resource or asset, i.e. specification & design, procurement, financial allocation, construction, operation (maintenance, repair) and de-commissioning. As such, information gathering will be achieved through interviews with representatives of the key directorates and project office site visits.

Development of Resource and Asset Re-Use Toolkit and Operational Pilot

It is intended that the toolkit will comprise a resource and asset portal with accompanying guidance and a separate End of Life (EoL) Asset Assessment tool. It will be a practical decision support tool which provides the 'proof of concept' for a more sophisticated

delivery mechanism for facilitating greater resource and asset reuse, compared to the current spreadsheet based approaches. The strategic review will inform the scope of the toolkit enabling it to meet the needs of the end users who require and generate resources.

The strategic review phase has now completed and hence phase 2, development of the toolkit and operational pilot, has now been costed.

In order to overcome certain barriers identified during the first phase of work, new processes have been adopted that will enable the project team to embed the reuse methodology within each directorate. In addition, a functional specification has been created for a data visibility aid.

Deliverables for phase 2 development of the identified solution and the operational pilot scheme include:

- Information Technology support to map existing in-house tool to SharePoint 2010; add search functionality; add data fields per business requirements; purge historical data no longer relevant for current tool
- Continue toolkit development to ensure fit for purpose within the pilot environment; develop clear processes to support use of the tool across the separate directives
- Supporting the three business areas in stakeholder engagement and process development to imbed the pilot toolkit in accordance with meet business requirements, manage, monitor and disseminate pilot process and successes.

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Scope

This project aims to overcome the identified problems by developing and demonstrating a resource and asset reuse toolkit, as a more sophisticated mechanism to support decisions to deliver circular economy opportunities, including making surplus assets and materials visible, defining processes and making it easier to reuse.

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The use of a 'one stop portal' is an innovative approach, to break down the economic, practical and cultural barriers to achieve a step-change in behaviour. More widely, the project is a significant opportunity to drive Circular Economy principles into the mainstream and could ultimately shape the development of approaches to resource reuse across the Transmission and Distribution sector via a possible sector wide portal.

Objective(s)

The objectives of this project are to develop a toolkit that facilitates an increased level of resource and asset reuse within National Grid, including providing a clear evidence base on the opportunities, barriers and solutions to adopting Circular Economy principles.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

Publication of the strategic review report published.

Project Partners and External Funding

n/a

Potential for New Learning

n/a

Scale of Project

The project will focus on key asset and resource types from electricity transmission, gas transmission and gas distribution, identified through a risk assessment and prioritisation exercise undertaken at the end of the strategic review. This will provide sufficient scale and material flows to test the concept and avoids complexity of involving third parties at this stage. A project of a smaller scale is unlikely to identify sufficient resource opportunities and would be insufficient to meet all the objectives of the project.

Technology Readiness at Start

TRL4 Bench Scale Research

Technology Readiness at End

TRL5 Pilot Scale

Geographical Area

The Toolkit will be applicable across the gas National Transmission System (NTS) in England, Wales and Scotland, the Electricity NTS in England and Wales and the Gas Distribution System where operated by National Grid.

Revenue Allowed for the RIIO Settlement

None

Indicative Total NIA Project Expenditure

Total - £189,000

Project Eligibility Assessment Part 1

There are slightly differing requirements for RIIO-1 and RIIO-2 NIA projects. This is noted in each case, with the requirement numbers listed for both where they differ (shown as RIIO-2 / RIIO-1).

Requirement 1

Facilitate the energy system transition and/or benefit consumers in vulnerable situations (Please complete sections 3.1.1 and 3.1.2 for RIIO-2 projects only)

Please answer **at least one** of the following:

How the Project has the potential to facilitate the energy system transition:

n/a

How the Project has potential to benefit consumer in vulnerable situations:

n/a

Requirement 2 / 2b

Has the potential to deliver net benefits to consumers

Project must have the potential to deliver a Solution that delivers a net benefit to consumers of the Gas Transporter and/or Electricity Transmission or Electricity Distribution licensee, as the context requires. This could include delivering a Solution at a lower cost than the most efficient Method currently in use on the GB Gas Transportation System, the Gas Transporter's and/or Electricity Transmission or Electricity Distribution licensee's network, or wider benefits, such as social or environmental.

Please provide an estimate of the saving if the Problem is solved (RIIO-1 projects only)

Estimated savings to be up to £2 million.

Please provide a calculation of the expected benefits the Solution

The Circular Economy Asset Reclamation Project identified four potential opportunities for asset reclamation and reuse that would result in financial savings compared with the purchase of new assets.

In total these examples, which have been identified in a period of less than 12 months, have the potential to result in over £2 million of potential savings. The scale of the future potential savings is such that if a modest initial target of two additional re-use transactions were to result from the pilot project, the NIA investment could be readily repaid in full.

Although difficult to quantify at this stage, when established a resource portal should have the potential to identify at least five additional significant asset / resource reuse opportunities per annum across the business, with an estimated saving of between £0.5 million and £1 million per annum . A long term sector wide roll out has the potential to yield multi-million pound / customer savings per annum.

Please provide an estimate of how replicable the Method is across GB

The findings of the project will be directly relevant to all of National Grid, and potentially other gas and electricity licensees. All sites where construction or maintenance activities take place may produce reusable/refurbishable resources or assets. There is also potential for wider applicability of aspects of the findings to other network companies.

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

Following the initial Strategic review, it is anticipated that phase 2 of the NIA project will include the development of the toolkit with a trial period. If phase 2 is successful, the estimated on-going maintenance cost of the toolkit is £20,000 per annum after the initial 18 month period is complete.

Requirement 3 / 1

Involve Research, Development or Demonstration

A RIIO-1 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 GB the Network Licensee must justify repeating it as part of a project) equipment (including control and communications system software).
- 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 Licensees system
- A specific novel commercial arrangement

RIIO-2 Projects

- A specific piece of new equipment (including monitoring, control and communications systems and software)
- A specific piece of new technology (including analysis and modelling systems or software), in relation to which the Method is unproven
- A new methodology (including the identification of specific new procedures or techniques used to identify, select, process, and analyse information)
- A specific novel arrangement or application of existing gas transportation, electricity transmission or electricity distribution equipment, technology or methodology
- A specific novel operational practice directly related to the operation of the GB Gas Transportation System, electricity transmission or electricity distribution
- A specific novel commercial arrangement

Specific Requirements 4 / 2a

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

The Resource and Asset Toolkit will be available as a decision support system, for use by all of National Grid. In addition a report, case studies and summary presentation will be produced for dissemination to relevant licensees.

Or, please describe what specific challenge identified in the Network Licensee's innovation strategy that is being addressed by the project (RIIO-1 only)

This project sits within the Strategic theme of National Grid's innovation strategy.

- Has the Potential to Develop Learning That Can be Applied by all Relevant Network Licensees

Is the default IPR position being applied?

- Yes

Project Eligibility Assessment Part 2

Not lead to unnecessary duplication

A Project must not lead to unnecessary duplication of any other Project, including but not limited to IFI, LCNF, NIA, NIC or SIF projects already registered, being carried out or completed.

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

n/a

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

n/a

Additional Governance And Document Upload

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

n/a

Relevant Foreground IPR

n/a

Data Access Details

n/a

Please identify why the Network Licensees will not fund the project as apart of it's business and usual activities

n/a

Please identify why the project can only be undertaken with the support of the NIA, including reference to the specific risks(e.g. commercial, technical, operational or regulatory) associated with the project

n/a

This project has been approved by a senior member of staff

Yes