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## NIA Project Registration and PEA Document

### Date of Submission

Jun 2022

### Project Reference Number

NIA\_SSEN\_0061

## Project Registration

### Project Title

HOMEflex (Household or Microbusiness Energy Flexibility)

### Project Reference Number

NIA\_SSEN\_0061

### Project Licensee(s)

Scottish and Southern Electricity Networks Distribution

### Project Start

June 2022

### Project Duration

2 years and 0 months

### Nominated Project Contact(s)

Tim Sammon

### Project Budget

£331,000.00

## Summary

HOMEflex seeks to address gaps in fairness during the development of domestic Flexibility Services. HOMEflex aims to create an inclusive, fair, and transparent marketplace from the start. It will achieve this by developing a Code of Practice for Domestic Flexibility Services, including a framework and business case for an accompanying Compliance Scheme.

If successful, HOMEflex could be used by procurers of Flexibility Services to give them the confidence they are engaging with a trustworthy vendor and by flexibility providers to demonstrate their credibility. HOMEflex draws on previous findings including Flex Assure for industrial and commercial customers, "Smart and Fair?" and CrowdFlex. This proposal resulted from engagement with Open Networks members and is seen as important for delivering domestic and microbusiness flexibility fairly.

## Third Party Collaborators

Flexassure

## Nominated Contact Email Address(es)

fnp.pmo@sse.com

## Problem Being Solved

A report, published in January 2021 by Citizens Advice, Energy UK and the Association for Decentralised Energy (ADE), presents an analysis of the extent to which existing policy and legislation address the potential risks posed to consumers by a growing market for new and

innovative energy flexibility propositions. Most areas of potential risk are found to have limited protection; such as 'Mis-advertising and other mis-information about expected revenue or savings', 'Opaque and complicated terms and conditions' and 'Lack of interoperability/lock-in due to technology'; or no protection under existing regulation; including 'Consumer inability to engage', 'Poor installation and unclear maintenance obligations of assets such as batteries', or 'Confusion due to multiple parties interacting with the

consumer'. In addition, the Centre for Sustainable Energy (CSE) published a report following the "Smart and Fair?" project, highlighting the mechanisms by which vulnerable, fuel poor and others could be left behind in the transition to net zero.

The current lack of standards and assurance mechanisms could risk limiting customer uptake due to lack of trust, and could ultimately lead to negative outcomes and publicity, undermining trust and participation in flexibility markets.

This is of concern for DNOs, Stakeholders, Governments and to those customers that may be able to provide this demand flexibility.

Trust in the emergent flexibility marketplace will be built on its ability to be inclusive, fair and transparent. In the CSE report "Smart and Fair?" the mechanisms through which people in vulnerable situations and/or living in fuel poverty could be excluded have been identified.

Knowing where or how people could be excluded allows us to provide solutions for inclusivity. The creation of a Code of Conduct for Domestic Flexibility Services Markets is one of the key enablers to mitigate these risks.

Similar concerns around customer assurance were raised by Ofgem in 2016 around the growth of flexibility markets for industrial and commercial energy users. In response to these, a voluntary Code of Conduct was developed in a collaboration between industry, government, and the regulator, facilitated by the ADE. This resulted in the establishment of Flex Assure, a Code of Conduct and voluntary compliance scheme for Flexibility Service providers working with industrial and commercial energy users. Recognised by BEIS, Ofgem, National Grid ESO and DNOs, Flex Assure has been defining standards and encouraging best practice in this context since its launch in May 2019.

There is now broad and growing support amongst key stakeholders (including Ofgem, BEIS, Citizens Advice, National Grid ESO, DNOs and the ENA, as well as other industry players) for the development of a similar Code of Conduct and compliance scheme aimed specifically

at the domestic flexibility market, to deliver assurance to domestic customers and micro-businesses, to set minimum standards and ensure compliance. The ENA's Open Networks project has endorsed and will support the undertaking of this project.

Risks to be considered include:

1. Accountability
2. Reliability
3. Inclusion and vulnerability
4. Financial benefit to end customer
5. Lock-in conditions
6. Restrictive practices
7. Cyber security
8. Customer Service standards
9. Personal data security

The domestic flexibility marketplace, still in its infancy, will likely develop to include a range of different delivery partners delivering on various elements of the whole value chain proposition. Through the development of its Heat Trust and Flex Assure schemes the ADE has gained valuable understanding of the complexity of such multi-tiered delivery models and the difficulty of assigning liability in the case of failed or poor delivery. A key element in the development of the proposed domestic Code of Conduct and compliance scheme would be

to establish a mechanism to clearly define liability and accountability for all stages of the customer experience. Without such a mechanism, in a multi-party supply chain, it will be extremely difficult to ensure resolution of poor service and failed delivery, to the significant detriment of customers.

Given the highly localised nature of Flexibility Services required by DNOs, the reliability of these services will be critical to the local reliability of supply. It is key that the balance between the need for reliability in service provision is not at the expense of the customer experience and choice. This work will seek to define the balance between these two requirements.

DNOs have a commitment to have non-discrimination at the core of their duties. In extending this to Flexibility Services, DNOs have adopted the principles of Smart and Fair? in defining how they wish to see flexibility markets develop and evolve.

## **Method(s)**

### **Overview**

Building on the existing Flex Assure Code of Conduct and compliance scheme, this project sets out to:

1. develop a new Code of Conduct for Flexibility Service providers offering services to domestic and micro-business energy users to

participate in energy flexibility

2. develop the documentation and governance structures for a voluntary compliance scheme to assess/monitor compliance with this Code of Conduct

3. establish a mechanism for handling customer complaints

4. consult on the developed Code of Conduct within the consultation framework of the ENA Open Networks Project

The project will draw on findings from relevant work by other bodies, including the Centre for Sustainable Energy's Smart and Fair? project, to build considerations around inclusion, fairness, justice, and vulnerable consumers into the design of the standard and scheme.

A steering committee will be established to provide input to and oversight of the project, with representation of key stakeholders.

### **Development of Code of Conduct**

Development of a Code of Conduct will involve an initial exercise to map emerging business models and identify actors/relationships, and consideration of how to treat different parties under a Code.

To write the Code of Conduct, we will then draw on a combination of previous work and qualitative research with domestic energy consumers, to be led by the Centre for Sustainable Energy (CSE).

The Flex Assure Code of Conduct will serve as a rough guide for the structuring and drafting of a domestic flexibility Code of Conduct. Additional insights specific to the domestic energy context will be drawn from the ADE's Heat Trust scheme, a Code of Conduct and assurance scheme for heat network providers, active in the domestic context. Finally, insights from previous work such as the CSE Smart and Fair? project will feed into the drafting of the domestic flexibility Code of Conduct, to include considerations around fairness and vulnerable consumers.

The drafting of the Code of Conduct will be led by the current Flex Assure Scheme Administrator, in collaboration with a Steering Committee, as mentioned above.

### **Consumer engagement**

The Centre for Sustainable Energy (CSE) will lead a two-phase programme of consumer engagement designed to:

- ensure the drafting of the Code of Conduct is informed by perspectives and expectations of those domestic consumers most likely to be involved in domestic Flexibility Services at the early stages of market development
- evaluate the potential impact on consumers' (including vulnerable and fuel poor consumers') willingness to take up Flexibility Services as a result of the confidence instilled by the additional protections afforded by the proposed Flex Assure Domestic scheme

This engagement will be undertaken through a set of carefully structured deliberative focus groups. Two will be undertaken in the early stage of the project to inform the drafting of the Code of Conduct and two undertaken at the late stage of the project to provide an initial assessment of the potential impact of the Flex Assure Domestic scheme on market take up.

Each focus group will involve consumers identified in the recruitment process (using insights from Smart and Fair?) as likely to be interested in and engaged with Flexibility Services at the early stages of their introduction to the domestic energy market. One of the two groups will be focused on consumers in vulnerable situations.

### **Establishment of Governance Framework for Compliance Scheme**

We will establish the frameworks for a voluntary compliance scheme on the basis of this new Code of Conduct for the domestic flexibility sector. To this end, we are able to draw on the design of and experience with both the current Flex Assure Scheme (for I&C), and on the ADE's Heat Trust compliance scheme, which can contribute insight around acting in a domestic energy market context, including insight on access for domestic customers to dispute resolution (e.g. through access to the Energy Ombudsman).

The inclusion of a dispute resolution mechanism and potential access to the Energy Ombudsman will give domestic flexibility customers a means of recourse against flexibility service providers who provide poor service or fail to deliver. A table of infringement penalties could be established to compensate customers for poor service and the thread of liability ensured.

### **Project Outputs**

- An open-source Code of Conduct document (including stakeholder consultation and implementation of stakeholder feedback). It is intended that this document would at minimum cover the following key themes, dependent upon the risk areas agreed by a steering committee comprised of a broad range of sector participants:

- o Sales and marketing
- o Technical due diligence
- o Proposals

- o Customer contracts
- o Complaints, violations and penalty system
- Compliance Scheme governance structure (including proposals for establishment of a Scheme Oversight Committee)
- Proposal for a customer complaint and dispute resolution service
- Scheme member audit process
- Development of the commercial model for sustained scheme operation
- Indicative quantification of the potential impacts of a compliance scheme on consumer take-up of Flexibility Services and estimation of financial benefits for households and micro-businesses, including a comparison of affluent/less affluent or vulnerable consumers, to inform future scheme impact monitoring and evaluation
- Plans for continued scheme development as the market evolves, development of a sustainable business model and test the interest amongst potential scheme members
- Recommendations for how Open Networks can use the outcomes

### **Timeframe**

The whole project is estimated to take 2 years:

- Year 1:
  - o Desk-based research and domestic customer engagement (led by CSE)
  - o Development of a new domestic Code of Conduct for Flexibility Service Providers
  - o Stakeholder consultation on Code of Conduct
  - o Evaluation of individual and social benefits attached to HOMEflex
- Year 2:
  - o Development of governance framework for Compliance Scheme,
    - Develop business case
    - Develop audit process
    - Produce all associated scheme documentation including legal review, ready for scheme launch.
    - Develop proposal for Complaints/Dispute mechanism, and access to Energy Ombudsman
    - Develop processes for establishment and operation of Domestic Flexibility Scheme Oversight Committee, and proposal for Committee composition.
    - Develop proposal for implementation of Scheme secretariat (/expansion of existing Flex Assure Scheme secretariat)

Report on expected outcomes and benefits for flexibility providers, DNOs, householders, landlords and micro-businesses, including financial savings, carbon savings, an equality/inclusivity assessment, Social Return on Investment. (SROI) figures and a fuel poverty alleviation score or other lifestyle improvement assessment, gather expressions of interest / commitment letters from potential Members of a voluntary compliance scheme.

### **Scope**

This project focuses on the development and publication of an open-source Code of Conduct and development of the governance frameworks, proposals, and business case for implementation of an associated voluntary compliance scheme. Due to uncertainties around the development of domestic flexibility markets over the next two years, it is difficult at this stage to make proposals for the commercial model and roll-out of such a scheme. The project team therefore proposes to incorporate this commercial planning as part of this project, to be taken forward following project completion, subject to the outputs and success of this project and the successful definition of a sustainable commercial model.

The ultimate benefit of this project will be the development of an inclusive, healthy, publicly trusted and liquid domestic Flexibility Services marketplace. The project is not dedicated to a specific, single financial benefit to the customer, but rather a better customer experience throughout the whole cycle of a customer's engagement with a Flexibility Services provider, the avoidance of customer detriment and unrealised income, and facilitation of better understanding of offers and a clear thread of accountability across a potential stack of service delivery partners.

The benefits hereof must be seen in the context of the potential of domestic flexibility to contribute to the efficient and reliable operation of the electricity system. Findings from the first phase of the CrowdFlex1 project indicate a significant potential of domestic flexibility to help balance the GB electricity system, including the potential to reduce the GB system peak demand by up to 10% (6.8GW), and to provide up to 37GW of demand turn up flexibility, equating to 53% of the magnitude GB system peak. Insights from the Low Carbon London Project2 suggest that domestic flexibility could reduce the average costs of renewables integration in the electricity system by up to £11/MWh (with the marginal benefits two to three times higher, suggesting increasing benefits of demand side response with increasing integration of renewables). Moreover, findings from this project indicate a potential of flexible domestic demand to reduce the average system carbon emission rate by at least 5g/kWh. The extent to which this potential can be realised will depend on the level of consumer engagement achieved and sustained.

Overall, according to a study by University College London, the residential flexibility market is forecast to contribute cumulative savings of £30.9bn for GB consumers by 2050. By building both consumer and DNO/ESO confidence in flexibility, this project will help to unlock that value.

The HOMEflex project is expected to provide benefits to the GB electricity transmission and distribution systems through enabling greater and more reliable take-up of domestic Flexibility Services compared with a situation where the Code of Conduct is not in place and consumer trust is weaker and vulnerable to poor market practices.

1 National Grid ESO 2021. CrowdFlex – Phase 1 Report. [https://smarter.energynetworks.org/projects/nia2\\_ngeso001/](https://smarter.energynetworks.org/projects/nia2_ngeso001/)

2 Imperial College London 2014. Carbon impact of smart distribution networks – Low Carbon London Learning Lab.

<https://innovation.ukpowernetworks.co.uk/wp-content/uploads/2019/05/LCL-Learning-Report-D6-Carbon-impact-of-smart-distribution-networks.pdf>

## Objective(s)

*HOMEflex* will publish a model and recommendations for a Code of Conduct to help the provision of energy flexibility services in the domestic and small business market and to evaluate potential benefits.

## Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

N/A

## Success Criteria

The key success criteria for this project will be the completion and publication of a proposed Code of Conduct, following comprehensive stakeholder consultation, and the development of the governance structures and business case for a voluntary compliance scheme, ready for potential implementation/roll out after completion of the project.

## Project Partners and External Funding

SSEN will deliver the project, with support from Flex Assure and the Centre for Sustainable Energy (CSE) as described below:

Flex Assure is a voluntary scheme established by the Association for Decentralised Energy (ADE) in 2019. Flex Assure will be involved in the project, with responsibility for:

- Developing a new domestic Code of Conduct for Flexibility Service Providers
- Stakeholder consultation on Code of Conduct in conjunction with CSE
- Evaluation of individual and social benefits attached to HOMEflex
- Development of governance framework for Compliance Scheme

CSE is a Bristol based independent charity initiated in 1979 now working UK wide. CSE aim to promote sustainability, reduce carbon emissions, alleviate fuel poverty has been replaced by energy justice and to empower people to change the way they think and act about energy. CSE will be involved in the project, with responsibility for:

- Research on domestic flexibility business models
- Research with domestic energy consumers to understand their needs and concerns with regards to assurance and protection in flexibility markets
- Research on quantification of the value of implementing a voluntary compliance scheme for Flexibility Services providers

## Potential for New Learning

At present in the UK there are no standards pertaining to the procurement of flexibility from Domestic customers. This project will develop a code of conduct to contribute to the creation of standards in this emerging market.

The project will seek to produce insights around and quantification of the potential value of establishing a customer assurance scheme for flexibility services providers working with domestic and micro business energy users. With domestic flexibility and local flexibility markets still in their infancy, there is currently very little quantitative evidence available in this area.

Learning will be disseminated via project reports and across social media platforms and industry events such as ENIC.

## Scale of Project

The objective of HOMEflex is to provide a code of conduct suitable for use in the procurement and provision of energy flexibility services in GB, and the method is scaled accordingly. To attempt a project at a smaller scale would be impractical.

## Technology Readiness at Start

TRL2 Invention and Research

## Technology Readiness at End

TRL4 Bench Scale Research

## Geographical Area

This project will be applicable across Great Britain. SSEN is the lead DNO, on behalf of all DNOs across Great Britain, as well as the ESO via the Open Networks Project.

## Revenue Allowed for the RIIO Settlement

Not applicable with regards to this project.

## Indicative Total NIA Project Expenditure

Total expenditure is £331,00 of which 90% (£297,900) is allowable NIA expenditure.

## 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)

The ultimate benefit of this project will be the development a framework which can be used to create an inclusive, healthy, publicly trusted and liquid domestic Flexibility Services marketplace. The project is not dedicated to a specific, single financial benefit to the customer, but rather suggesting ways in which a better customer experience throughout the whole cycle of a customer's engagement with a Flexibility Services provider may be realised.

The project, if successful, will suggest ways in which domestic and microbusiness consumers can partake in flexibility fairly. In turn, this would help to unlock benefits to the GB electricity transmission and distribution systems through enabling greater and more reliable take-up of domestic Flexibility Services, compared with a situation where the Code of Conduct is not in place not in place, consumer trust is weaker and flexibility services are vulnerable to poor quality practices.' ). Due to the nascency of this area, it is difficult to quantify these benefits at this stage, and this will be included as an element of the project itself, to generate insights for quantification of benefits, in terms of enhanced consumer confidence, and therefore take-up of domestic Flexibility Services.

#### Please provide a calculation of the expected benefits the Solution

If successful, this will help domestic consumers to engage in the provision of flexibility services more fully, with a degree of confidence which comes from having a reputable Code of Practise. This should remove some of the potential barriers from the development of the domestic flexibility market, allowing realisation of the anticipated benefits from the use of flexibility.

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

This is applicable to any household or microbusiness in Great Britain which would like to partake in flexible energy in the future. Domestic households across GB total over 27 million, combined with over 5 million micro-businesses the number of sites that could potentially benefit is in excess of 33 million homes.

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

As detailed in 2.7 part of the HOMEflex brief is to research the costs, value and potential benefits of implementing a scheme across GB.

### 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

Learning will be generated via stakeholder engagement, the development of governance frameworks, the code of conduct and the associated principals proposed to initiate this. This learning will be disseminated upon completion of the project.

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

SSEN has four core innovation principles to:

1. Improve network reliability
2. Deliver value and improve service for consumers
3. Facilitate net zero transition
4. Deliver measurable social, environmental and safety benefits

HOMEflex helps to address all four of these principles.

### 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.

There are no existing schemes or projects for domestic, or small business, flexibility. No other DNOs are pursuing similar work; we know this as this project is the result of engagement at Open Networks and the need has been identified via that forum.

### 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

This is a new market, and this type of project has not been proposed before.

### Relevant Foreground IPR

No relevant foreground IPR to be used

### Data Access Details

The current SSEN Privacy Notice can always be found at this link: [Privacy Notice - SSEN](#)

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

HOMEflex is a new initiative backed by Open Networks for the benefit of all DNOs as well as their customers. The learnings and framework this project will deliver will be of benefit to all DNOs and potentially all households and micro-businesses across GB.

### 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

The domestic flexibility industry is in its infancy and as such few actors are active in this space at present. Moreover, it is critical that this work is undertaken in as open and transparent environment as possible and to ensure that no types of actors/business models are excluded due to biased focus by financing parties; financing this project through the NIA with project leadership by Flex Assure, in collaboration with CSE and with oversight by a steering committee with wide representation, provides an open and transparent environment.

### This project has been approved by a senior member of staff

Yes