PARTNER SEARCH: GREATER MANCHESTER

CALL: HORIZON 2020 - LCE-04-2017

PROJECT TITLE: Smart Management and Renewable Technology with Innovative Efficient Storage (Smarties)

Energy security and the decarbonisation of heat is a strategic goal for the EU in order to meet the climate commitments and goals (such as COP21) legislated across member states. Europe is facing key challenges such as existing antiquated energy networks, which will require new approaches towards the production, handling and delivery of intermittent renewable energy sources.

The shift away from fossil fuels to renewable energy presents an increased risk of security and availability to generators and consumers at peak demand times which invariably differ to peak renewable energy generation periods.

Smarties is designed to assist regional and city partners to *demonstrate innovative approaches* combining *large scale storage, renewables* and *demand side management technologies* with *interconnectivity* and *transmission network management*. By developing a robust evidence base and demonstrating innovative processes that harness multiple renewable energy generation, storage and management, **Smarties** will provide viable, scalable and replicable energy management for renewables whilst reducing the reliance on expensive fossil fuel contingencies across member states. This will support the EU's energy policies such as Climate-Energy and Energy Union and contribute towards member state energy self-consumption.

CONTACT DETAILS

Neil Jones, Low Carbon Energy Innovation Manager, Greater Manchester Combined Authority (UK)
t: +44 (0) 161 237 4070
neil.jones@neweconomymanchester.com

Sean Owen, Non Domestic Energy Efficiency Lead, Greater Manchester Combined Authority (UK)
t: +44 (0) 161 234 3688
s.owen@manchester.gov.uk

EU PROGRAMME AND CALL

The following proposal outlines a Horizon 2020 project driven by European regional public authorities. Its focus is on **SOCIETAL CHALLENGES – Secure, Clean and Efficient Energy Low Carbon**, addressing **Competitive Low Carbon Energy: LCE-04-2017: Demonstration of smart transmission grid, storage and system integration**

technologies with increasing share of renewables. The call will fund viable, scalable and replicable innovative multi energy system integration across existing, planned and future energy generation and storage with distribution networks. Call Deadline - 17 February 2017.

PARTNERSHIP

- **Coordinator:** Operational Lead required to develop the aggregating platform and controller, project management and broader project capacity (discussions with E.ON are under way).

- **Demonstrator / Core Partners:** Greater Manchester Combined Authority and Barcelona Metropolitan Area.

- **Technical and Technology partners:** Research Institutions, Universities and Storage solutions from each of the regions involved. Salford University has been confirmed.

- **Observers and Experts[1]:** Local grid and network providers, such as Distributor Network Operators (DNOs) from each of the regions involved.

PARTNER SOUGHT: We are looking for one or two additional regions or cities interested to host one of the demonstrators. The city/region will need to have existing renewable capacity, and they will be expected to bring along a technical partner and an energy DNO from their local area as an observers/experts.

EXPRESSION OF INTEREST: Please submit any expression of interest by email (contact details listed above) **before 6 September 2016**.

DURATION AND BUDGET

We expect this project to run for 48 month.

The overall budget will be between €12 and 15m. Public partners will receive 100% funding private partners 70%.

MAIN AIM OF THE PROJECT

The aim of **Smarties** is to develop and demonstrate innovative technologies and processes that harnesses multiple renewable energy generation with storage options and management systems. This will provide security and flexibility to the energy transmission network through maximising the ability to manage and release stored energy when demand requires.

The project will showcase how fluctuations in energy production can be managed when renewable energy storage is coupled with a centralised and aggregated software gateway/platform which will store, manage and release energy on demand.

[1] Observers and Experts will provide valuable knowledge, experience and expertise to the project. They can attend meetings (travel expenses can be covered by the project) but will not be full partners of the project and therefore will not benefit directly from the H2020 grant.

This approach would allow the transmission grid to reduce fluctuation events from renewable generation by allowing energy to be drawn from different sources, at different volumes and at different rates in order to meet energy demand at peak times (eg daily/seasonal).

SPECIFIC OBJECTIVES

- Demonstration of large scale energy storage solutions (e.g. hydrogen, battery etc), supported by a variety of renewable technologies, to increase the share of variable renewable.

- Demonstration of power transmission technologies, communication and control tools through innovative real time ICT management capable of providing aggregated centrally managed and flexible GWh scale power delivery to the transmission network as required.

- Development of overarching transnational infrastructure to share learning and data between participating cities to support the ability to provide secured, flexible energy generation and storage across Member States.

EXPECTED IMPACT

- Scalable solutions to fluctuating variable renewable sources.

- Stable and secure operation through aggregated monitoring, control and innovative ICT platforms.

- Inform future energy market developments and design as a result of controlled delivery.

PROPOSED STRUCTURE

WP0: Transnational sharing framework

WP1: Analysis of current energy regulations, codes and standards across participating member states as well as business models and pan-European market integration.

WP2: Development of shared ICT platform to monitor and manage transmission of large scale generation to address energy peak demand with available storage capacity.

WP3: Identification, implementation and validation of developed ICT platform and processes with variable energy storage methods in 3x demonstrators across project partners.

WP4: Analysis and dissemination of demonstrator results to inform development of future EU energy policy and infrastructure design.

BACKGROUND

Greater Manchester (GM) has a number of innovative projects and infrastructure investment ongoing which contributes towards a low carbon energy programme. Collectively, GM generates through wind and solar assets and is investing in low carbon infrastructure such as Heat Networks to reduce its electricity demand. GM has a strong track record in supporting innovative energy reduction projects at scale such as local authority level energy master planning (Smart Systems and Heat) and demand side response aggregation technology (NEDO Smart Communities).

GM's planned and proposed investment in low carbon infrastructure provides opportunities to generate or access surplus energy for sale or storage. GM plans to establish a publically owned energy company which will be capable of generation and purchasing surplus energy generated from renewable assets and infrastructure. The energy company supplies a route for any locally generated and stored energy to be accessed by the transmission network.

In order to bring the component parts outlined above (generation, storage & transmission) a number of specific challenges will need to be resolved which will be applicable to other member states:

- Lack of mainstream storage (at commercial scale) for localised energy generation;
- Lack of controls that allow real time energy demand to be measured against available existing and aggregated storage capacity.
- Barriers to the adoption of technology; including issues such as client awareness, supply chain readiness, split incentives which link to the evidence base.

Greater Manchester Combined Authority Greater Manchester Low Carbon Hub

The **Barcelona Metropolitan Area (AMB)** is the public administration of the metropolitan territory of Barcelona, with an area of 636 km2 and 36 municipalities with a population of over 3.2 million. It is the largest metropolitan agglomeration in the western Mediterranean and generates half of Catalonia's region GDP. The AMB has powers in the areas of social cohesion, territorial and urban planning, mobility, transport, waste management, water supply, environment protection, social housing, infrastructures and economic promotion in the metropolitan territory.

Under the Sustainability Plan of the AMB (PSAMB), the organisation carries out actions to promote sustainable development in its territory. Energy Efficiency and Climate change are key areas of action, where AMB promotes a process of transition towards a decentralised energy model based on renewable and sustainable energy with an integrated approach. The organisation has a sound experience in managing and implementing local and European projects in the fields of sustainable development, energy efficiency and economic, social and territorial cohesion.

The supramunicipal vision of AMB is key to the implementation of pilot experiences, with a high potential for replicability. Some of the most relevant projects carried out during the last year in the field of energy are the following:

- Rehabilitation of municipal buildings with NZEB criteria.
- Implementation of new DHC networks in the metropolitan area, using the most advanced technology, innovative organisation schemes and synergies with the metropolitan industry.
- Energy transition towards a new energy model based on municipal responsibilities.

Area Metropolitana de Barcelona

GMCA
GREATER MANCHESTER
COMBINED AUTHORITY

AMB Àrea Metropolitana de Barcelona