

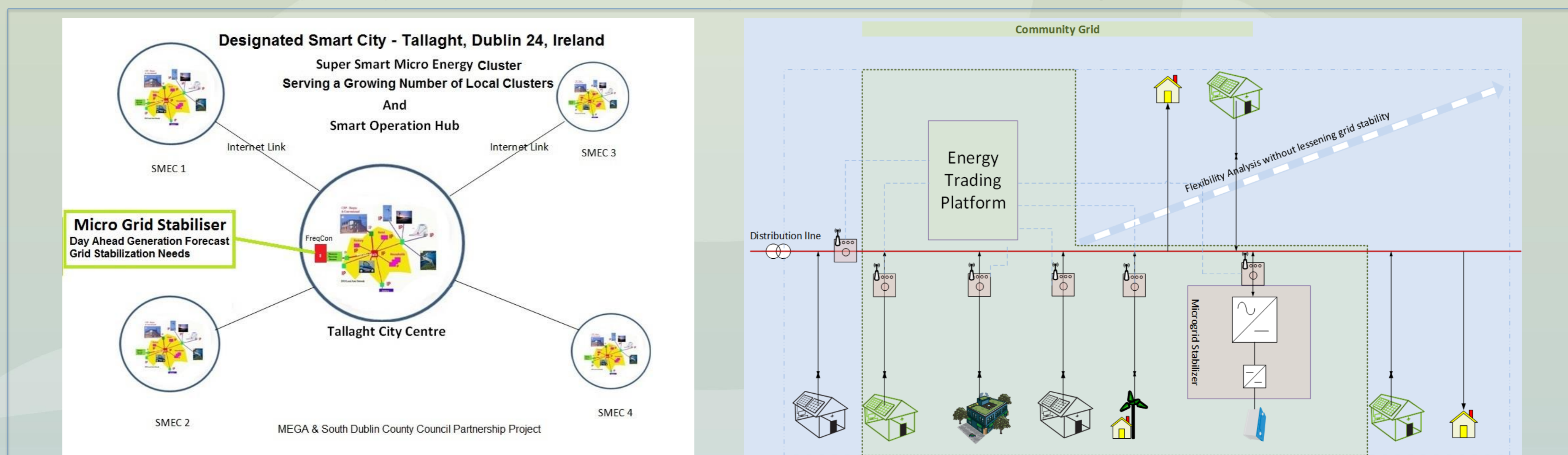


# Microgrid Franchise for Intelligent Community (MiFIC)

Shafi Khadem<sup>1</sup>, Dudley Stewart<sup>2</sup>, Klaus Harder<sup>3</sup>, Wolfgang Beez<sup>4</sup>

<sup>1</sup>International Energy Research Centre (Ireland), <sup>2</sup>Smart M Power (Ireland),

<sup>3</sup>Freqcon GmbH (Germany), <sup>4</sup>Maxwell Technologies (USA)



## Problem statement

National and EU energy policy is targeting increased generation of energy from cleaner renewable energy (RE) sources including micro generation ( $\mu$ Gen) systems. Distribution network operators and aggregators are however concerned about the potential impact on grid stability. Further research and development on improved grid stability with viable  $\mu$ Gen systems is required to achieve RE targets and to empower prosumers as key energy citizens.

## Project Aim & Objectives

Determine how to increase  $\mu$ Gen based RE penetration through the design, development and optimization of a community grid (C-Grid) that is to be deployed as a franchised product offering using a SOP (Standard Operating Procedure)

- Design a C-Grid and define the structural & operational flexibility while minimizing impact to the grid stability
- Design and develop the power and energy matching algorithms for energy trading platform
- Improve and optimize the community grid stabilisation unit
- Optimize the energy storage functionalities for future microgrid operation

## Impacts of research

- Improvements on state of the art or current commercial offerings in  $\mu$ Grid systems
- Sustainability achievement of  $\mu$ Gen based RE systems
- Increase the penetration of RE
- Empowering energy citizen through the development of energy trading mechanism for the prosumers
- Establish nationally relevant demonstration sites
- Create new business models and opportunities