



RE-EMPOWERED

Renewable Energy EMPOWERing
European & InDian Communities

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Introduction

Partners

European			Indian	
1	ICCS-NTUA (Coordinator)	Greece	8	Indian Institute of Technology Kharagpur (Indian Coordinator)
2	Imperial College London	United Kingdom	9	Indian Institute of Technology Bhubaneswar
3	Danmarks Tekniske Universitet	Denmark	10	Visvesvaraya National Institute of Technology
4	Bornholms Varme As	Denmark	11	CSIR-Central Mechanical Engineering Research Institute
5	Protasis Sa	Greece	12	Indian Institute of Science
6	Deloitte Advisory, S.L.	Spain	13	Indian institute of technology Delhi
7	DAFNI	Greece	14	Lab Concern India(LCI),

Duration: **42 months** as of 1 July 2021

Funded by EC (H2020) and DST



Goal

The main goal of RE-EMPOWERED is to **develop** and **demonstrate** solutions for energy transition of local energy systems based on **multi-energy Microgrids**, interconnecting multiple energy vectors. The multi-energy structure will be used to **optimize their joint operation**. The benefits will be demonstrated leading to an increased share of renewable generation and higher energy efficiency of the wider local energy system.

Presentation on the Topic

RE-EMPOWERED will develop a **complete set of solutions for local energy systems** that will be demonstrated in four pilot sites, two European and two Indian, complementary in terms of size, organisational and technical maturity.

The solutions will range from **planning tools** for designing or upgrading energy systems, to **control and optimization tools** for the management of microgrids, **interoperable platforms** for the integration of the available energy carriers, the digitization of the system and **advanced hardware infrastructure** for upgrading the local systems.

Main Objectives

Pillar 1: Increased energy efficiency, RES utilization and reliability

TO1: Optimal operation, high flexibility and efficiency

TO2: Higher RES penetration and utilization

TO3: Reliable and resilient operation

TO4: Digitalization and ICT deployment

Pillar 2: Fostering sustainable and economic community development

SO1: New competitive business models and financial tools

SO2: Community engagement and training

SO3: Improved energy access and environment quality

Pillar 3: Exchange, replicability and scalability in EU and India

CO1: Knowledge exchange and training between EU and India

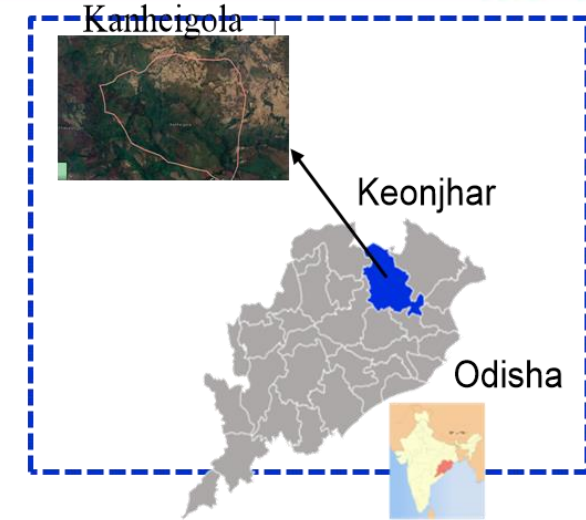
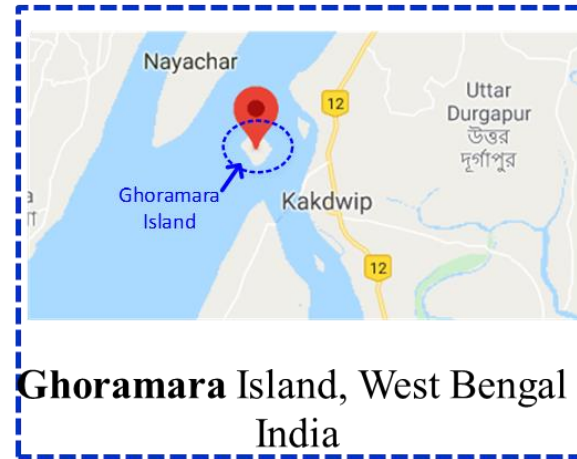
CO2: Use case replicability across EU and India

Solutions to be developed

- **ecoEMS/ecoMicrogrid:** Energy Management Systems
- **ecoDR:** Smart Meter - Load controller
- **ecoConverter:** Power electronic converters for dc/ac microgrids:
- **ecoVehicle:** Electric vehicle charger
- **ecoPlanning:** Energy planning tool
- **ecoCommunity:** Citizen engagement digital platform
- **ecoResilience:** Cyclone Resilient infrastructure for wind turbines and PV
- **ecoMonitor:** Water quality monitoring
- **ecoPlatform:** Cloud-based interoperable platform

Demonstration sites

- The developed solutions will be tested and demonstrated in 4 demo sites, in EU and India.
- Demos range in size and technical maturity.



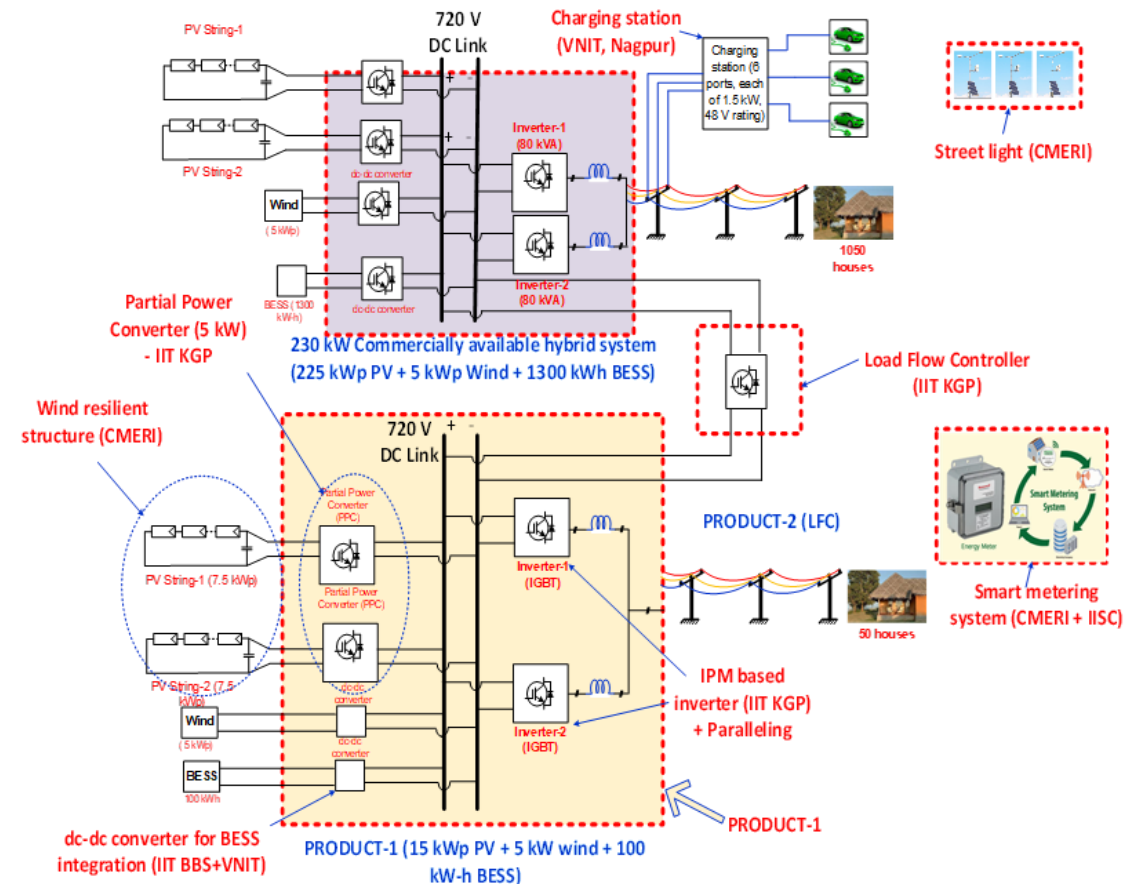
Ghoramara demo planned infrastructure

Proposed energy vectors	Capacity of energy vectors
PV	240 kW peak PV
Wind	10 kWp Wind
BESS	1400 kWh

- A 230 kW microgrid system
- Electric three wheelers
- Smart meters
- Cyclone resilient structure
- E-Boat

- A 20-kW advanced microgrid grid with RE-EMPOWERED developed tool sets. Dimmable streetlights
- Auto disconnection arrangement under overloading
- Charging station

- **Extreme weather conditions**
- **difficult communication with mainland.**



Project results so far

- Fruitful and efficient collaboration between Indian and European partners
- Definition of the Use Cases for the development of the project's solutions in SGAM representation is in progress
- Definition of preliminary Key Performance Indicators (KPIs)
- Planning of Demo sites in progress
- Obstacles to innovation, analysis of policy in EU and India, barriers and SWOT analysis in progress
- Development of tools has started
- Results published in the project's website: reempowered-h2020.com

Thank You

For discussions/suggestions/queries email: www.indiasmartgrid.org
www.isgw.in
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