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The objective of REnergetic is to **demonstrate the viability** of so-called ‘**urban energy islands**’. Energy islands seek to achieve the highest possible degree of self-sustainability with regards to the supply of its energy demand, be it electricity or heat through **local renewable resources**. At the same time an urban energy island may offer ancillary services to the public grid surrounding it.

These islands place the **consumer at the center of the energy transition**, giving them an active part in energy communities capable of producing their own energy, sharing the surplus with the rest of the public grid and optimizing consumption.

Thus the REnergetic idea of an energy island is at the core **a people-driven energy turnaround**, necessary to achieve the 1.5°C global warming goal.

REnergetic will demonstrate that Urban Energy Islands increase both the amount of renewables in these areas and the energy efficiency of local energy systems. It will prove the viability of this energy islands in three site pilots, each of a different nature, and facing different challenges:

New Docks, a residential area in Ghent – Belgium, will be working on the Integration towards a full and sustainable smart renewable energy system, including PV, waste heat and water recovery, as well as efficient battery storage. The proposed solutions to achieve these are:

- Increasing availability of RES by installing innovative PV in the building facades.
- Increase optimization of the EMS system: integration of larger EV-charging capacity.
- Integrate external PV-projects through virtual private grid schemes.
- Develop a Local Energy Community, such that flexibility can also be created on the demand side.

New Docks
A residential area in Ghent - Belgium



San Raffaele Hospital and its I&R Campus in Segrate Municipality – Milan, Italy, will be working on balancing power and temperature levels of heat and electricity, and their transfer between remote PV plant and campus, and in between campus buildings. The proposed solutions to achieve their objectives are:

- OSR Innovation in energy use, by reducing carbon-oriented energy consumption and maximize integrated monitoring of innovative energy consumption practices.
- OSR Innovation in energy monitoring controls, where AI and Big Data are used for innovative energy patterns analysis for pilot cases on thermal monitoring for some OSR buildings or available offices.
- OSR Innovation by introducing the concept of precision energy demand/supply (similar to precision medicine) where data integration for multi-vector energy sources shall maximize optimal energetic solutions and risk patterns optimization.

San Raffaele Hospital
And its I&R Campus in Segrate
Municipality – Milan, Italy



Warta University Campus And Poznan Supercomputing and Networking Center Poznan – Poland, Optimising specific and total demand-supply relationships, taking into account smart EV charging and building energy monitoring. The proposed solutions to achieve their objectives are:

- Increasing heating and cooling transfer between buildings with use of water loops, heat pumps, heat exchangers. Use DSR algorithms, BMS and IoT integration.
- Develop Local Energy Community with demand side flexibility.
- Transfer excess heat to the municipal district heating network, use low temperature medium within local district heating network.
- Remote PV plant, campus rooftop PV and heat pumps integration to reduce of peak impacts.
- Develop algorithms to couple electricity and heat vectors – stimulate/aggregate RES, waste heat, DC load, weather conditions, buildings' loads, REC and CEC, heat pumps, district heating stations, PV plants and water loops to obtain optimal working conditions

Warta University Campus
Poznan - Poland



Project areas that match the current work in BRIDGE:

- **Customer engagement:** REnergetic is centered around people making the best of a customer-friendly technology through the establishment of formal and informal local energy communities.
- **Regulations:** In REnergetic, the regulatory framework applicable within the area of energy islands will be analyzed, and identifications of barriers and recommendations to overcome them will be provided during the project to support replicability cases.
- **Business models:** Business model analysis in REnergetic will propose different Value Propositions and evaluate different scenarios, ensuring sufficient flexibility towards economic viability.
- **Data management:** data privacy and data handling.

Thank you for your participation!

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