



October 27-30, 2020

DIGITAL EVENT



Horizon 2020
European Union funding
for Research & Innovation

Energy Transition on European Islands

Chaired by



**From innovation to implementation:
how to make the energy transition on islands a reality?**

13:10 SESSION 1. THE CLEAN ENERGY ISLANDS INITIATIVE



- A few words about the Clean Energy Islands initiative
- The EU Islands Facility - NESOI

Sophie Dourlens-Quaranta, R2M Solution

13:30 SESSION 2. SELECTED TOPICS ADDRESSED BY ONGOING RESEARCH & INNOVATION PROJECTS



- PV and BESS integration on islands - The **INSULAE** project

Stefano Barberis, RINA Consulting



- Storage concepts and interoperability - The **GIFT** project

Sašo Brus, INEA



- Utilisation of local renewable resources - The **ROBINSON** project

Ugo Simeoni, European Turbine Network



- Sustainable mobility on islands - The **SMILE** project

Stefano Barberis, RINA Consulting

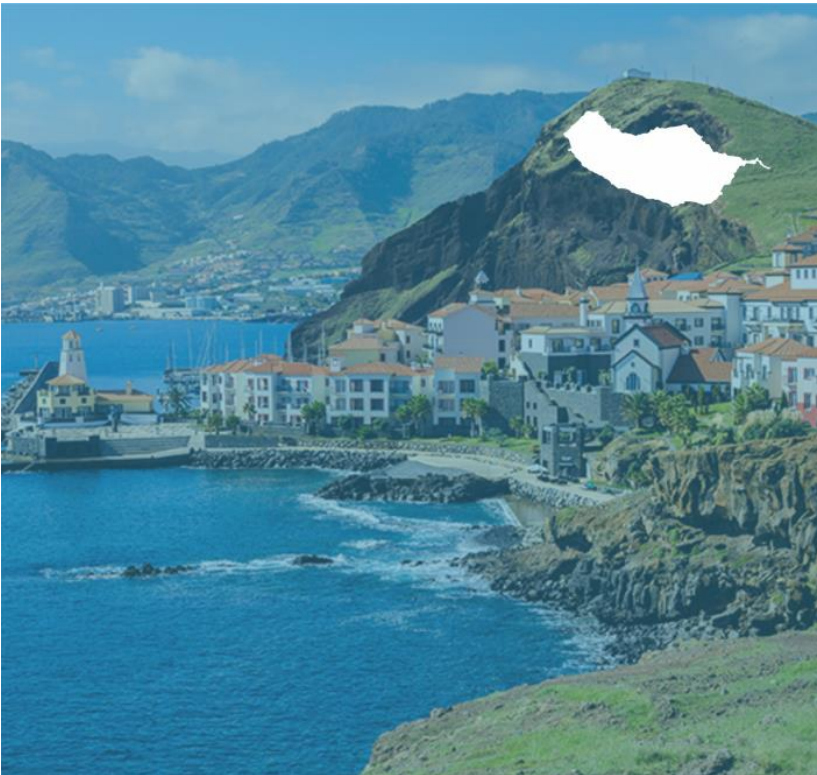


- Citizen engagement - The **REACT** project

Thomas Messerve, R2M Solution and Andrew Barney, Uppsala University

14:30 SESSION 3. ROUNDTABLE DISCUSSION

- Theme 1: How to engage islanders in the energy transition?
- Theme 2: How to stimulate islands' long-term energy strategy?



SUSTAINABLE MOBILITY ON ISLANDS

SMILE Project Experience

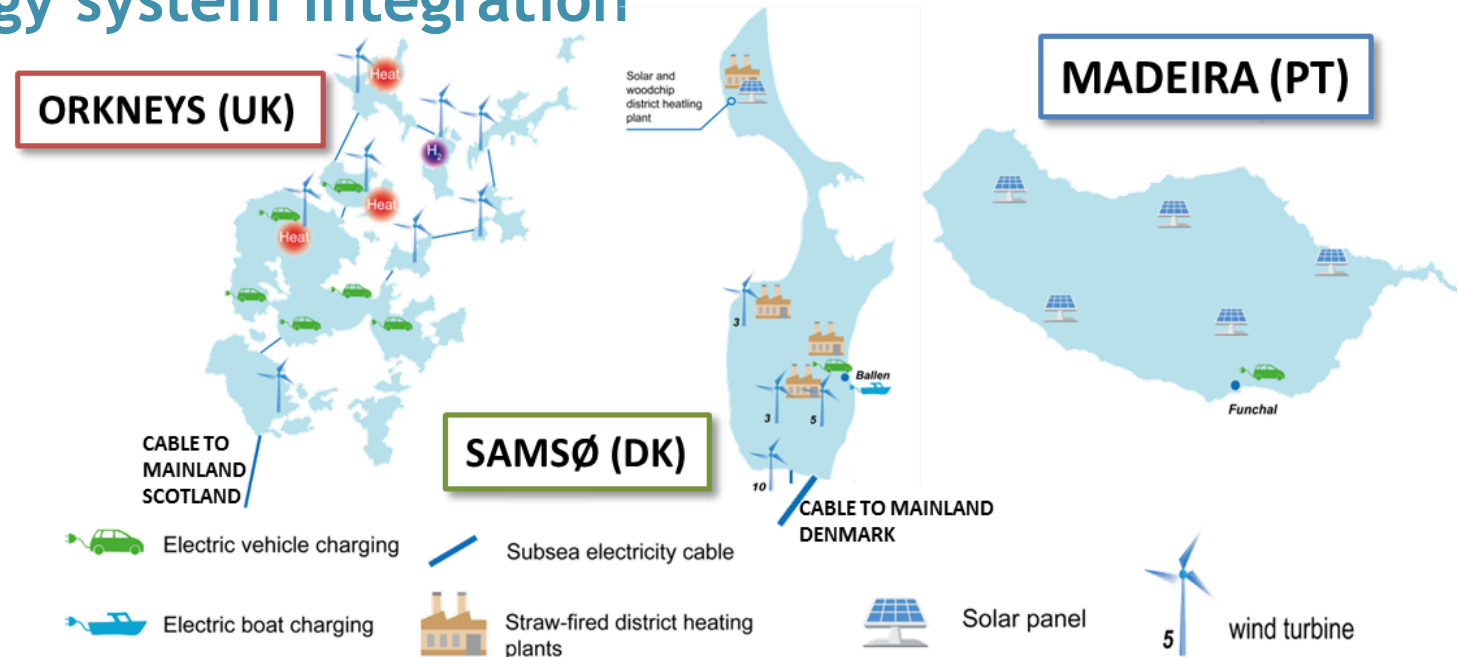
STEFANO BARBERIS - RINA CONSULTING S.P.A.
29 OCTOBER 2020 – SUSTAINABLE PLACES '20

SMILE overall objective

To demonstrate solutions targeting the **distribution grid** to enable:

- Demand response
- smart grid functionalities
- storage and energy system integration

3 large-scale demonstrators



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 768776



Impact and island locations

Island communities can be **more easily engaged** in the real-life testing of solutions aimed at solving important challenges impacting life on the island

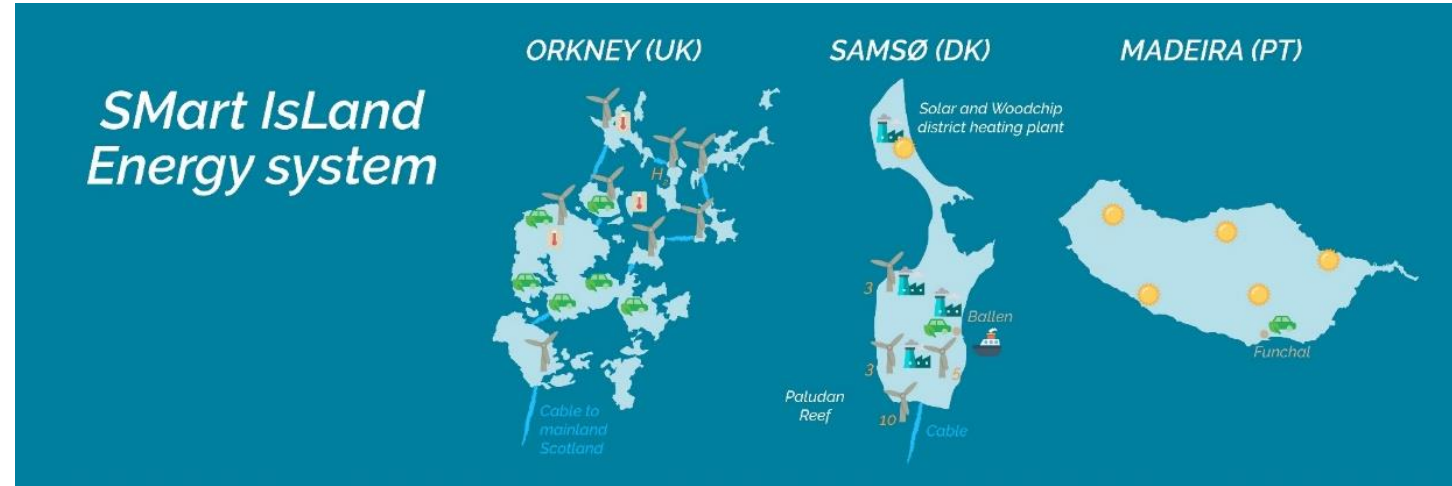
Constitute ideal candidates for demo activities requiring societal engagement & active residents' commitment.

The 3 selected case studies:

- characterised by **high shares of RES**
- intend to demonstrate **stable grid operation** in the context of the adoption of energy storage solutions and/or the connection between the electricity network and other energy networks
- intend to **demonstrate smart integration of grid users from transport and mobility.**



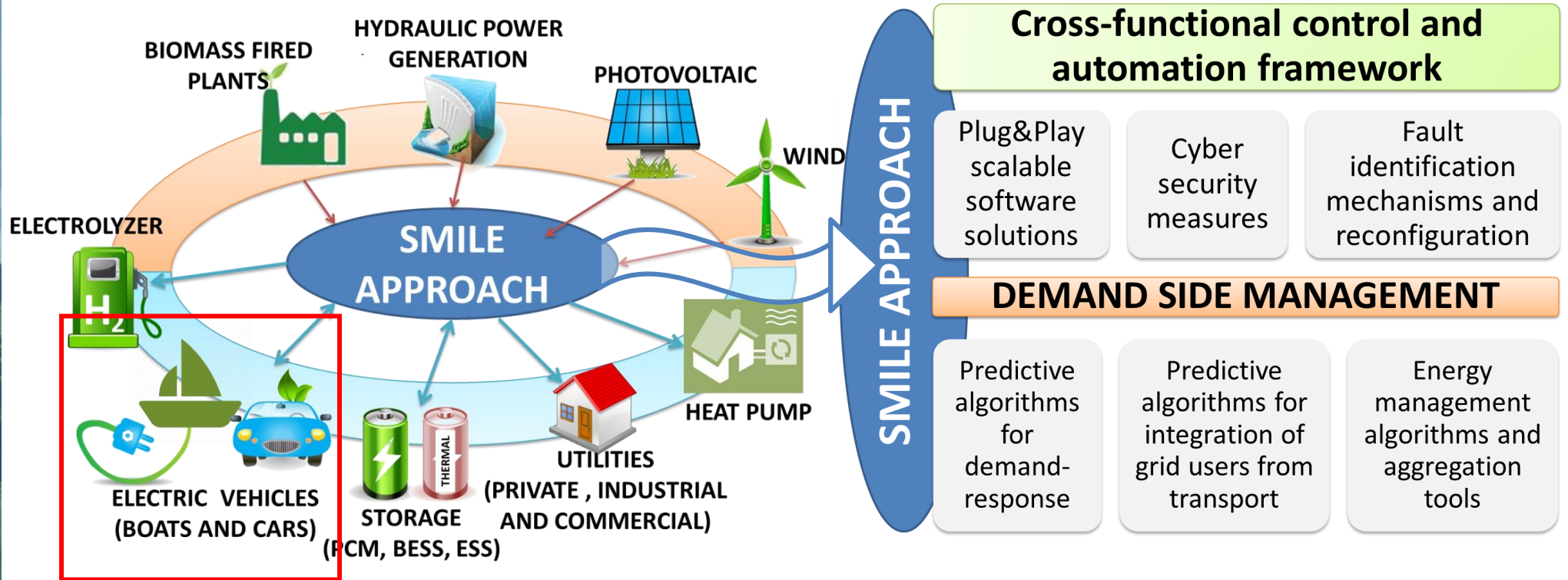
Demonstrator Specific Goals



Each case study represents an important energy challenge that is common to several locations in Europe, on islands as well on the mainland.

- **Madeira** is a total energy island, which means that it is not connected to any other landmass electrically.
- **The Orkneys** have some of the highest recorded levels of “fuel poverty” in the UK.
- **Samsø’s** energy demand is very consistent as it is dominated by the demand from berthed yachts and associated tourism.

Overall concept, objectives and technologies



Overall Goals - Samsø

- To make **better use of the green electricity** produced on the island
- To make the **Ballen marina** more attractive for sailors, tourists, and the local citizens.
- To **improve the quality of life** in order to attract settlers



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Overall Goals - Samsø

- To install a **battery system (BESS)** to level out fluctuations in supply and demand and to test it .
- To install a **PV power generation system** at the Ballen marina.
- To **cover 50% of the heating demand** in the harbour master's office using PV electricity and heat pump.
- To develop and test an **overall control system**, which allows for dynamic market prices.
- To set up a **new market model**

Samsø: a smart port

340 sockets

Boats used as “static”
batteries in
combination with local
large BESS

Boat habits monitoring



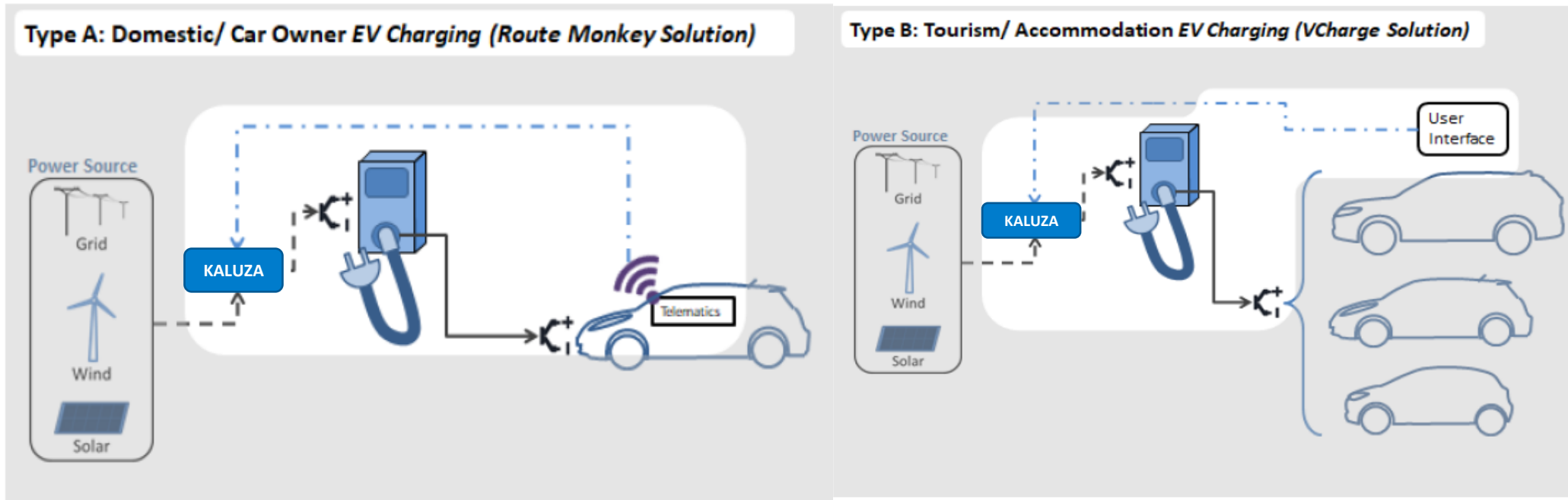
Overall Goals - Orkney

- Alleviate fuel poverty in Orkney Islands
- Maximising the productivity of the existing generation assets
- Support the rollout of electric vehicles
- Transform a semi-smart grid system (management of generation only) into a **full smart system** (management of generation and demand)
- Use existing grid infrastructure and integrating new communications and control systems, new controllable energy demand for heat and transport



Orkney: promoting electromobility to reduce RES curtailment

Two different type of data collection of “EV End Users’ habit” to make EV Charging smarter and maximizing local RES exploitation



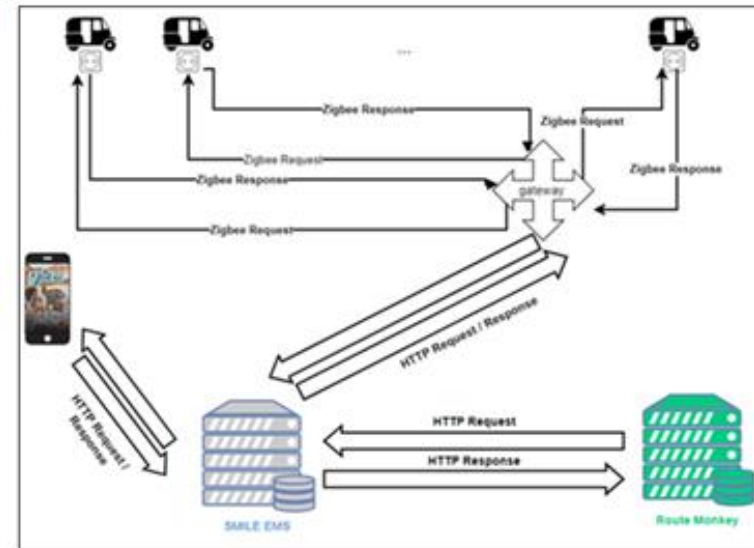
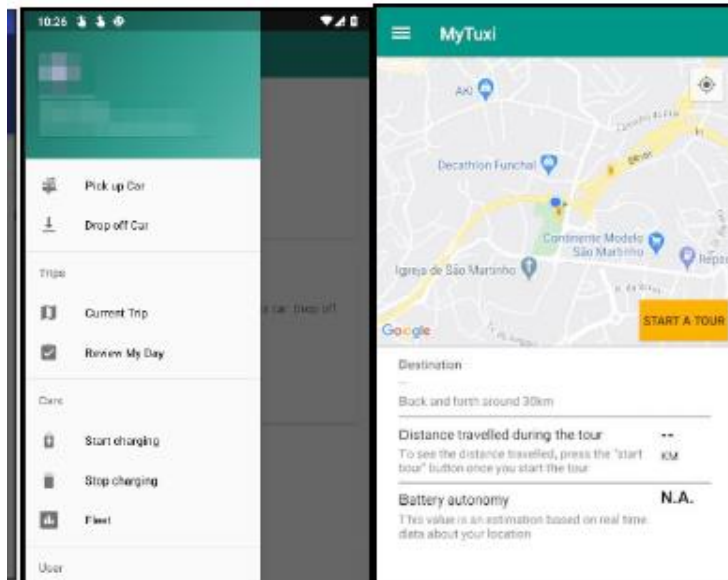
Overall Goals - Madeira

- Roll out of smart metering systems generating a significant quantity of data which will feed into a new control system enabling **smartening of the grid**.
- This, coupled with demand side management techniques (including market mechanisms such as dynamic pricing) and storage technologies, will help to: **address the increasing strain on the grid, facilitate significant additional solar capacity in the future taking advantage of the island's natural renewable resources.**



Madeira: promoting EVs among tourists

PILOT 4: Action focused on low consuming EVs such as touristic scooters (“tuk-tuk” by Tukxi Tours), a relevant aggregated fleet managed by a single end-users. Drivers were monitored via an app which suggest routing/charging periods etc. in accordance to preferred touristic habits scenarios and local grid needs.



CONCLUSION

- EVs can play a relevant role to facilitate RES integration on island and to reduce “islanders” energy/fuel bills
- Grid stability aspects have to be wisely considered
- Thus prediction of charging periods/patterns is mandatory, but to do so tourists/residents habits have to be properly monitored
- Touristic and local public transport could be a relevant asset easier to be converted to electric in a smart way



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New Energy Solutions Optimised for Islands



Renewable Energy
for Self-Sustainable
Island Communities



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Thanks for your time!

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