



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



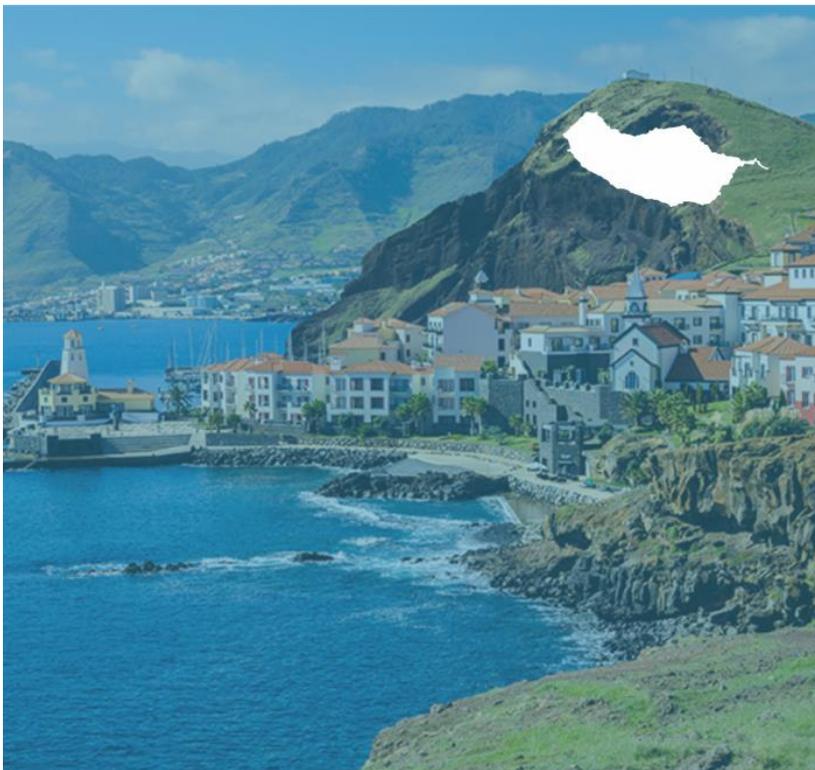
- Citizen engagement - The **REACT** project

Thomas Messervey, 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

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 731249

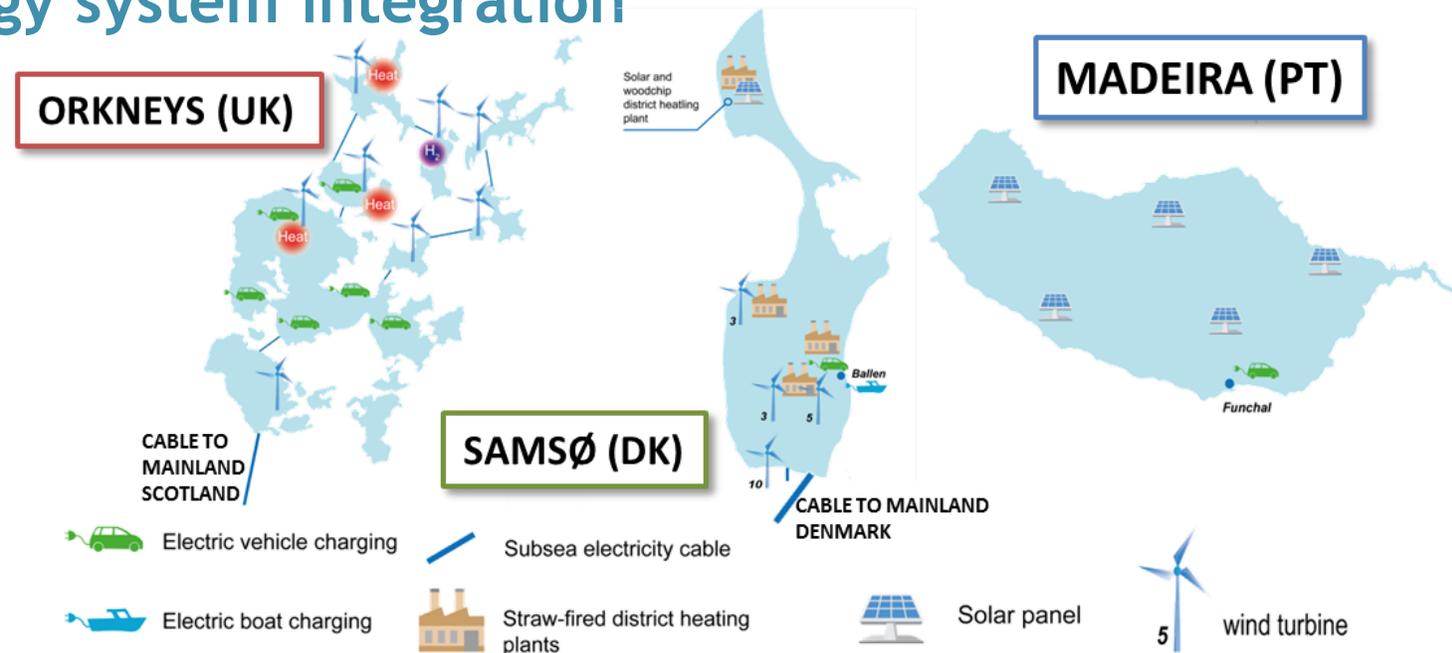


SMILE overall objective

To demonstrate solutions targeting the distribution grid to enable:

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

3 large-scale demonstrators



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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

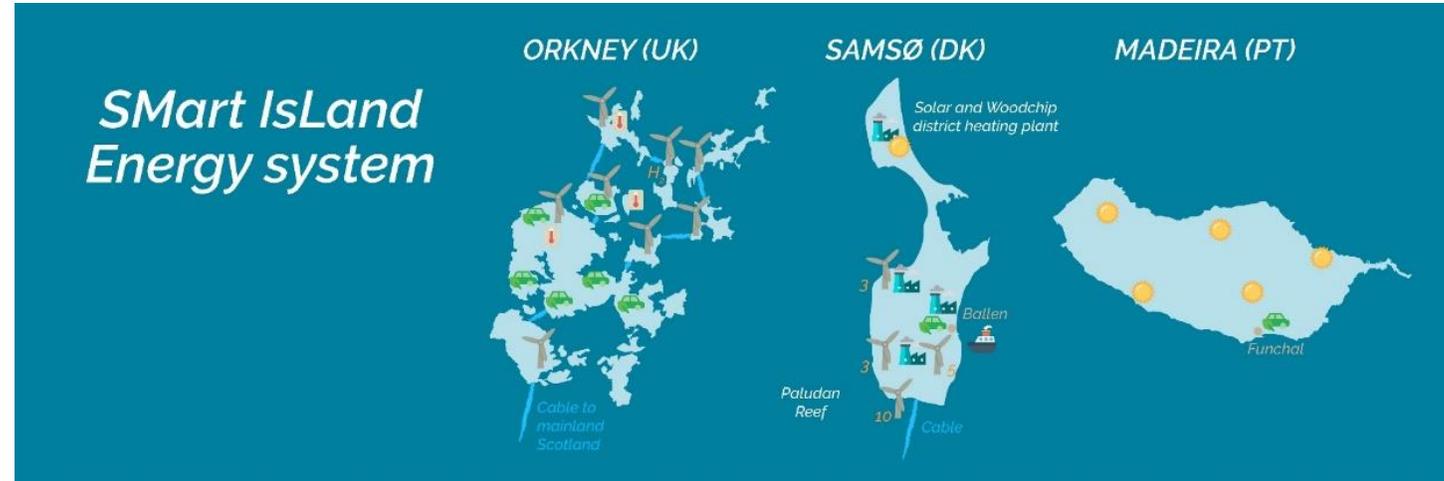
Constitute ideal candidates for demo activities requiring societal engagement & active residents' commitment.

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.**



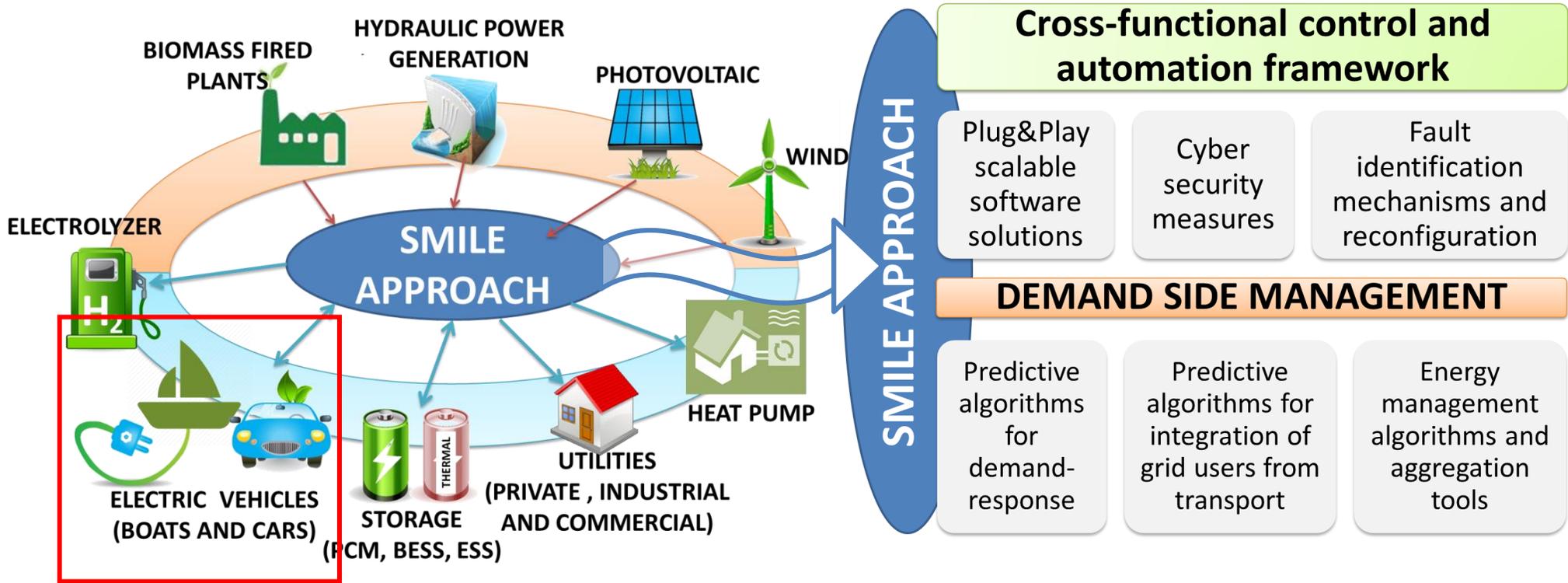
Demonstrator Specific Goals



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



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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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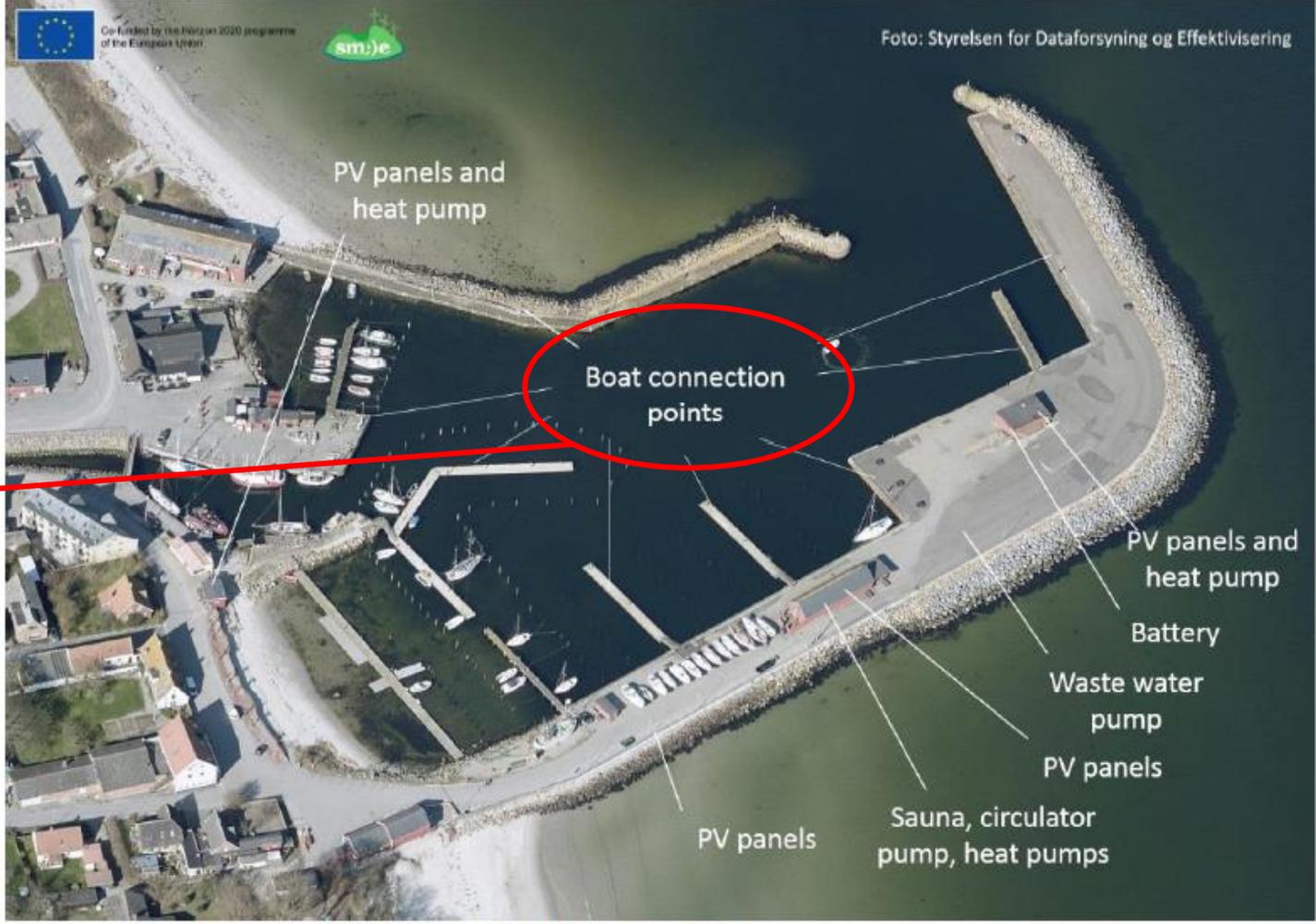


Overall Goals - Samsø

- 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



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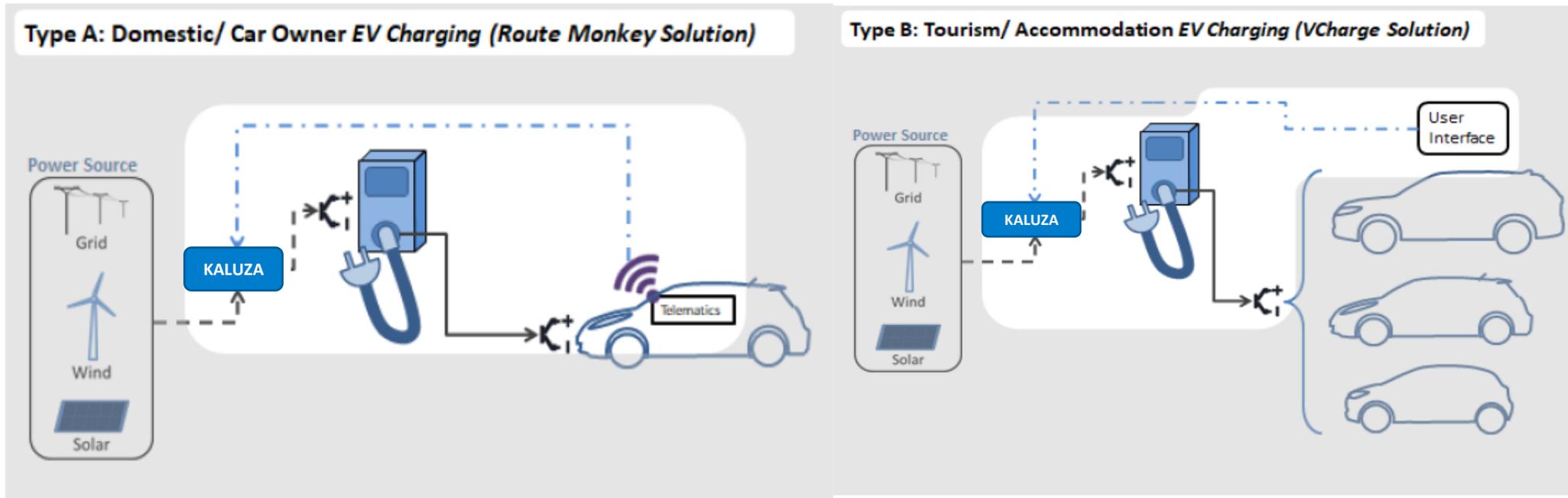
Overall Goals - Orkney

- 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



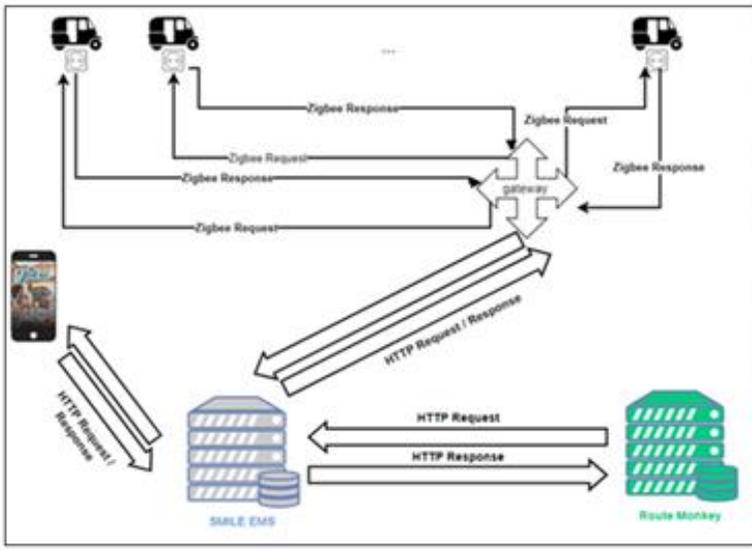
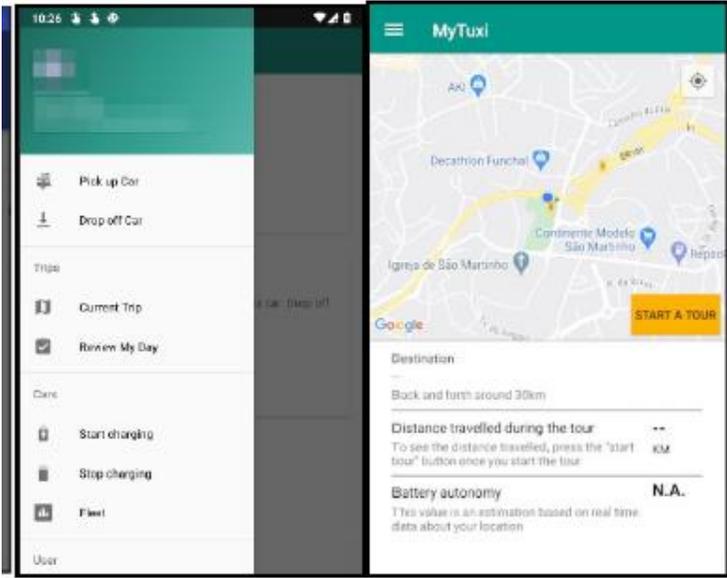
Overall Goals - Madeira

- 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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Thanks for your time!

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