SUSTAINABLE PLACES

Energy Communities in Practice: The What's and the How's Workshop

Day 2 | Wednesday 28th October | 14.00 - 17.00

MERLON / Katerina Valalaki, Hypertech SA

MERLON MUSE GRIDS IElectrix Compile

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MERLON in a nutshell

SUSTAINABLE PLACES

Integrated Modular Energy Systems & Local Flexibility Trading for Neural Energy Islands

| 6 Countries | 10 Cities

368,000 people reached

MERLON Consortium

13 Project Partners

Coordinator: Hypertech Energy Labs

Duration : 3 years

MERLON synergies and collaboration

https://www.merlon-project.eu/

EU-India Collaboration — enzen

Clean Energy for EU Islands

BRIDGE — bridge HORIZON 2020

MERLON in Europe

MERLON Partners

HYPERTECH energy labs
Newcastle University
Atos
Imperial College London
Haustechnik GÜSSING
Suite5 We Deliver Intelligence
MERIT CONSULTING HOUSE
etra I+D
cobra

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*Establish local **flexibility markets** for transparent benefits' sharing*

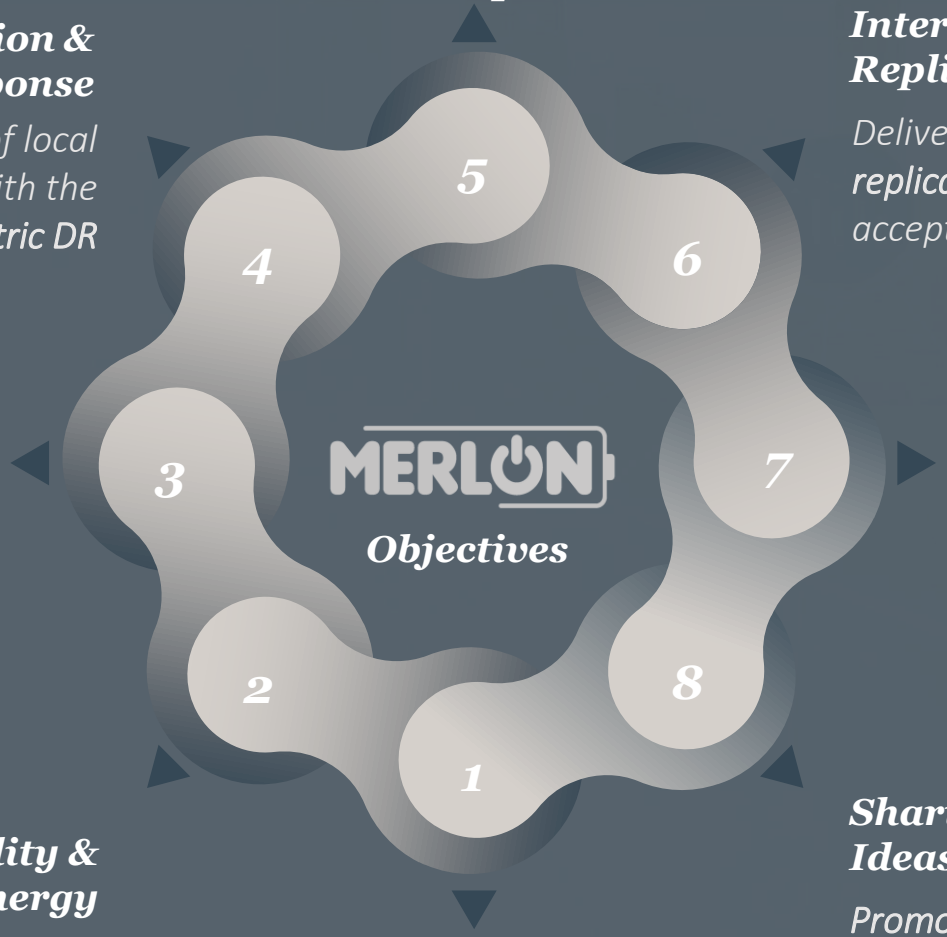
Flexibility Marketplace

Digitalization & Demand Response

*Enable **digitization** of local **energy communities** with the integration of **human-centric DR***

Interoperability & Replicability

*Deliver **interoperable** solutions **replicable** around the EU and acceptable by citizens / prosumers*



Engagement Planning

*Establish **local energy communities** & promote the **active** participation of prosumers in the energy markets*

Real-life Validation

*Validate in **real-life** environments and ensure **consumer engagement***

Reliability & Green Energy

*Safeguard local energy system **reliability** and **decarbonized** energy future through flexibility optimization*

Sharing Ideas

Promote** MERLON solution through intense **dissemination** and **knowledge transfer

Large scale capacity storage integration

Orchestrate** flexibility resources and enable **intentional islanding

MERLON Solution and Technologies for Energy Communities

SUSTAINABLE PLACES

MERLON *contributes to the* energy transition *era through the definition and realization of effective* business models for energy communities *and the provision and holistic integration of advanced* ICT interoperable solutions *that put* citizens at the center..

Human-centric Innovation

Building automation ensures preservation of user comfort, individual schedules and preferences

IoT Infrastructure

A non-intrusive IoT ecosystem in residential and commercial buildings enables flexibility valorization and participation in DR programs

Distributed Intelligence

Optimization applies to multiple levels i.e. local generation, demand & storage (incl. EVs). A transparent marketplace ensures fair benefit distribution among involved actors

BESS integration

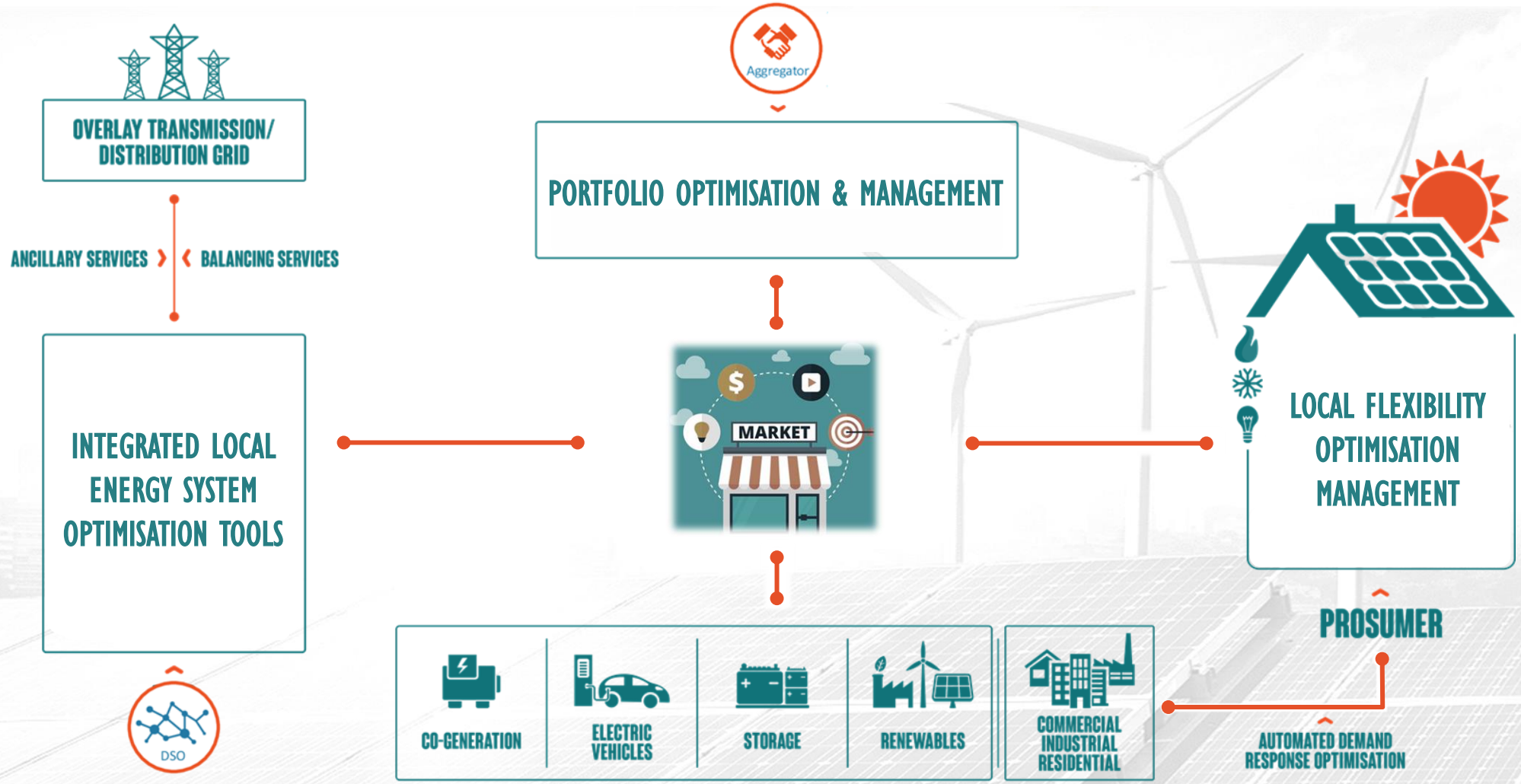
BESS at the distribution grid with grid forming capabilities supports distribution grid management and provision of balancing and ancillary services

Business Models

MERLON **Community** as:

- **Aggregator**
- **DSO**

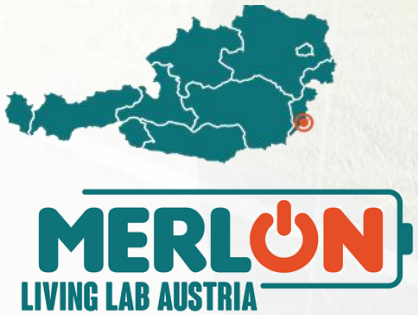
MERLON Solution and Technologies for Energy Communities



MERLON Pilot Sites

SUSTAINABLE PLACES

INTEGRATED MODULAR ENERGY SYSTEMS AND LOCAL FLEXIBILITY TRADING FOR NEURAL ENERGY ISLANDS



TWO MERLON PILOT DEMONSTRATORS

MERLON Pilot Sites

SUSTAINABLE PLACES

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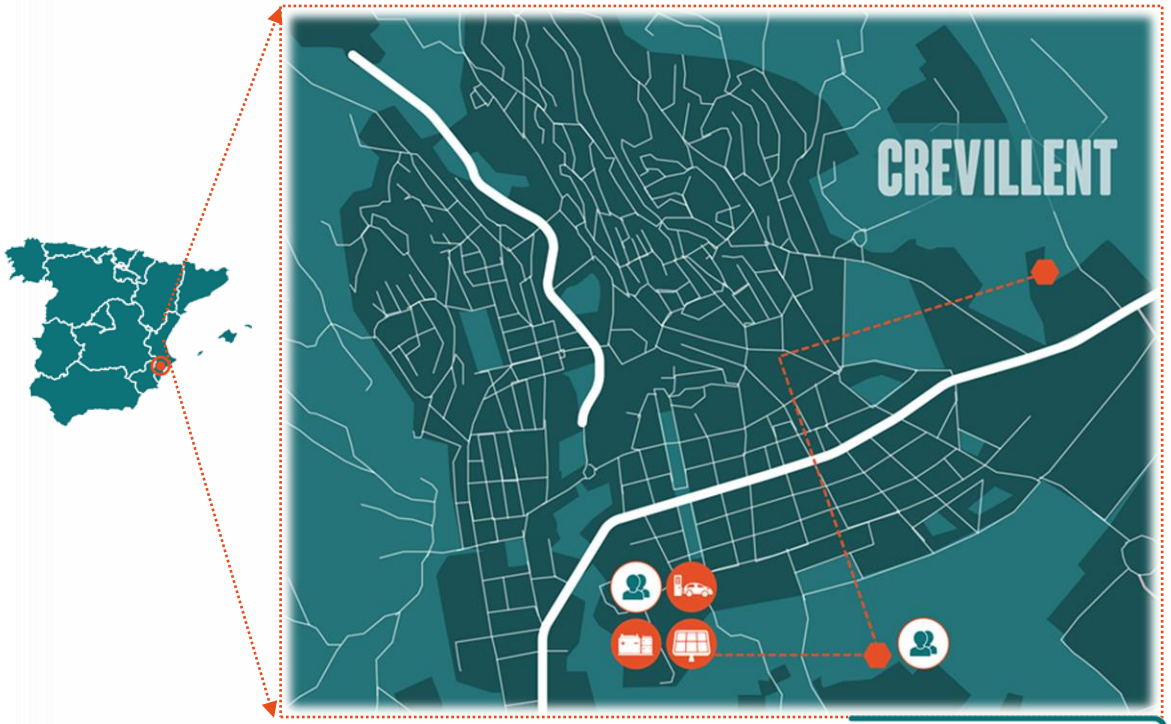
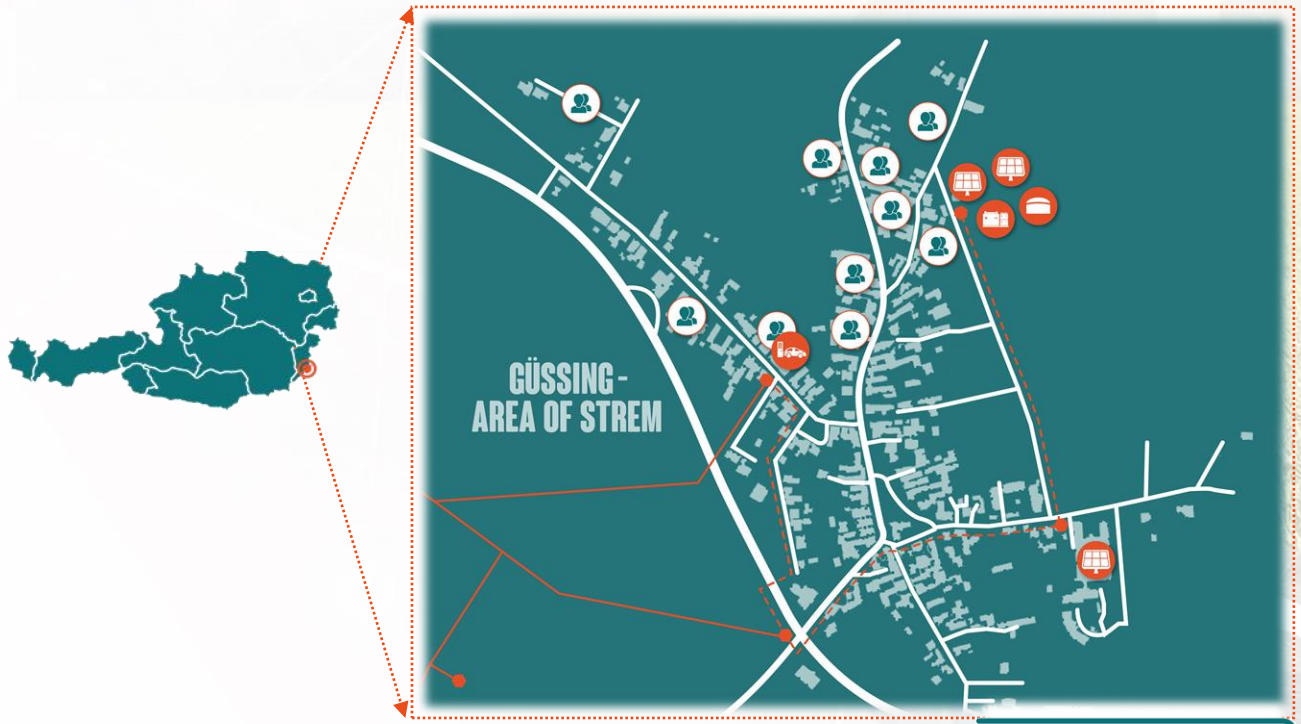
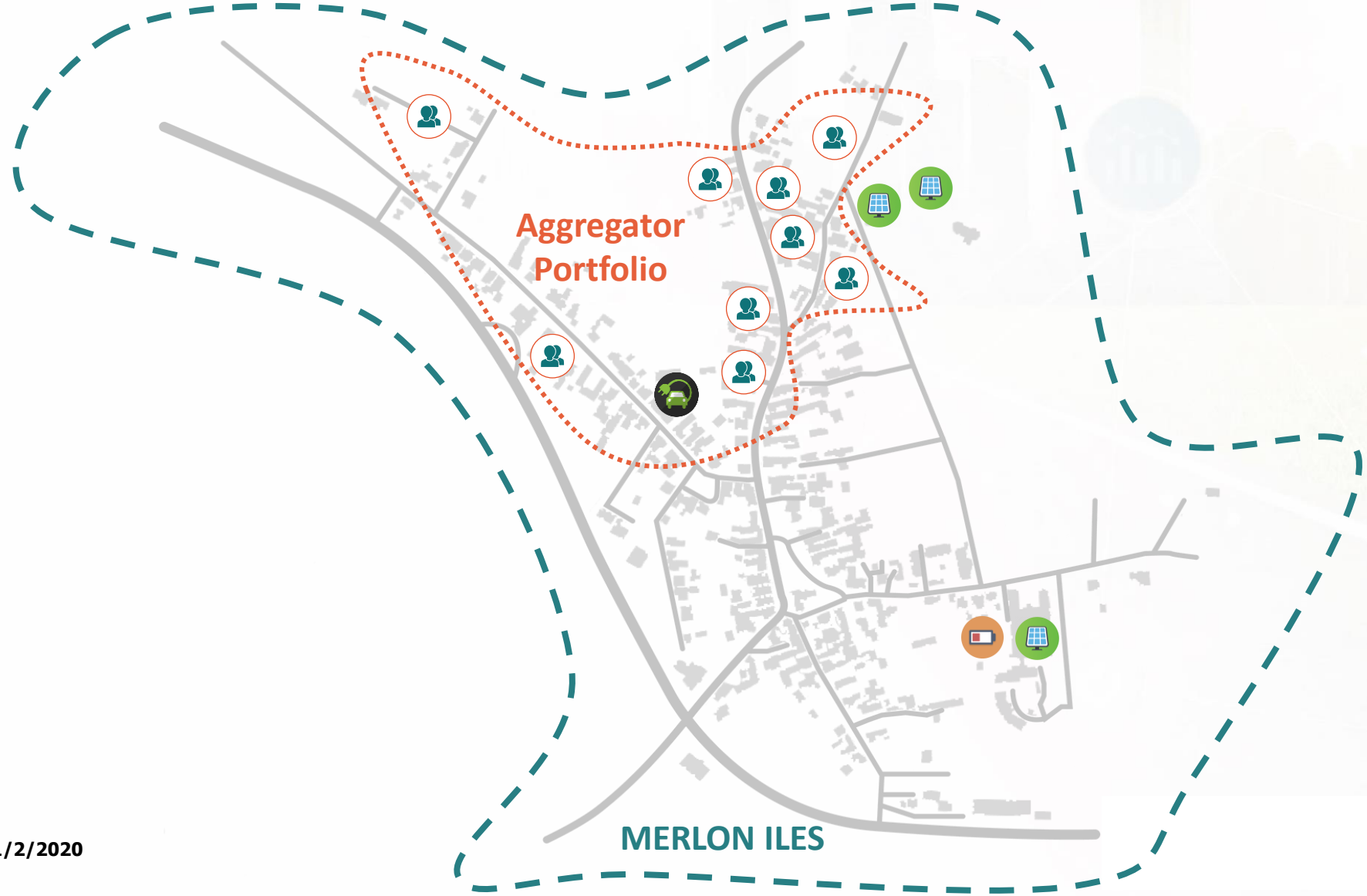


MERLON LIVING LAB SPAIN

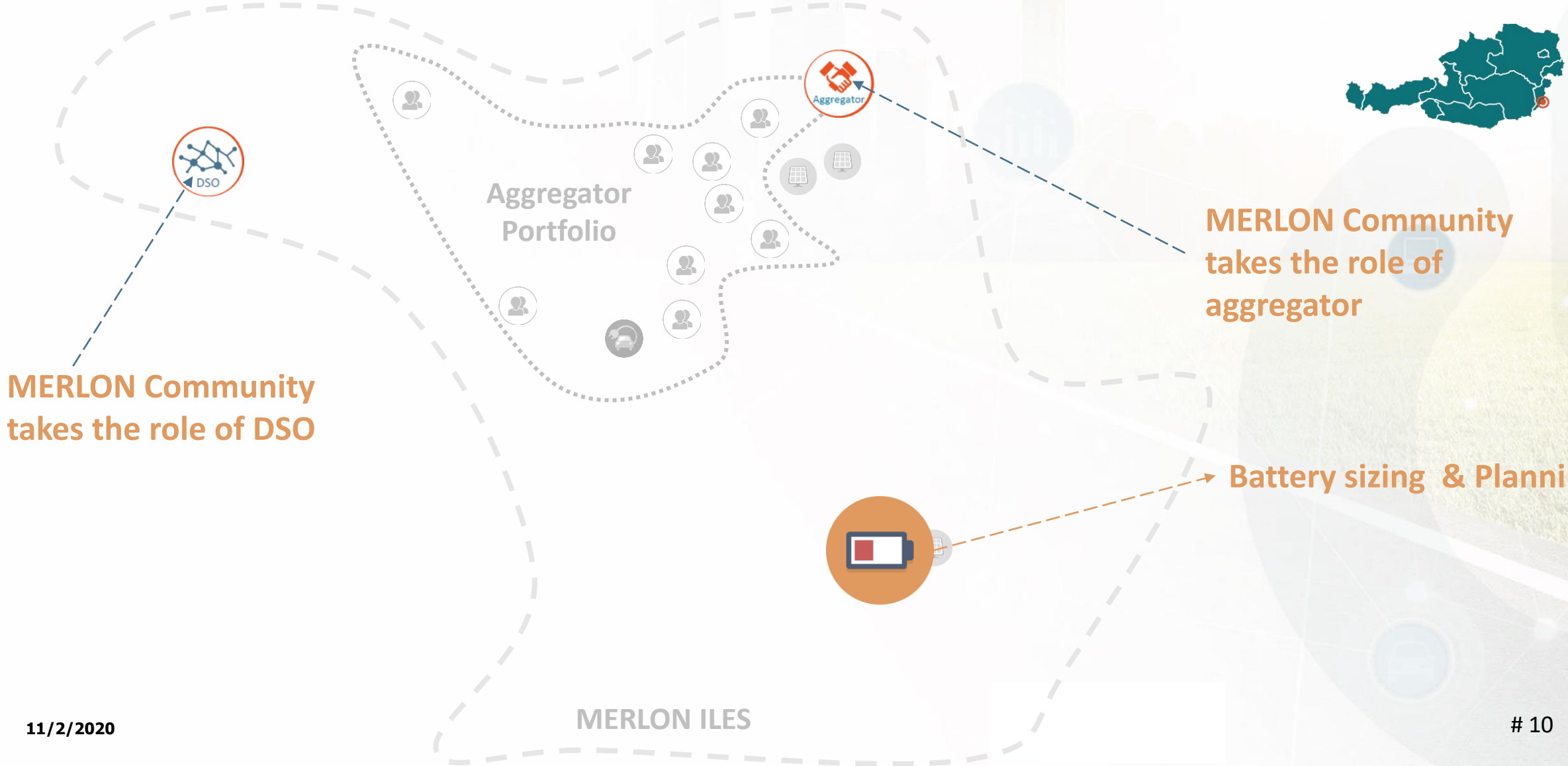


MERLON LIVING LAB AUSTRIA

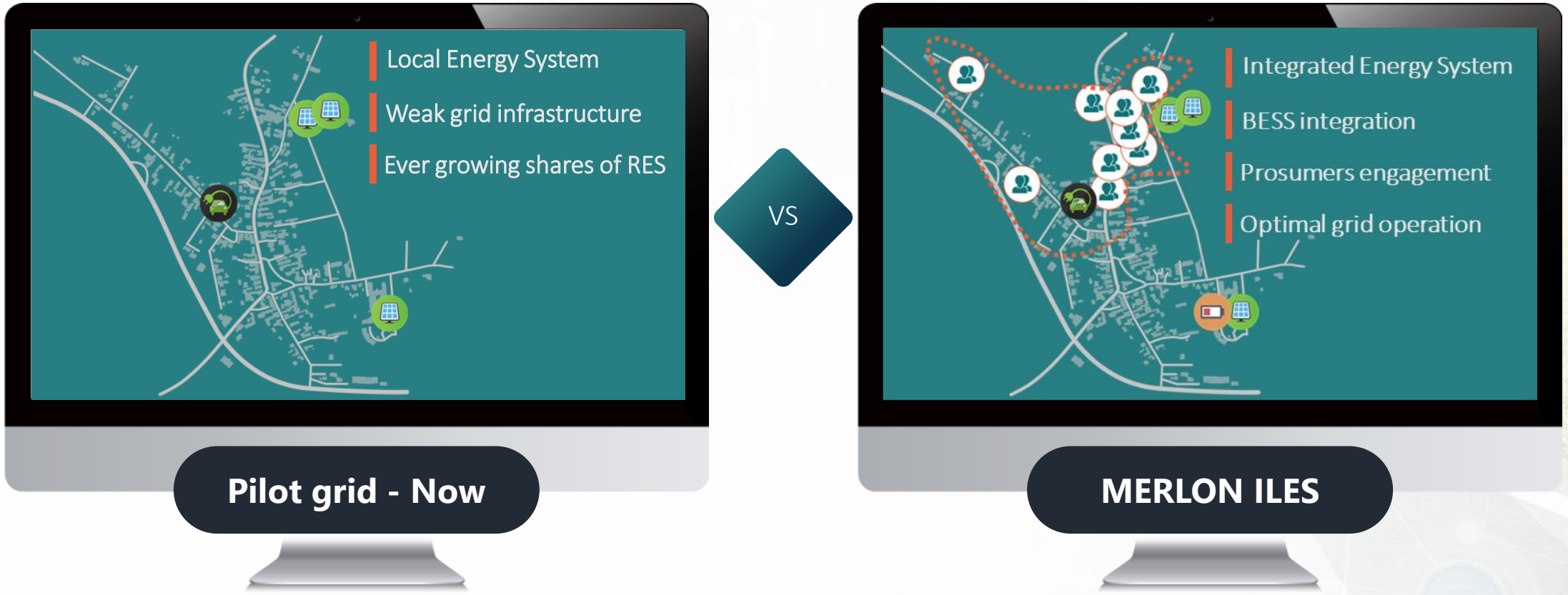
MERLON Pilot Sites



MERLON Pilot Sites



Key expected outcomes



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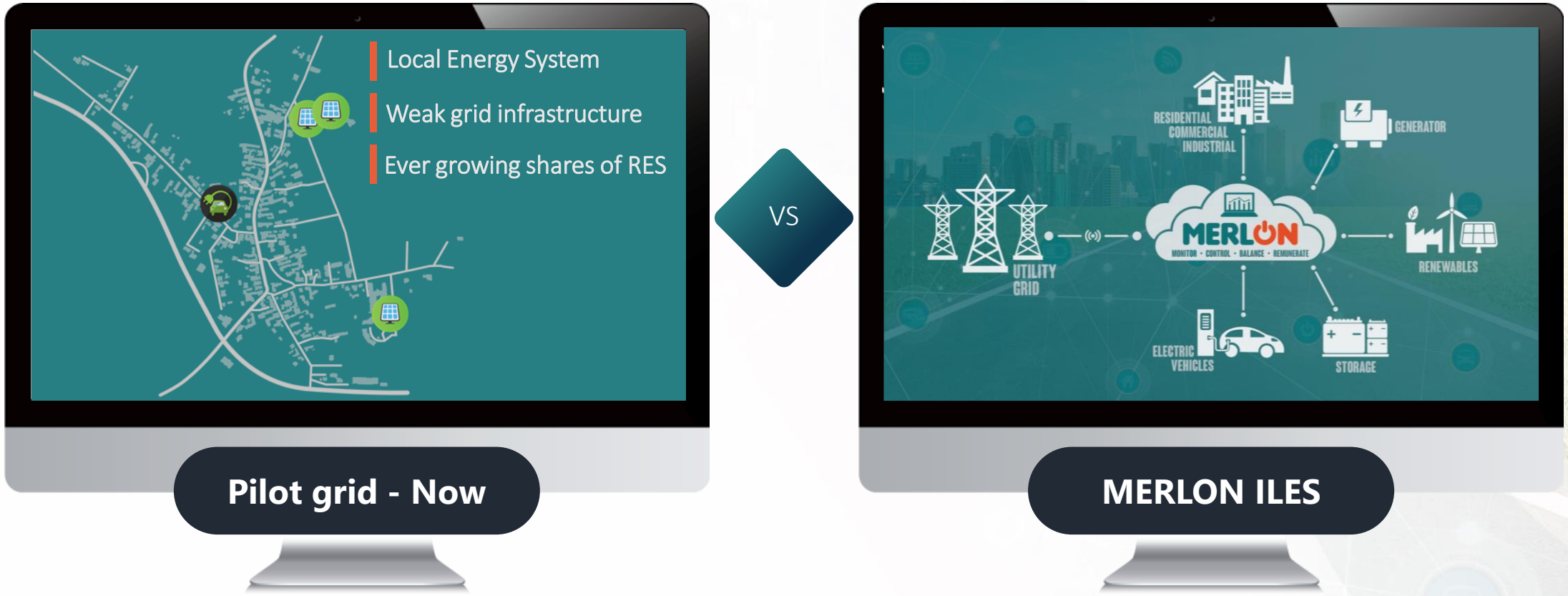

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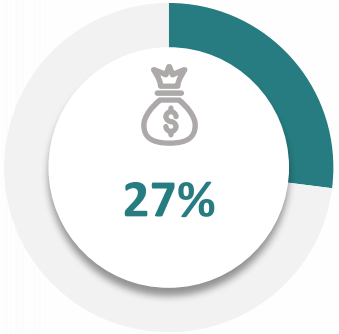


ENERGY COST SAVINGS

–

Energy cost savings with MERLON deployment

USER ACCEPTANCE

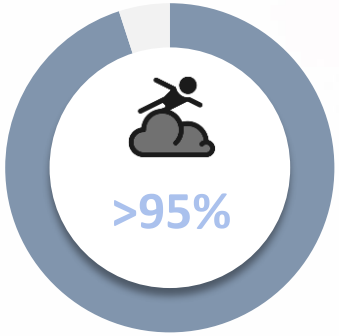
–

User acceptance rate of MERLON solution among pilot participants

PEAK LOAD REDUCTION

–

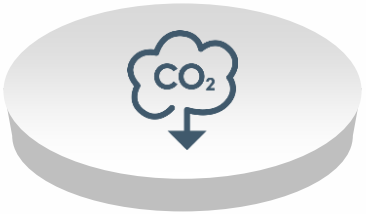
Peak load reduction due to MERLON deployment



USER COMFORT

–

User-perceived visual/ thermal comfort during MERLON interventions



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Key Challenges and Lessons Learnt

User acceptance / Importance of living lab feedback and active **engagement** of community / by raising **awareness**, we increase engagement and willingness for participation in MERLON activities

Additional protection measures within the electricity network may need to be considered for real-life **islanding** operation and ensure alignment with **national regulation**

Missing connectivity of some of available public **EV charging points** / Permissions are needed for **data gathering** / Relevant arrangements with owners aligned with GDPR provisions should be considered for **massive uptake of MERLON solution**

Existing regulation (unstable regulatory framework) poses barriers on experimentation upon innovative business models that MERLON introduces (e.g. minimum size of bids)

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