

CE4EUislands – Workshop

Smart electricity systems for facilitating the decarbonisation of islands: demand-side management and flexibility

HiHELIOS | demonstrating a High-energy and High-power hybrid battery storage solution platform for multiple grid services

#@APP-FORM-HERIAIA@#

HIHELIOS PROJECT

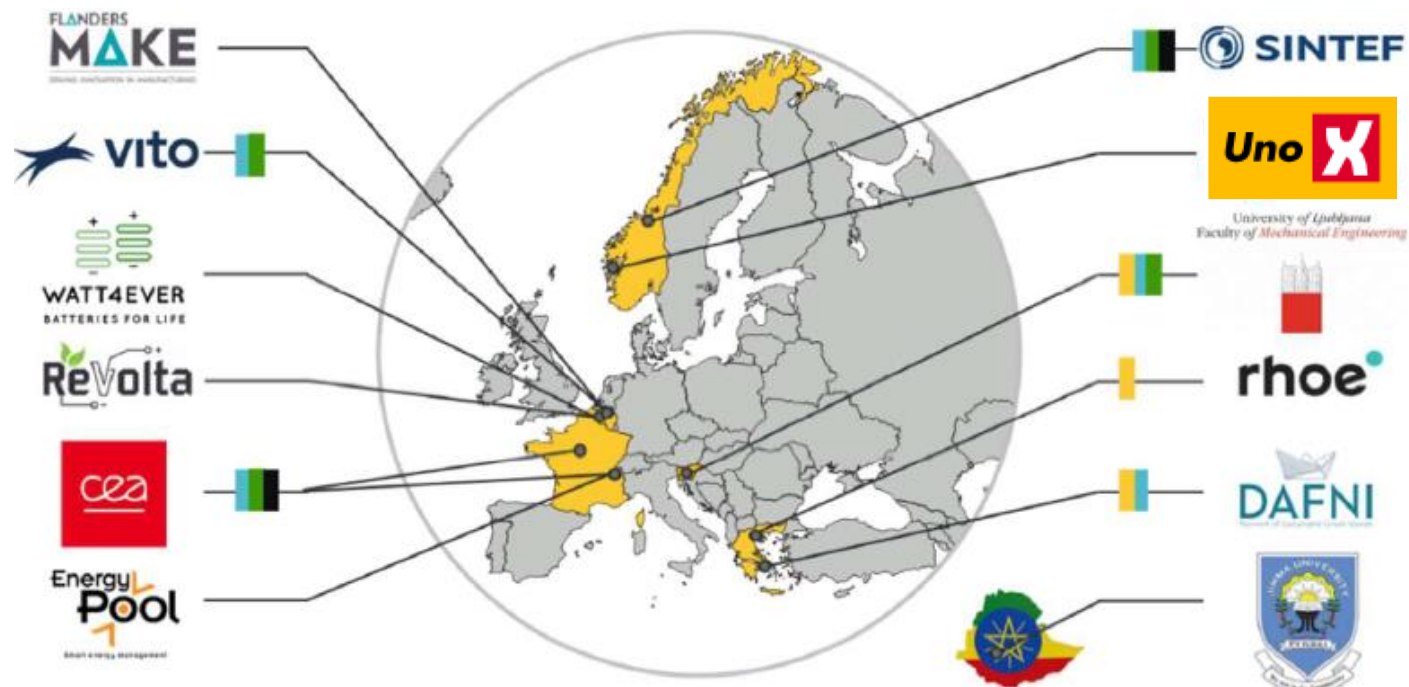
Mohsen Akbarzadeh | Flanders Make



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DEMONSTRATING A HIGH-ENERGY AND HIGH-POWER HYBRID BATTERY STORAGE SOLUTIONS PLATFORM FOR MULTIPLE GRID SERVICES

- **Call topic:** HORIZON-CL5-2023-D2-01-05
- **Type of Action:** HORIZON-IA
- **Start date:** 01 Dec 2024
- **Duration:** 42 Months
- **Budget:** 6 m€
- **Coordinator:** CEA
- **12 partners, 6 countries**



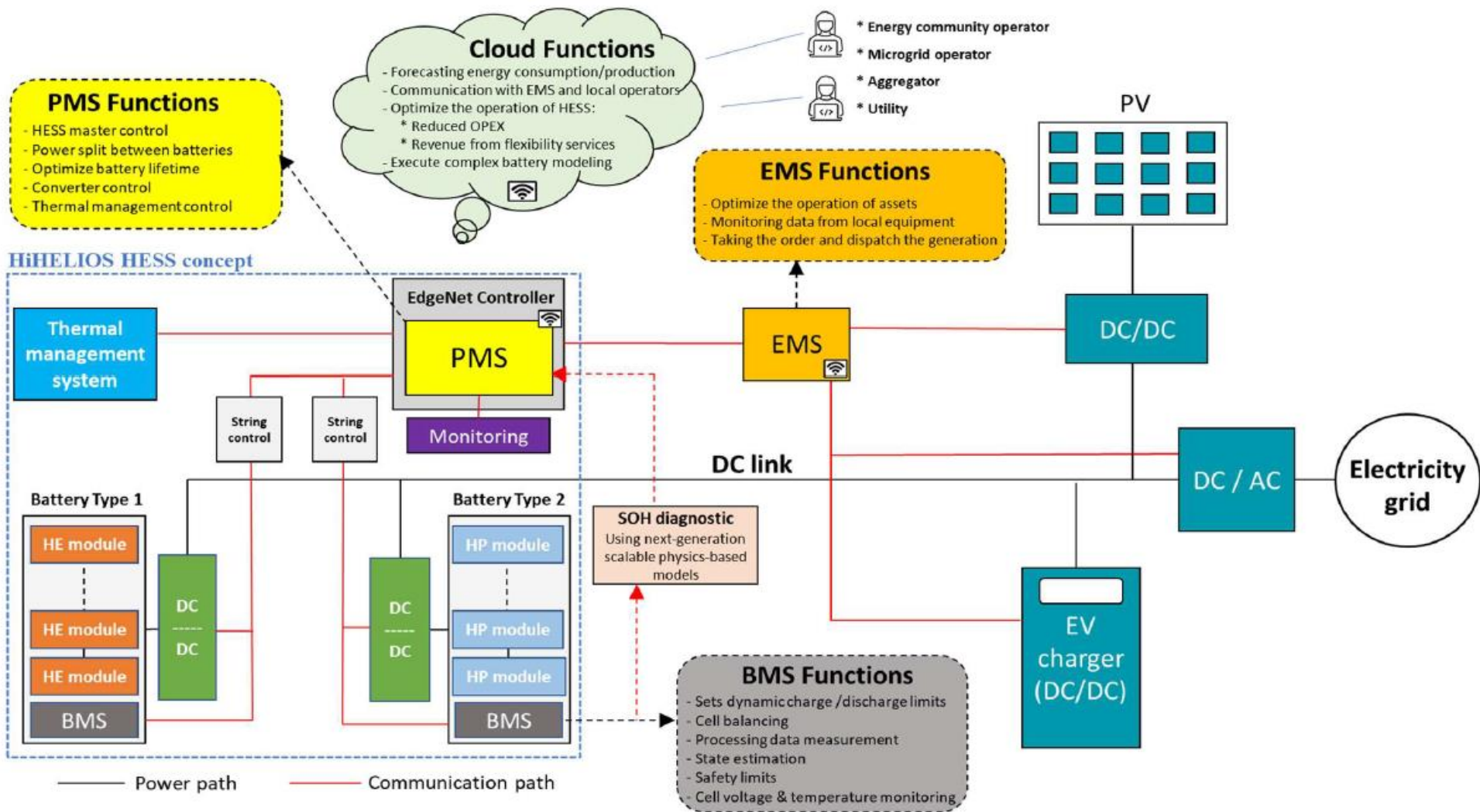
OBJECTIVES

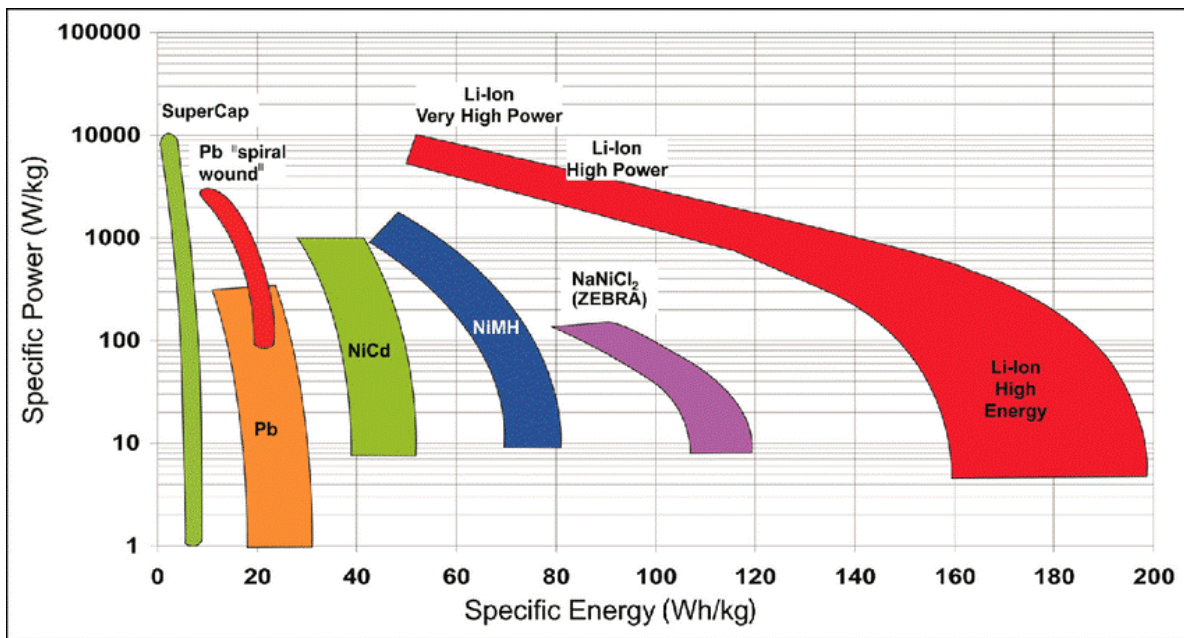
- 01.** Developing a **modular, flexible** and **scalable** system architecture for **hybrid battery topologies** for stationary applications
- 02.** Develop a **digital simulation framework** for optimal hybrid battery system **design and sizing**
- 03.** Develop an **interoperable, scalable, robust, multi-layered** and **cyber-secured** control system
- 04.** **Physics-based** and **data-driven** multi-chemistry models for real-time **SOH diagnosis**
- 05.** Model-supported hybrid battery system **engineering** and **manufacturing** and demonstration at TRL 7
- 06.** Socio-techno-economic and **LCA assessment, business case analysis** and **exploitation strategy**





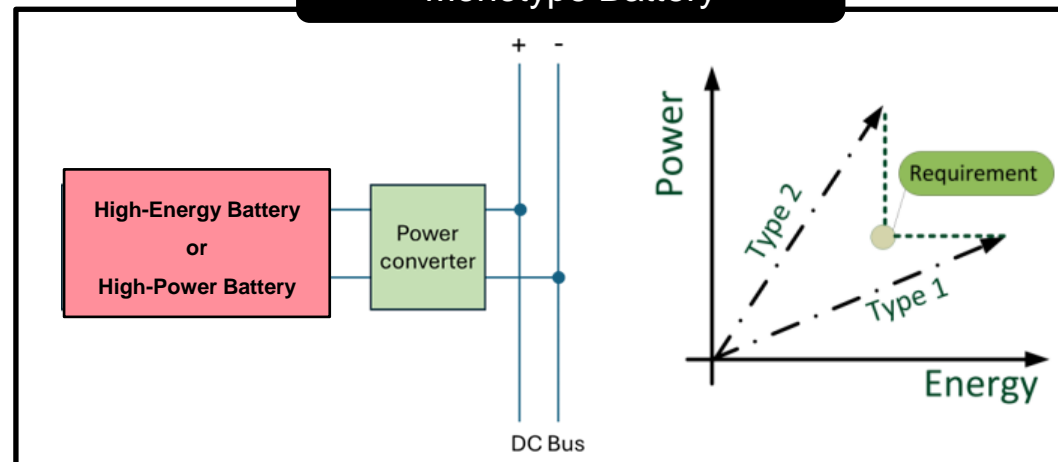
CONCEPT



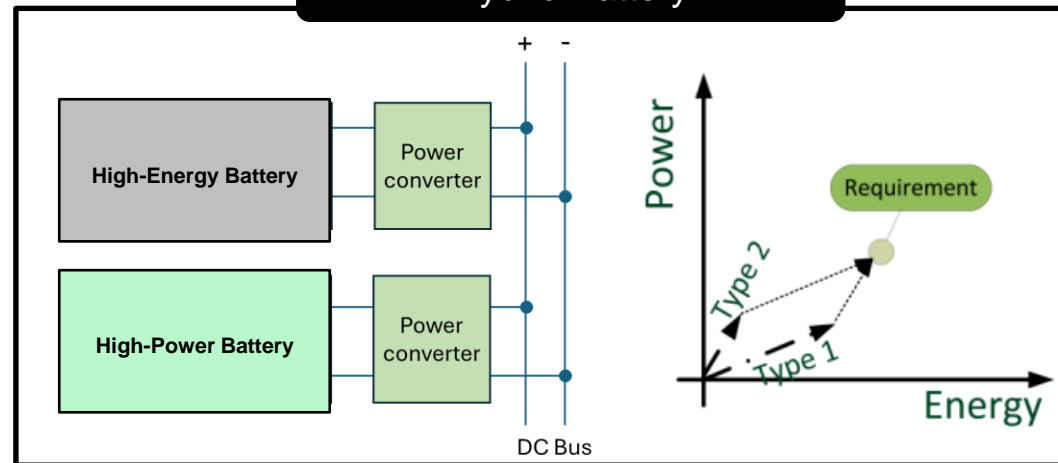


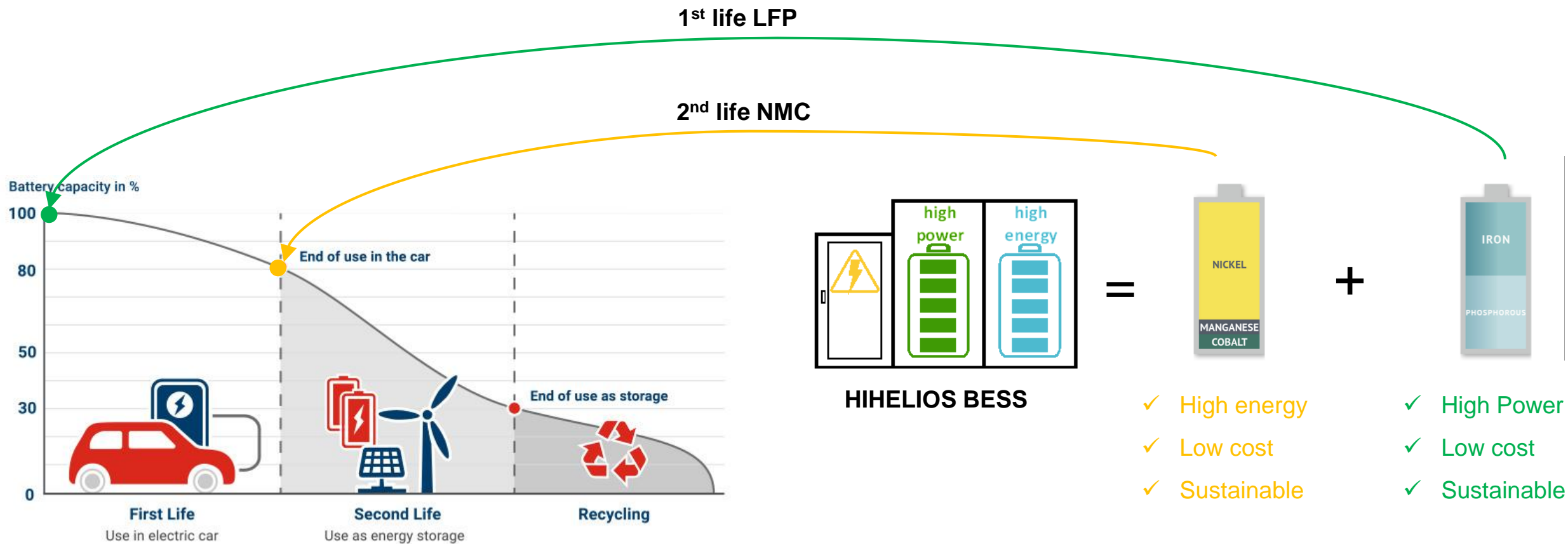
High power trades off energy, and high energy sacrifices power—no chemistry delivers both

Monotype Battery



Hybrid Battery





Fast EV Charger



Smart EV Charger



Marina Charger



Municipal aggregator





Tilos electrical system is part of non-interconnected electrical system of Kos-Kalymnos. The Kos-Kalymnos system includes thermal stations of a total capacity of 213,69 MW, solar PV of about 10 MW, wind farms of 15,2 MW.

- ✓ **The HiHelios BESS will be integrated to the Livadi port settlement**
- ✓ **The HiHelios BESS will be integrated to the PV station enabling enabling Tilos' full decarbonization**

Thank you for your attention!