Applicazioni Energy Storage per le smart grid

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Workshop ENEA - Sistemi avanzati di accumulo dell' energia

Roma, 03/07/15

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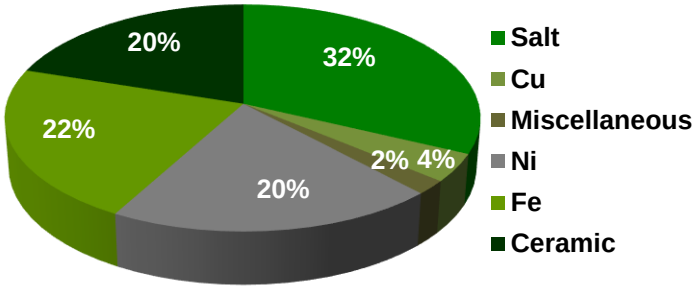
FIAMM SoNick/ Technology

2NaCl + Ni ⇄ NiCl2 + 2Na

discharged — charged cell



Performances

- ✓ Hot cell (~270°C inside)
- ✓ **Temperature Immunity** (-40 ÷ +60°C)
- ✓ Cycling Capability > 4.500 cycles (80% DOD)
- ✓ Battery energy density 100÷120Wh/kg 150-190Wh/lt
- ✓ Shelf life (> 20 years)
- ✓ No memory effect

Safety

- ✓ **Intrinsically safe**, electrochemical safety
- ✓ No gas emissions
- ✓ **No flammable materials**
- ✓ **No fire/water flood reaction**
- ✓ Industrial Process Control
- ✓ Tested in the field (EV, TLC, ESS,...)
- ✓ BMS control
- ✓ Cell/Battery Mechanical case

Zero Impact Battery

- ✓ NO dangerous materials
- ✓ **100% recyclable**
- ✓ NO pollution materials
- ✓ NO gas emissions

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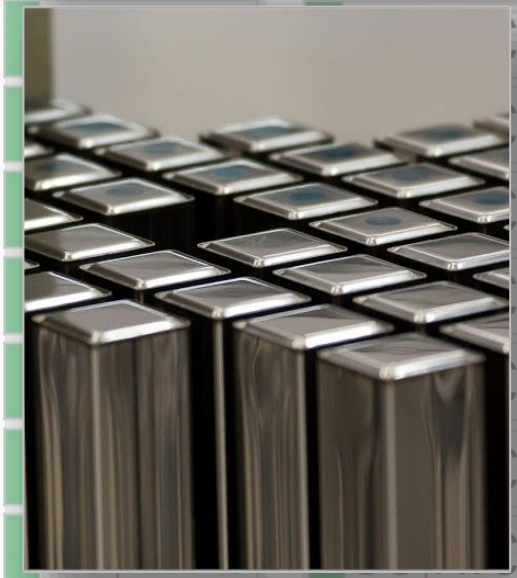

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FIAMM SoNick/ Solution Range

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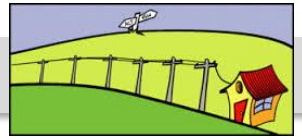
ENERGY STORAGE / Market Value Chain

1 Generation

&

2 Grid Management

3 Transmission & Distribution



4 Retail ("behind the meter")
- Commercial
- Residential

5 Off- Microgrid
Micro-Grids

smart grid

6 Others (UPS, TLC,…)

Out of Scope

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FIAMM SoNick/ Smart Micro-Grid TILOS Research Project (Horizon 2020)

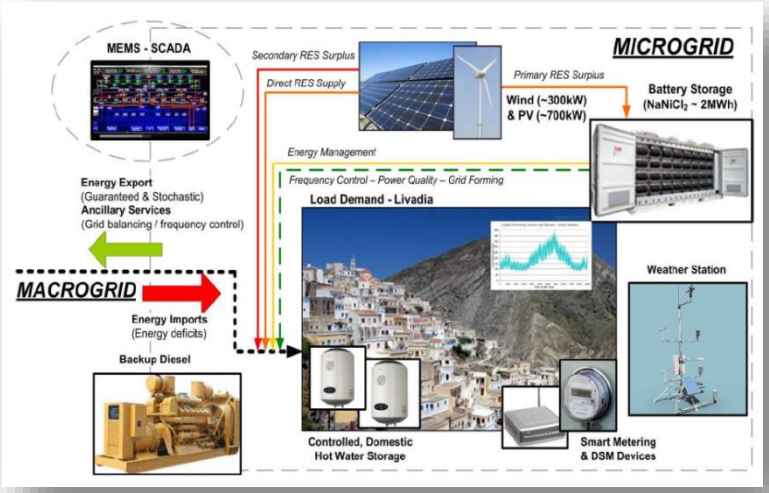
Location: Tilos - Greece

ENERGY STORAGE

UNIT: 2 Energy Spring 164 (128 ST523 620V 23,5kWh)

ENERGY: 2,4 MWh

POWER: 800 KW



- Smart-Grid
- Micro-Grid energy management
- Energy Intensive Services
- Maximization of RES penetration
- Grid stability
- Ancillary services to the main grid of Kos

WithTechnological Educational Institute of Piraeus (Greece), CEA (France), Younicos (Germany), WWF (Greece), Open Energy (UK) etc. for TILOS Island

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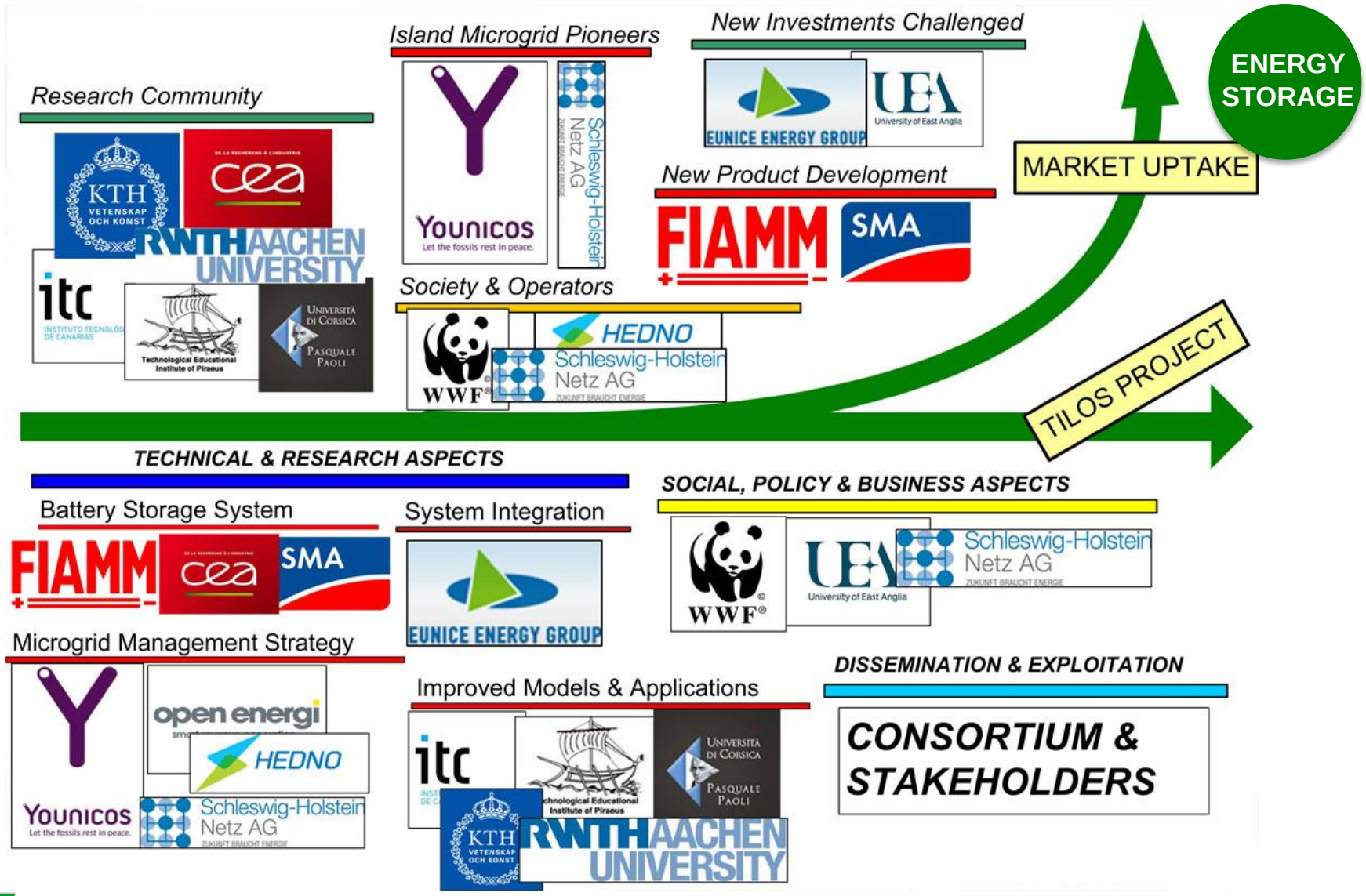
FIAMM SoNick/ TILOS project goals



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