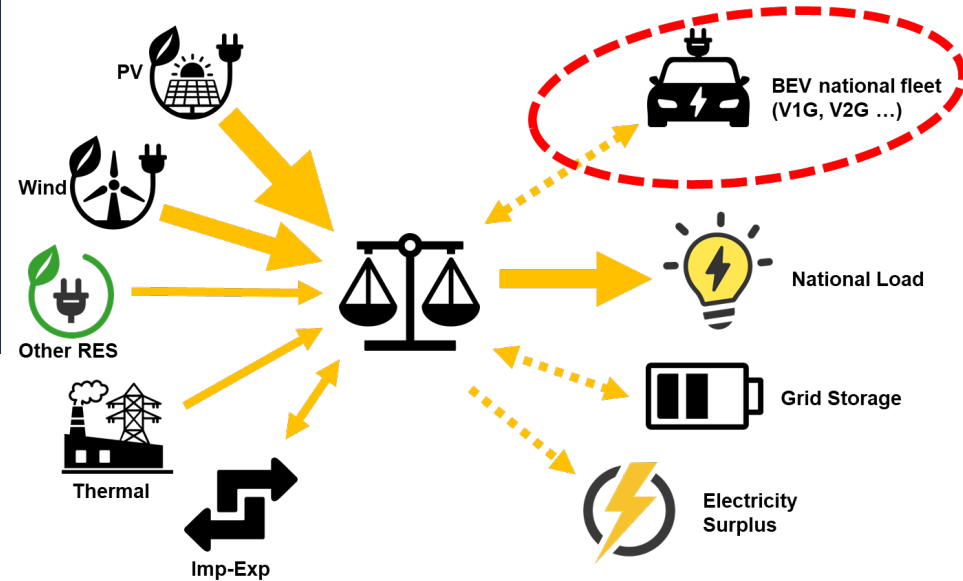
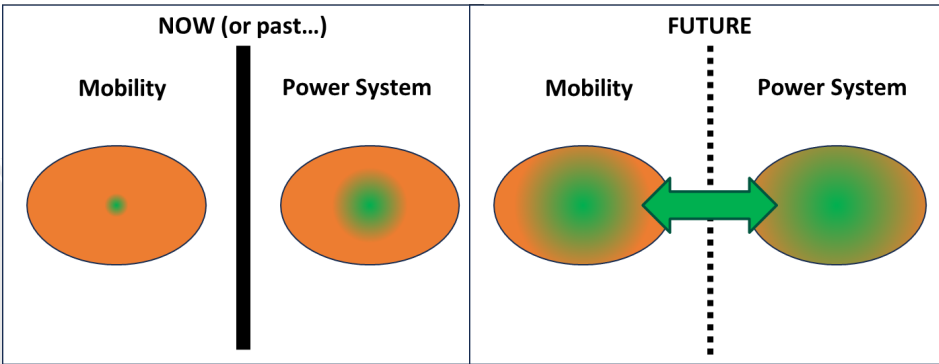


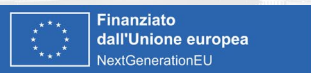


Ongoing activities:

Since 2023, involved in the PNRR project **MOST (Centro Nazionale per la Mobilità Sostenibile)**, collaborating with 24 universities, the CNR, and 24 large companies, with the mission of implementing modern, sustainable, and inclusive mobility solutions across the entire national territory. **Spoke 13 Electric Traction system and batteries.**



<https://www.centronazionalemost.it/>

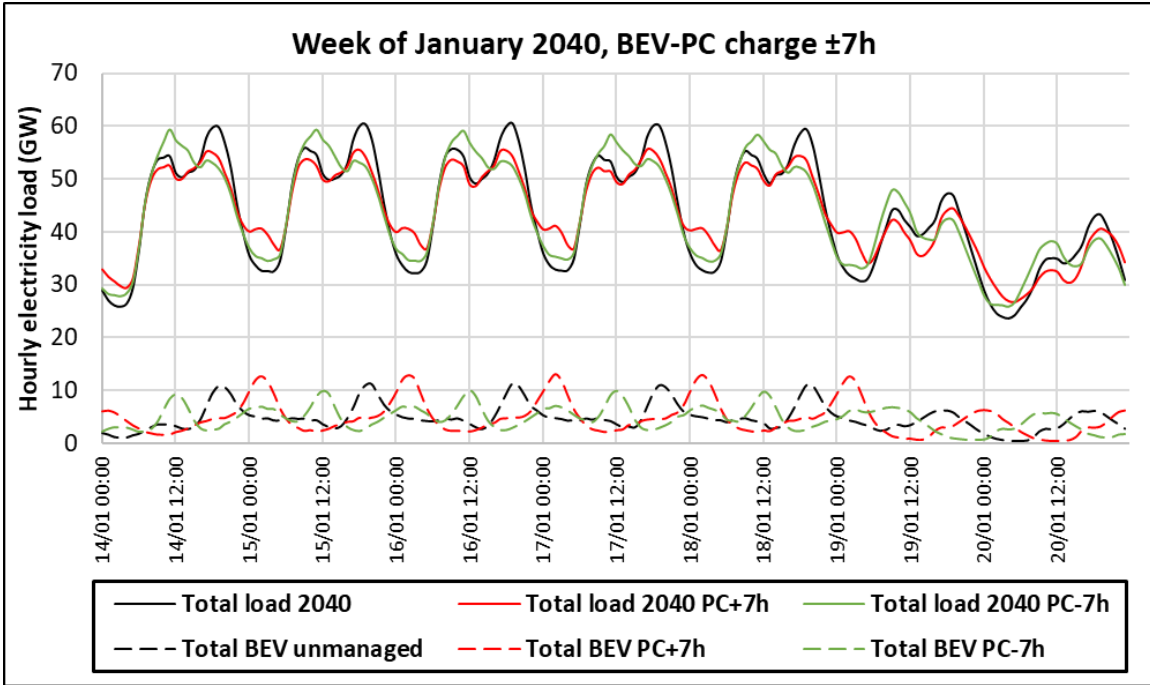


DESTEC - DEPARTMENT OF ENERGY, SYSTEM, TERRITORY AND CONSTRUCTION ENGINEERING -
UNIVERSITY OF PISA



Ongoing activities:

Electricity mix is changing: dispatching of non-programmable RES is an open issue. Is the increasing penetration of BEVs an **obstacle** or an **opportunity** ?



Simple V1G management can lead to **significant improvement** in grid balance, RES penetration, grid storage requirement, and overall GHG emissions. **BEVs have tremendous potential for load shifting.** With **V2G** may also directly supply energy to the grid, but more difficulties arise.



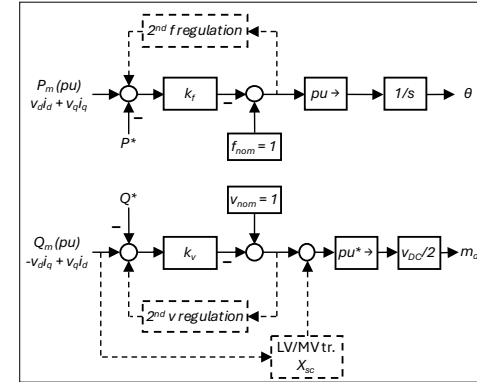
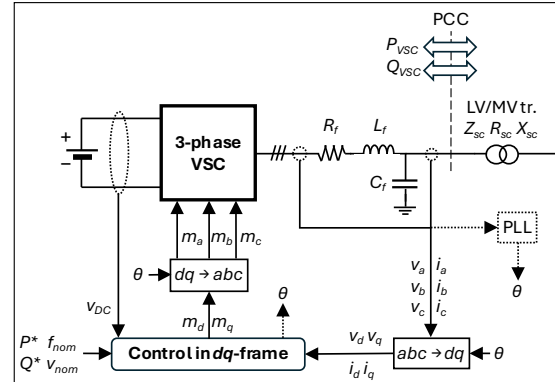
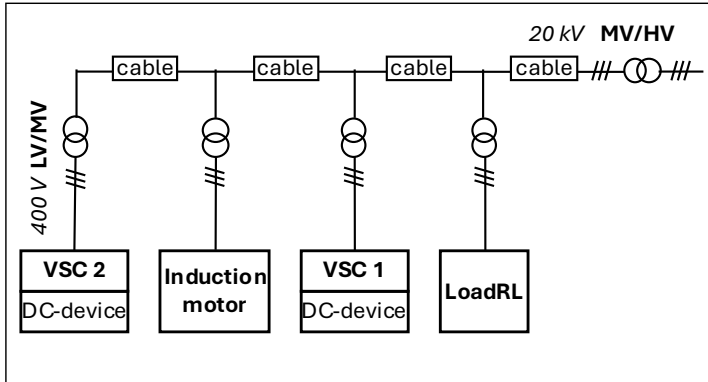
Ongoing activities:

The massive deployment of RES generation interfaced to the grid by power electronic (PE) converters replaces synchronous generation and therefore reduces the total system spinning **inertia** -> low **stability** (resilience).

Devices connected to the grid with VSC (Voltage Source Converter), potentially **grid-forming** :

- PV panel
- Wind turbine
- Grid-scale electrochemical storage (nowadays only Li-ion reached market readiness)
- ...
- **BEV charging infrastructure !** (small VSC or bigger stationary VSC for DC-charge)

All these devices can improve the stability and regulation of the whole power system in a short timescale.





Ongoing activities:

All these devices can improve the stability of the whole power system. Islanding and black-start capability.

