DEMO SITES

Industrial Campus in Grenoble, FR

Smart House in Cardiff, UK

Residential Building in Bergamo, IT

PROJECT PARTNERS

TRACTEBEL is one of Europe's major engineering consulting firms world-wide. TRACTABEL will be in charge of the coordination of the project and the electricity grid simulation

Schneider Electric is a global specialist in energy management and integrated solutions. Schneider Electric will perform tasks related to the integration of TABEDE solution and demo site manager in France.

Schneider Electric SPA is a global specialist in energy management and integrated solutions. Schneider Electric SPA will perform tasks related to the integration of TABEDE solution and demo site manager in Italy.

CSEM , is a private, non-profit Swiss organization for applied research, with its origins in research for the watch industry. CSEM is in charge of the development of the TABEDE Hardware and Software

Cardiff University is one of the ten largest universities in the UK and a member of the Russell Group of RIU. CU will bring its expertise for the establishment of the simulation environment, optimization algorithm

R2M Solution is an innovation company that aggressively targets filling the gap between research activities and market implementation R2M is responsible for the dissemination and exploitation activities of the project.

CEA is the French Atomic and Alternative Energy Commission, a leading European RTO in France. CEA will be in charge of the energy system modelling, advance control and testing.

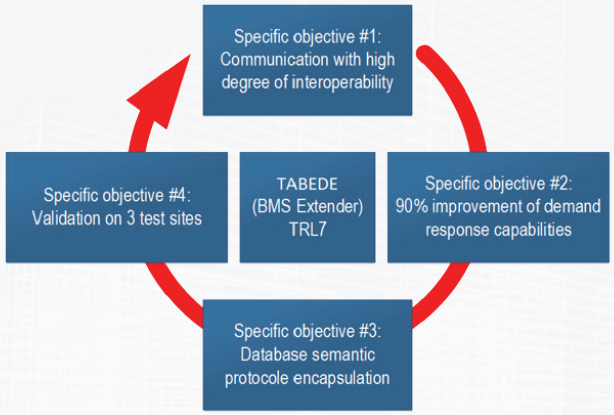
TABEDE

Towards buildings ready for Demand Response

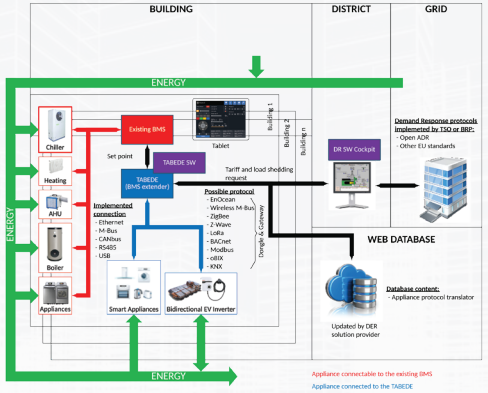
www.tabede.eu

This project has received funding from European Union's Horizon 2020 research and innovation programme under grant agreement n° 766733

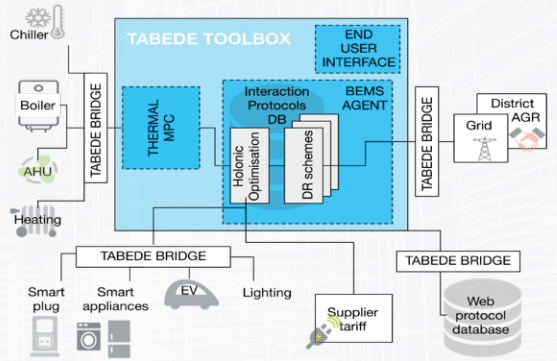
PROJECT OBJECTIVE



OPPORTUNITIES



TOOL BOX



- Develop an interoperable, DR-ready BMS extender that is compatible with at least 90% devices and systems
- Enable standards-based semantic exchange of information between secure web database of home appliances, and BMS and smart-grid for seamless system integration
- Maximize building flexibility to improve building demand response capabilities up to a factor of 2
- Expose all building flexible loads including building inertia through a Model Predictive Control
- Ensure beneficial impact (cost and energy saving) for building stakeholders
- Deployment of TABEDE on three test sites that are representative of EU conditions in terms of climate, building occupancy and energy infrastructure
- Demonstrate TABEDE technologies and functionalities through extensive simulation-based testing

Demand response provides consumers with control signals and/or financial incentives to adjust their consumption at strategic times, which is essential to achieve the 20-20-20 vision—by increasing energy system's adequacy; reducing the need for investment in local network upgrade and peaking generation through peak shifting of consumption; and balancing distributed renewable energy generation in a cost-effective manner. A significant share of demand response potential across Europe (93 GW of load reduction and 247 GW of load advancing) comes from heating, ventilation and air conditioning (HVAC), washing and hot water storage in residential and commercial buildings.

What if a solution could unlock the buildings demand response potential?

That's exactly what TABEDE does.
TABEDE aims to allow all buildings equipped with Energy Management Systems to integrate energy grid demand response schemes, independently of communication standards.

- Model predictive control (MPC) component will be integrated in the TABEDE BMS agent to take advantage of the evolving external conditions (e.g. varying irradiance due to cloud cover), with corresponding forecast of distributed generation (DG)) - thereby maximising the utility of DERs in terms of cost saving, energy-use and emissions reduction.
- Demand-response protocols. In order to enable the grid to access the building consumption flexibility in a generic and standardized manner, the TABEDE toolbox will integrate new DR protocols transparently via the connection with the TABEDE web database
- Aholonic optimisation component. A holonic optimisation is proposed to consider all the building sub-systems as well as the incentives that the building can get through its participation in DR programs.