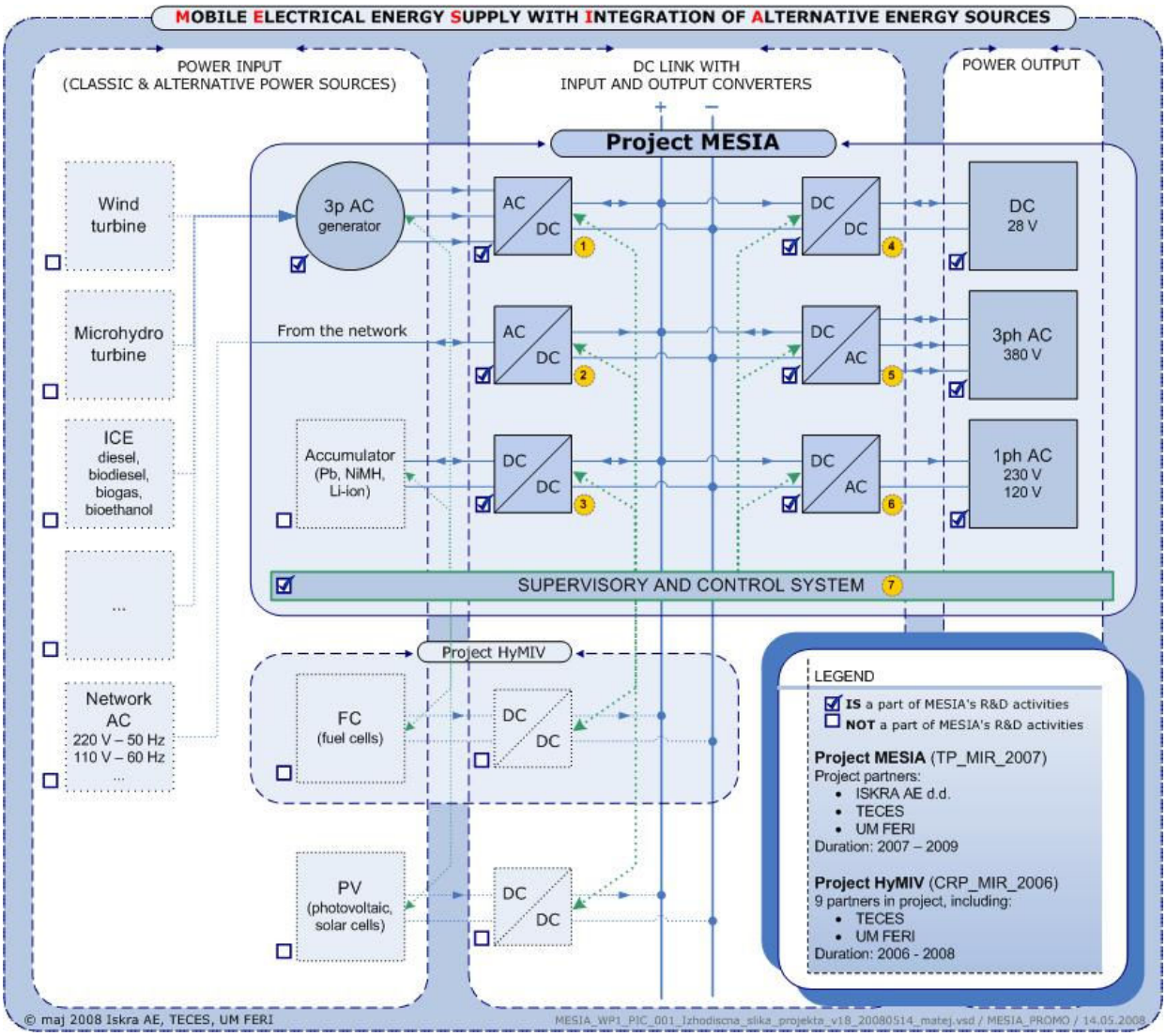
# MESIA

## MESIA - Mobile electrical Energy Supply with Integration of Alternative energy sources

The MESIA project is running based on the public tender **"Technology for Safety and Peace 2006-2012" technology programme TP MIR'07 of Ministry of Defence of the Republic of Slovenia.**

Partners in project are Iskra Avtoelektrika, TECES - Development Centre for Electrical Machines and University of Maribor, Faculty for Electrical Engineering and Computer Science.

Modern military and civil professional systems need AC and DC electric power supplies at different voltages and frequencies for their operation. When electric energy is required at locations and in conditions with no public network, an autonomous source is required, to provide enough electrical energy for reliable operation of the equipment.



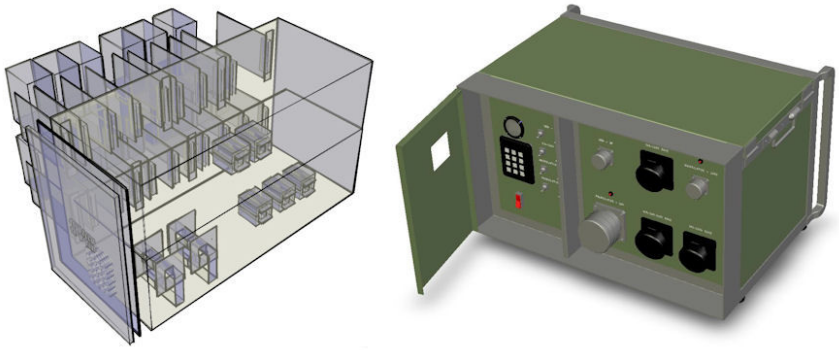

MESIA enables usage of different energy sources from electric generator, power grid, battery, to different alternative energy sources, such as wind and water (turbines), sun (solar cells) and hydrogen (fuel cells) simultaneously for achieving autonomous operation of consumers.

The MESIA project consists of two parts:

- **Power electronics unit** and
- **Generator unit**.

**Power electronics unit**

The power electronics unit consists of 6 different power converters to integrate different energy sources with AC and DC consumers. Total output power is 4 kW with possibility of synchronization to the public power grid.

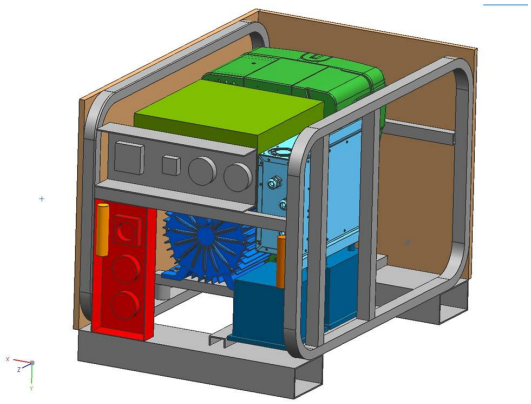


Due to the simultaneous connection of a considerable number of energy sources and consumers, the system has a monitoring and control unit, which enables quality and reliable operation with optimal efficiency and is controlled by power management and information systems for the operator.

**Generator unit**

The variable speed electric generator is designed to deliver electric power proportional to variable rotational speed. This generator is connected to the power converters unit and can be driven with diesel engine, micro hydro and wind turbine.

Generator set will use 1 cylinder diesel engine with electric start. The rotational speed of electric generator and diesel engine will be proportional to the electric power demand. This will contribute to the fuel saving.



The new system MESIA and its components and the acquired knowledge and experience in development and design can be used in military and civil applications. This will also strengthen the position of Iskra Avtoelektrika and its partners on existing markets and will facilitate their entry with new products to market.