



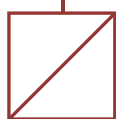
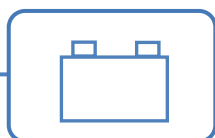
ICT

GRIDLAB HEI-VS

Laboratory for Integration of
Renewable Energy and Storage
to the LV distribution Grid

Storage facility

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1 DESCRIPTION

The storage facility of the GridLab is an application oriented lab, with the goal to test and implement control strategies around batteries. Studied subjects: control algorithms, self-consumption optimization, monitoring and power electronics for batteries.

Today this facility is constituted of various battery banks of different technologies, inverters, battery chargers, DC-sources. A link to the PV part of the grid lab is done with MPPT solar chargers. In a close future, we plan to integrate the different fields of competences (electronics, mechanics and chemistry) of the HES-SO Valais in a power to gas storage demonstrator for long term storage and a RedOx flow-battery.

2 INFRASTRUCTURE



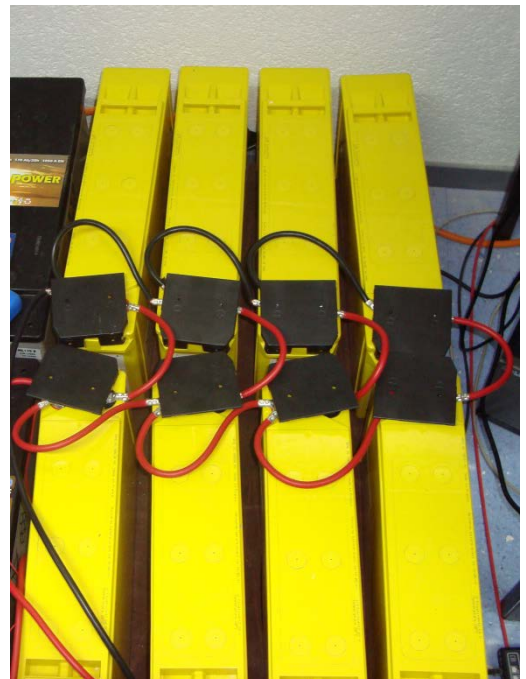
There are 4 **single phase mobile units**. They include:

- Solar chargers with MPPT tracker
- Inverters
- 24V Lead-Acid batteries
- Measurement instruments
- Delta DC power supply with sun characteristics simulation
- Real PV connection

48V-1000Ah Lead acid batteries

Studer- Innotec inverter XTM 2400-24

Solar charger Studer-Innotec VT80



Homemade battery tester

For cycling batteries and efficiency measurements.

Studer- Innotec inverter XTM 2400-24

Control system: National instrument cRIO monitoring system with LEM transducer measurements.



3 SERVICES

We propose:

- Precision efficiency measurement of power electronics converters
- Cycling of batteries and efficiency measurements
- Tracking efficiency measurement with solar array simulator
- Euroefficiency of solar converters
- Analysis of energy systems with storage
- Sizing of installation with storage (Offgrid & Ongrid)
- Consulting