



EnergyVille

Thermo Technical Laboratory

The EnergyVille Thermo Technical Lab is a multifunctional laboratory for static and dynamic tests



The EnergyVille Thermo Technical Lab is one of the major research facilities of this knowledge center. It is a multifunctional equipped laboratory infrastructure in which static and dynamic tests on thermal systems (heating and cooling) can be performed.

The laboratory is controlled and measured by an industrial PLC infrastructure, linked to a SCADA package. The devices can be connected directly to the EnergyVille Smart Grid Infrastructure Lab.

Advantages

The ideal infrastructure for developer companies, installers of systems, control system developers and consumer organisations

Testing possibilities

- highly accurate **measurements** of:
 - relevant emissions
 - energetic performance
 - fast response dynamic measurements
- dynamic tests of:
 - boilers, burners, control systems, hot tap water appliances...
 - cogeneration units: engines, turbines, μ CHP's, ORC's,...
 - heat pump systems
 - thermal energy storage systems (both sensible and latent heat)
 - combinations of systems: heat pumps and thermal energy storage, combined heat and power and thermal energy storage, distributed thermal energy storage, sorption systems
- energy system combination: f.i. a boiler combined with cogeneration and a storage tank
- including renewable energy sources
- including gas, oil, biogas and electricity



Application

- Devices can be connected directly to the Smart Grid Infrastructure Lab
- Lab testing as part of national and European research projects (FP7 E-hub, Linear, etc.)
- Efficiency testing of gas heaters
- Energy performance testing of micro-turbines
- Boiler characterization
- Comparative testing of latent energy storage
- Intelligent control of heat pump for smart grid peak shaving
- Intelligent distributed thermal energy storage

Technical Notes:

EnergyVille's Thermo Technical Lab has a broad experience in testing heating and cooling equipment and systems.

Characteristics

- thermal power up to 1000 kW
- electrical feed-in power to 500 kW (such as CHP, Turbine)
- temperature from 3 °C to 90 °C
- temperature 1/10th DIN 3 point calibration certificate (4-20 mA)
- connection gas or gas mixture through own gas station
- high-end electromagnetic flow measurements with 3 point calibration certificate (4-20 mA)
- logging of all measuring points and control parameters can be set individually (abs, avg, ...)
- both fixed set points as a dynamic profile to 200 ms selectable
- direct coupling with external datasets or dynamic simulation software
- electrical connection of devices with other laboratories using their own lowvoltage test grid
- a modular construction for easy monitoring and control can be added



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*EnergyVille is an association of the Flemish research institutes KU Leuven, VITO and imec in the field of **sustainable energy and intelligent energy systems**. Our researchers provide expertise to industry and public authorities on energy-efficient buildings and intelligent networks in an urban environment. This includes, for example, smart grids and advanced district heating and cooling.*

This EnergyVille lab functions according to the international quality, environment and safety standards: ISO 9001, ISO 14001 and OHSAS 18001.