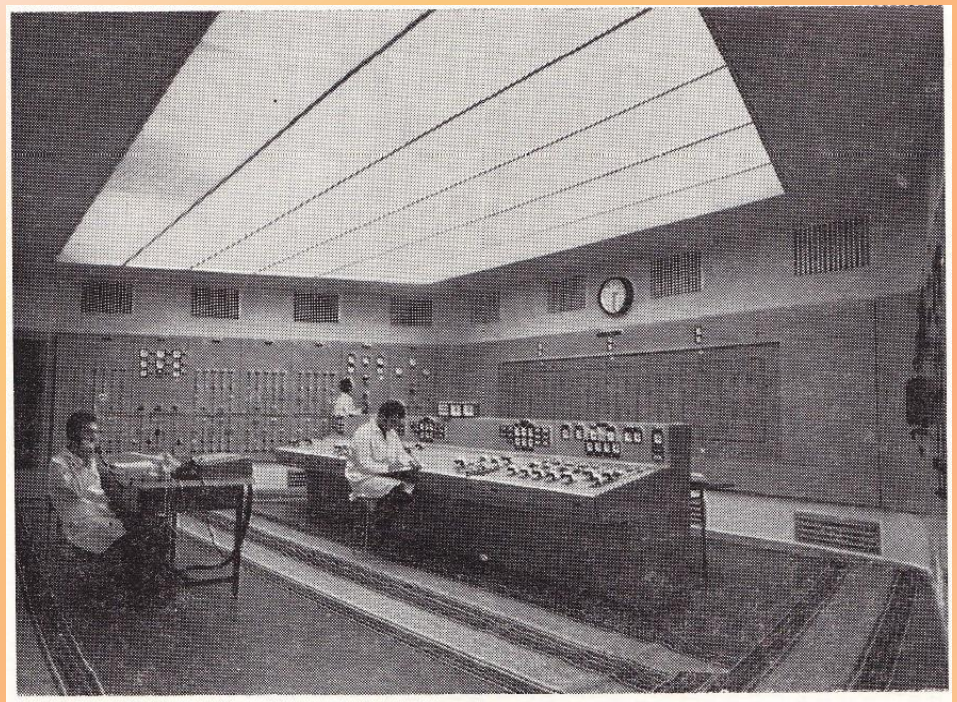
INCREASING ENERGY EFFICIENCY AT POLITEHNICA UNIVERSITY OF BUCHAREST

3rd UNI-SET ENERGY CLUSTERING EVENT
Bucharest, Romania, 21-23 November 2016

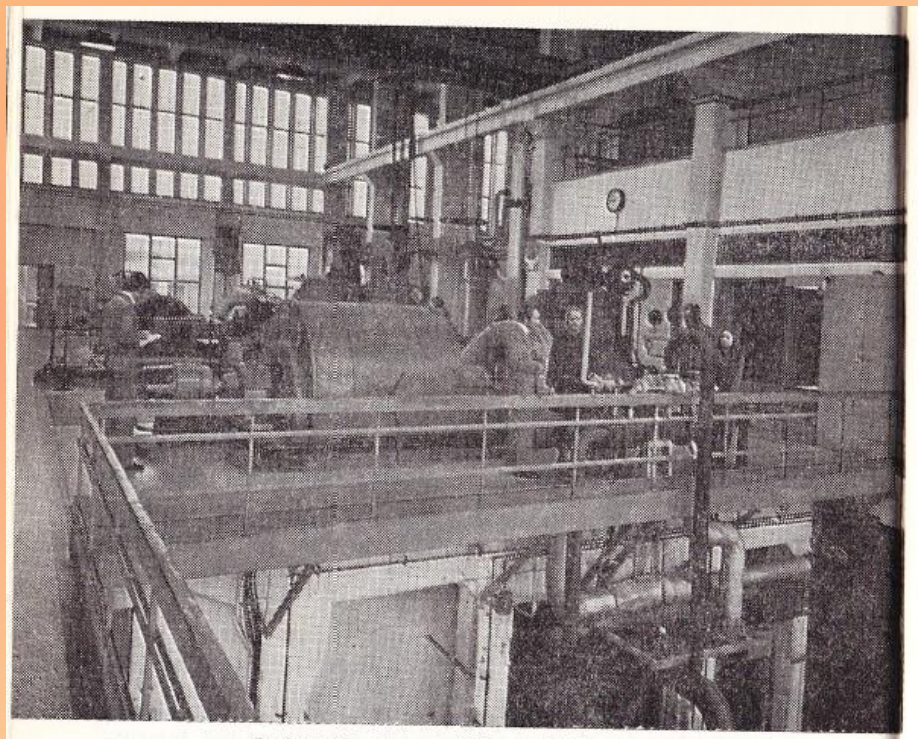
History

Putting into operation in 1975

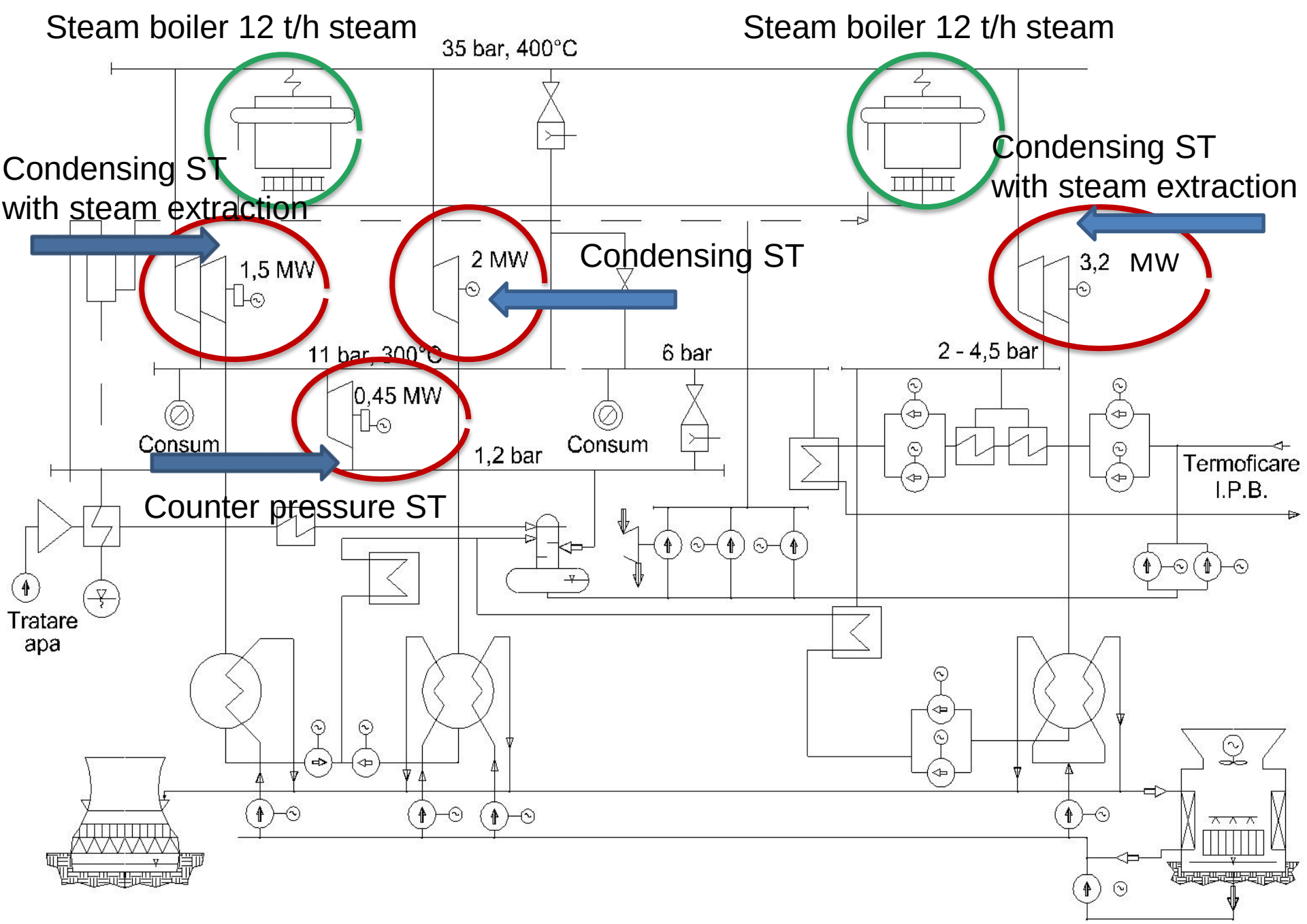
- Three main objectives of CHP plant:
  - ❖ Education
  - ❖ Research
  - ❖ Combined heat and power generation



CET—laborator — camera de comandă.



Vedere din sala mașinilor la CET—laborator.



Schema simplificata a centralei electrice de termoficare - laborator.

Increasing energy efficiency at POLITEHNICA University of Bucharest

Increasing energy efficiency at POLITEHNICA University of Bucharest aimed at 4 directions:

- Modernization of thermal points
- Rehabilitation of district heating network
- Replacing old windows and doors with new ones
- Modernization of CHP plant (feasibility study for a new plant)

1.Modernization of thermal points

2. Rehabilitation of district heating network

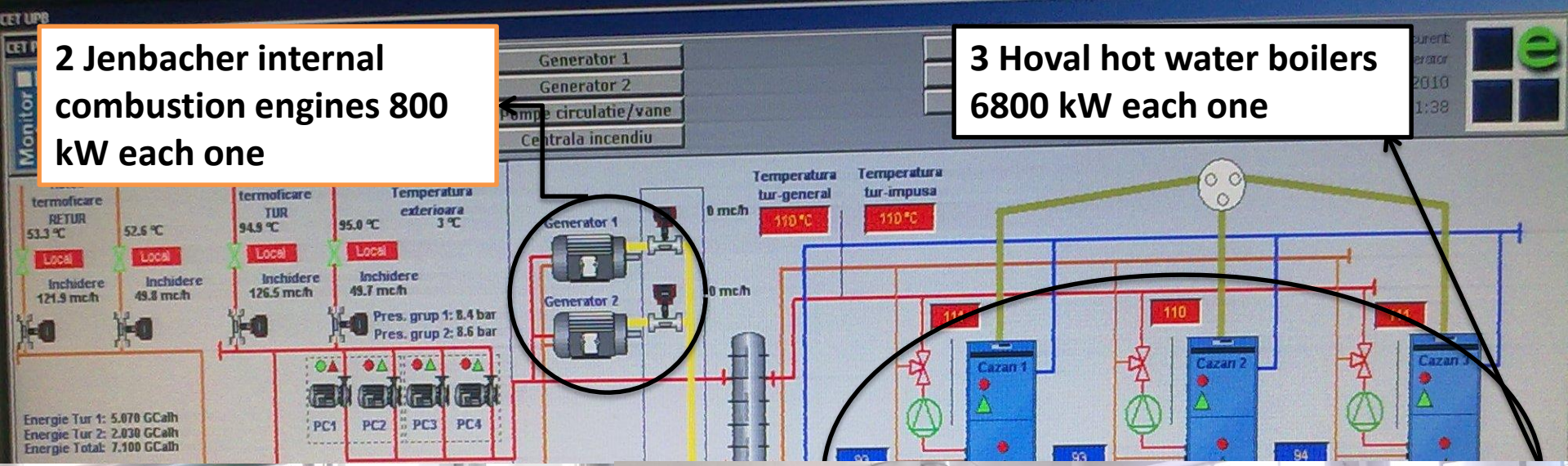
3. Replacing old windows and doors with new ones

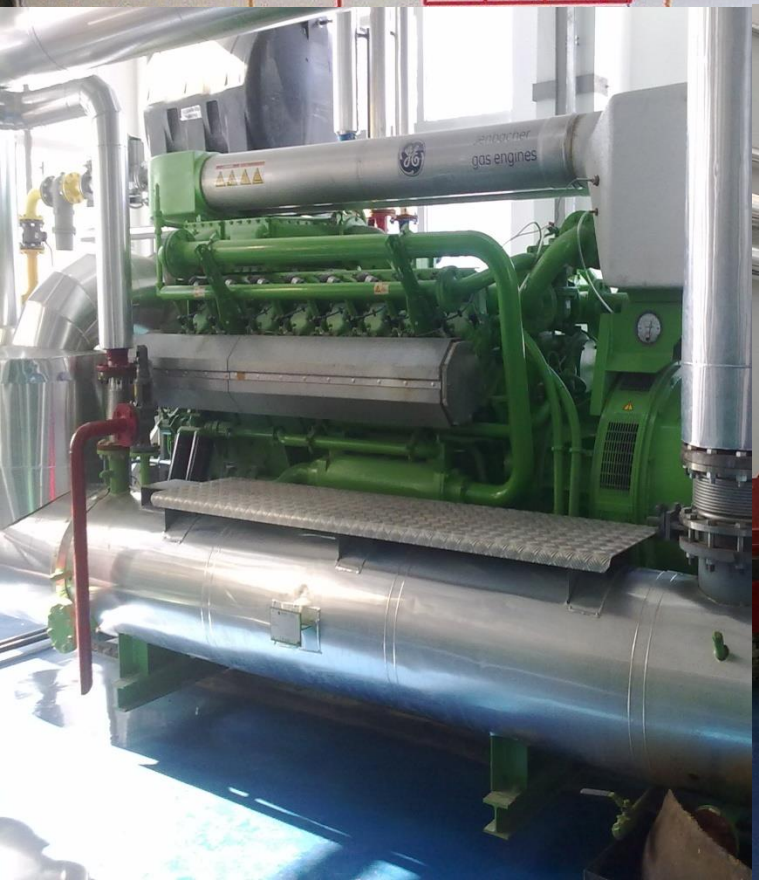
4 .Modernization of CHP plant

CHP Plant

Increasing energy efficiency of UPB

Laboratory for education purposes for students


2 Jenbacher internal combustion engines 800 kW each one
3 Hoval hot water boilers 6800 kW each one
Generator 1
Generator 2
Centrala incendiu
Temperatura tur-general
Temperatura tur-impusa
Cazan 1
Cazan 2
Energie Tur 1: 5.070 GCalh
Energie Tur 2: 2.030 GCalh
Energie Total: 7.100 GCalh

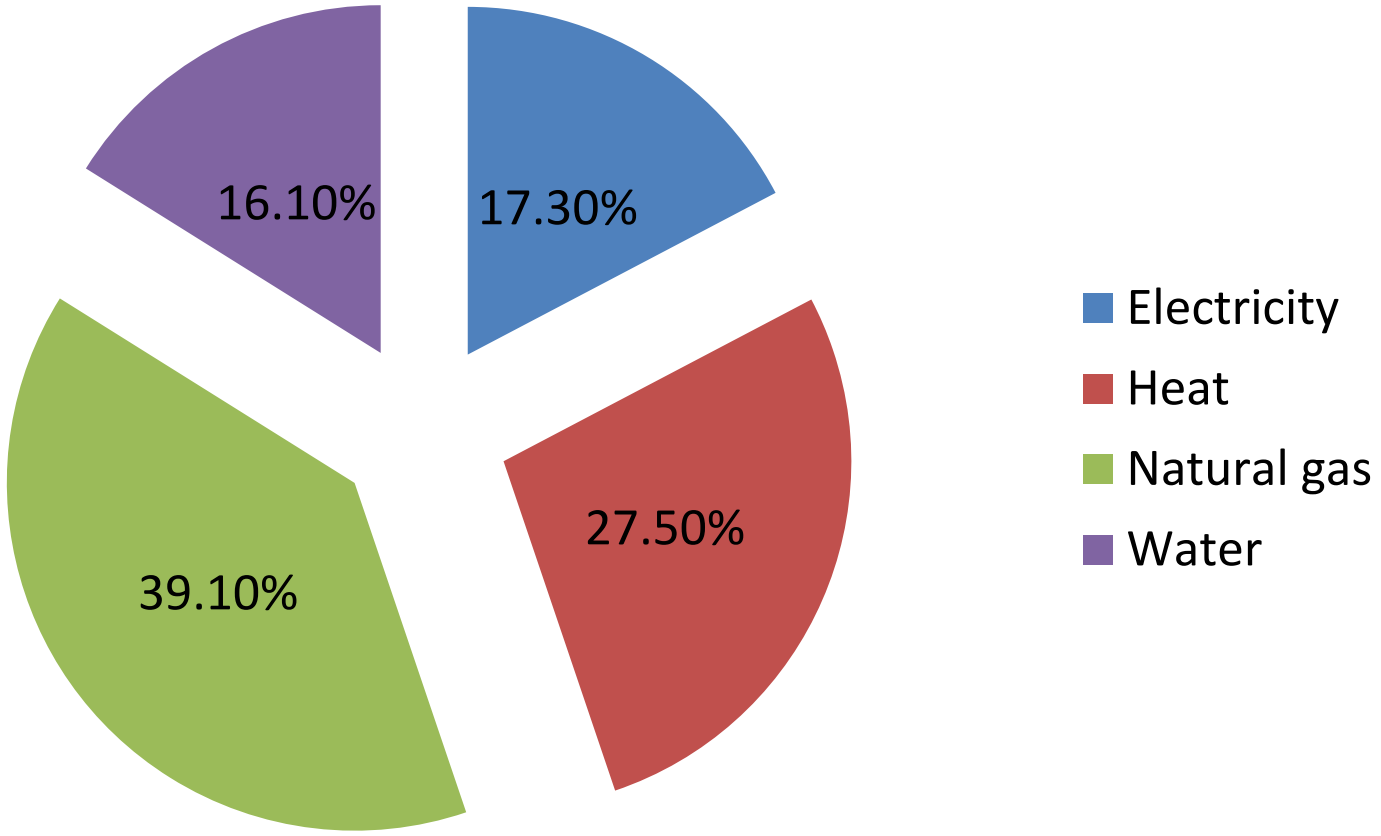

gas engines


Hoval

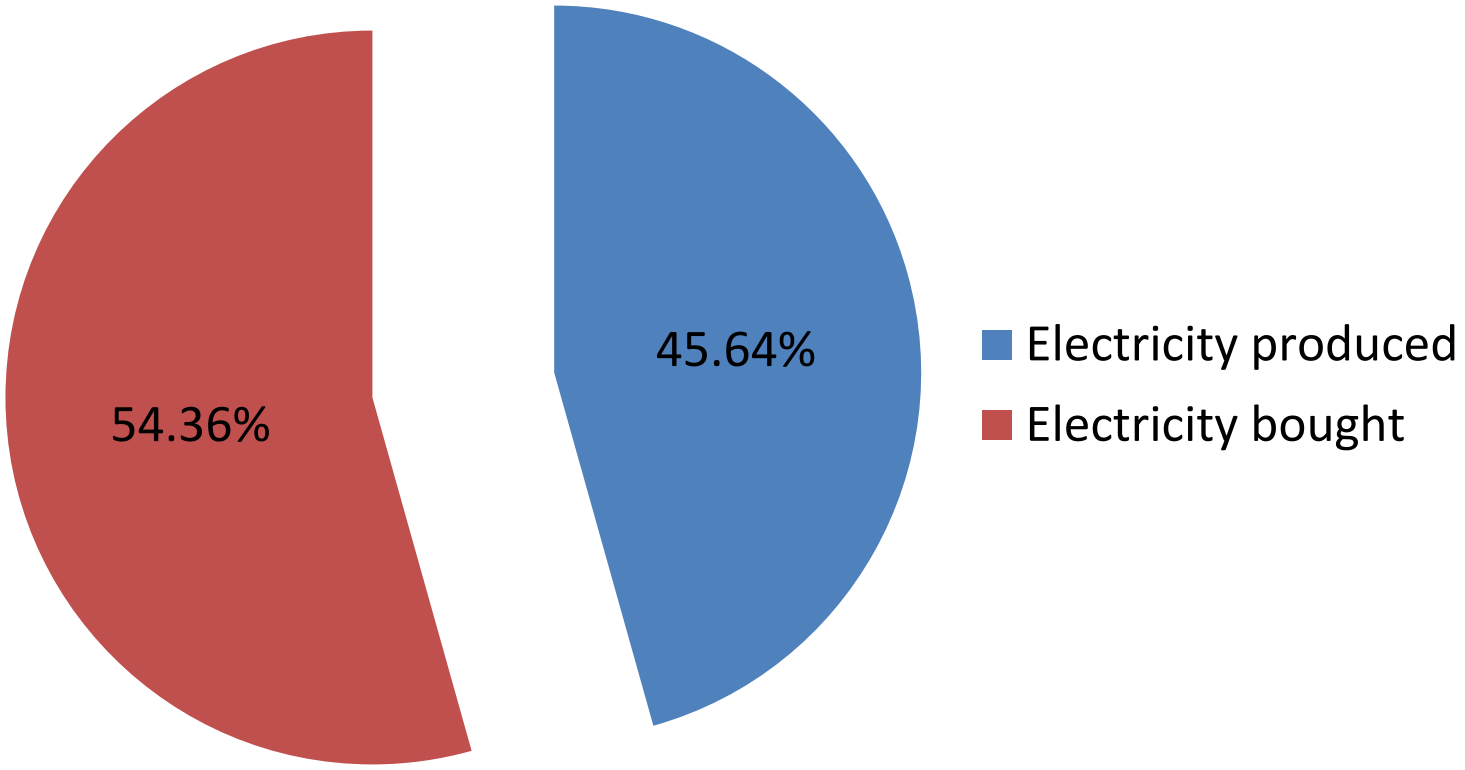
CHP plant efficiency

Engines Power Efficiency	38.90%
Engines Thermal Efficiency	47.00%
Overall Engines Efficiency	85.90%
Hot Water Boilers Efficiency	91.20%
Overall CHP plant Efficiency	88.55%

Utilities’ cost repartion



UPB electricity balance



Smart UPB campus

- Increasing energy efficiency of existing facilities
- Installation of new energy generating facilities
  - A new CHP plant
  - Photovoltaic panels
  - Thermal solar panels
  - Energy storage
  - Absorption chillers

Thank you!