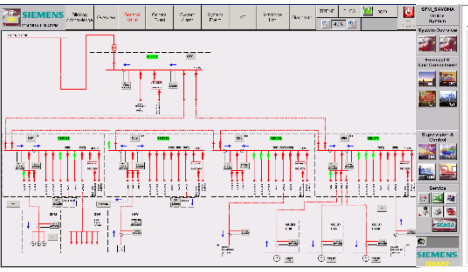

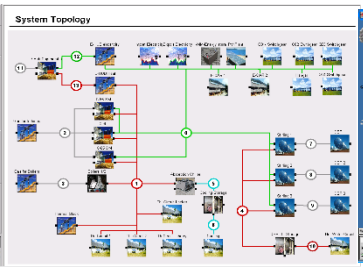

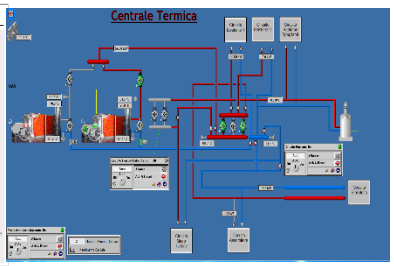

Smart Polygeneration Microgrid

Smart Energy Team

University of Genoa – Savona Campus

Research activities:

- ***Power systems modeling, control & simulation;***
- ***Smart Microgrids: pilot facility, optimization models, planning & management, smart city applications;***
- ***Integration of renewables and storage systems into the power delivery infrastructures;***
- ***Smart Buildings: pilot facility, economic&environmental assessment models, building automation***

Energia 2020 project – Value: 7.1 M€

The "Energia 2020" project is an important and innovative intervention within the Sustainable Energy area of interest (renewable sources, energy saving and reduction of CO_2 emissions) developed in public partnership with: Ministry of Education, University and Research, Ministry of Environment and Protection of Land and Sea and the Liguria Region and localized at the Savona Campus facilities.

The project includes three main initiatives:

•Smart Microgrid Polygeneration - SPM: fulfillment of a "smart" microgrid to provide electrical and thermal energy to the Campus area;

•Smart Energy Building - SEB: construction of a sustainable building "energy- active" and connected to the SPM;

•Energy Efficiency Measures - EEM: upgrading the energy efficiency of existing campus facilities.

The Smart Polygeneration Microgrid

The SPM purpose is to efficiently and economically manage the Campus system, optimizing contributions coming from renewable sources. The SPM is equipped with a monitoring system for the electrical and thermal/mechanical grid, in charge of checking the functional status of all the grid's elements. The SPM also includes a control and optimization system allowing consumptions' forecasts, operations' planning and real time control of the grid exchange, by regulating generation and consumption units. The sources are: a photovoltaic plant, three solar thermodynamics units and three trigeneration micro-turbines, two natural gas boilers, a refrigerating and absorbing plant, an electrochemical/thermal storage.

Please visit www.cens.unige.it/ricerca/gruppo/nices-lab for further info