

Models and scenarios for energy planning

Prof. Evasio Lavagno

The lessons are aimed to supply the methodological background for describing and using the more diffuse models for energy planning at different territorial scale. In particular, bottom-up partial equilibrium LP models, their link with the economic macro-system for the exogenous demand projections and some applications are described and analysed. Practical work on modelling implementation is developed during the module

Program:

General issues about the energy planning and interactions between energy, economy and environment
The Energy Balance of a Country
Reference Energy System, energy commodities, supply side and end-use technologies
Environmental impacts and externalities of energy systems
Technology database
Models and scenarios
Simulation and optimisation models
Linear and non linear LP programming, stochastic approach
Top-down and bottom-up approach
Demand evaluation in partial equilibrium models
General Equilibrium Models
Some relevant applications of bottom-up Models using Markal-TIMES, approach.

Organization:

Reports' preparation.

Applications of Linear Programming methodology to some energy systems

Depending on the number of students, it could be necessary that the students are divided into 2 teams for the development of the personal works.

Documentation is supplied by the teacher.

Discussion of the Reports made as personal work at the LAME Laboratory, written and oral exams.