

Module 1:

The new energetic context

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Description

The energy demand across the world is becoming higher and higher, due to the growth of three main factors: economic, population and energy prices. The combination of these three elements during the last 20 years has determined a growth of the energy demand from 6.6 billion Tep in 1980 to approximately 9.1 billion Tep in 2002, with a percentage of increasing of nearly 2% per year. The coverage of energy demands, on a world scale, is mainly due to hydrocarbon (64.4% of the total in 2002), that is oil, natural gas and coal. To the huge consumption of hydrocarbons corresponds an high emission of carbon dioxide (CO₂), of anthropic origin, with great impact on the world climate. At international level, both European and national, the measures adopted or going to be adopted, are a lot and also various. The aim is to combine the new energy global market needs with the conservation of natural resources.

At international level, the Kyoto Protocol has become effective in 2003, defining the objectives of global warming emissions reduction for adherent countries. It has also introduced new flexible mechanisms in order to reach the targets, for example:

- Emission Trading;
- Joint Implementation;

Concerning European Union (EU), the energy frame is defined by:

- European Climate Change Programme (ECCP), adopted by the Commission to reach Kyoto objectives;
- Green Paper on Security of Supply of the European Commission;
- European declaration on Sustainable Development that demands the reduction of 1% per year of the GHG emissions in Europe by 2020;
- Several directives such as: emissions quota exchange, buildings energy efficiency, energy production from renewable sources.

At national level, the contribution of new actors, the transfer of competences to local authorities, the creation of new instruments and mechanisms, are mainly due to:

- electric and gas market liberalization, begun in 1999;
- modification of Title V of the Constitution;
- regulation for the increase of the production from renewable sources;
- decrees for energy efficiency growth (not yet in force).

All these issues will be the subject of this module, with the purpose to frame the environmental energy context where students will have to work. Particular attention will be called to regulation and to new relations between centre and suburbs regarding the management of the energy issue.

Programme

- Energy and environment situation
 - climate change challenge
 - international energy context
 - national energy context
- The Kyoto Protocol and its implementation
 - The Kyoto Protocol and its fulfillment: the Italian program
 - Flexible instruments of the Kyoto Protocol: CDM and JI
 - The Emissions Trading and ETS Directive
- Markets and policies in Italy
 - The regional and local energetic context
 - The electric energy and gas market
 - The electric energy Exchange in Italy
- Technologies and policies for sustainable energy
 - Decentralized generation: renewable sources and cogeneration
 - Energy Efficiency and sustainable building industry
 - White and Green Certificates markets
- Energy and Environment interactions
 - Environmental Regulation and the electric sector
 - Electric power stations environmental impact
 - Air quality and UE Regulations acknowledgement