Energy and the Climate Change

Maja Lazareska

Ministry of Agriculture, Forestry and Water economy

- Energy is the key issue present in the all sectors of economics
- The world's demand for energy is growing rapidly
- Demand for electricity it is projected in developed countries (OECD) to grow by 1.6% annually, while in developing countries by 4.6%
- Global concern about climate change started in the 1980s with establishment of the Intergovernmental Panel on Climate Change (IPCC) 1988

- Focal point of the Earth Summit in Rio de Janeiro in 1992 , at which the United Nations Framework Convention on Climate Change (UNFCCC) was negotiated
- The Kyoto Protocol of the UNFCCC, which has been ratified by 149 governments and came into force in February 2005
- Its committing 23 countries (the co-called Annex 1 countries, which have ratified the Protocol) to specific emissions reductions by 2012

- Numerous climate change response initiatives are being launched
- Many of the policies and measures being implemented or considered are directed at the energy sector
- The solutions lie in creating framework conditions with the right incentives to cause a large scale technological shift toward a lower carbon and more energy efficient economy
- This relies on scaling up investments into the development and deployment of lower carbon technologies and use of renewables

Renewable Energy Alternatives and Climate Change

- Renewable energy is closely associated with the concept of sustainable development
- Renewable is a term used for forms of energy which are not exhausted by use over time
- By definition, renewables should provide a continuous and unlimited supply of energy

- The sources of renewable energy can be divided according to their origin:
  - natural renewable resources (wind, geothermal, solar, hydro, etc.)
  - renewable resources resulting from human activity (biomass, including landfill gas, industrial heat recovery power)
- Renewable energy are effective energy technologies that are ready for global deployment today on a scale that can help tackle climate change problems

Solar Energy

- Solar radiation is the world's most abundant and permanent energy source
- Solar electricity is produced from sunlight shining on photovoltaic solar panels
- The technical apparatuses could be designed as coolers, heaters, and solar energy electricity generators in the form of photovoltaic cells
- Solar energy is referred to as renewable and/or sustainable energy because it will be available as long as the Sun continues to shine

Wind Energy

- It is one of the most significant and rapidly developing renewable energy sources all over the world
- Wind resources can be exploited mainly in areas where wind power density is at least 400 W/m2 at 30 meters above the ground
- It depends on accurate meteorological measurements, wind energy maps, site measurements, etc

Geothermal energy

- Geothermal energy is generally defined as heat coming from the Earth
- Geothermal use is commonly divided into two categories:

➢ electricity production and

➢ direct application

Hydropower Energy

- Hydropower is the world's largest source of renewable energy used for power generation
- Hydropower is an already established technological way of renewable energy generation
- Hydropower leads to the key area of mitigation, energy sources and supply, and energy use in various economic sectors beyond land use, agriculture, and forestry

Biomass Energy

- Biomass can be classified as plant, animal manure or municipal solid waste
- Overall 14% of the world's energy comes from biomass, primarily wood and charcoal, but also crop residue and even animal dung for cooking and some heating
- Biomass energy conversion technologies can produce heat, electricity and fuels (solid, liquid and gas)
- Fuels from biomass are most often proposed as substitutes for fossil fuels

Renewable and Climate change policies

- During the last 10-15 years is growing understanding of the importance of renewable energy and its role in sustainable energy development
- Developed countries introduced a various incentives and policies to promote renewable energy

International GHG Emissions Trading and Renewables projects

- Separate market mechanisms for managing GHG Emissions:

➢ Quantified Emissions Limitation and Reduction Obligation Trading (QUELRO)

➢ Joint Implementation (JI) – emission trading and “emission reduction units” (ERUs)

➢ Clean Development Mechanism (CDM) –by allowing the developed countries projects to generate “certified emission reductions” (CERs)

Conclusion

- Production of renewable energy, particularly biomass, can provide economic development and employment opportunities, especially in rural areas
- New renewable energy sources offer huge benefits to developing countries, especially in the provision of energy services to the people who currently lack them

Thank you for your attention !

majalazareska@gmail.com