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**ENERGY
FOR SUSTAINABLE
DEVELOPMENT-
RENEWABLE SOURCES**

2012

CONTENT

Chapter	Contents	No. hours	Nr. pages
Introduction			2
Overview	An overview of the various renewable energy sources. Description of renewable sources, current status, importance, potential and future trends.	2	~7
Solar thermal energy	The Sun - energy source. The thermal conversion of solar energy. Energy characteristics of solar radiation. Peculiarities of solar radiation within the Republic of Moldova. Solar energy conversion. Thermal Conversion: General notions. Solar collectors. Energy balance of a solar collector, solar collector efficiency. Solar water heating system.	4	~15
Photovoltaic (PV) conversion of solar energy	The PV effect. PV cell and its characteristics. PV module, array and systems. Fields of rational use of PV power. Possibilities of use in Republic of Moldova. Stand-alone PV systems. PV systems connected to the grid. Photovoltaic system design principles.	4	~15
Biomass - an important energy resource	What is biomass? The potential of biomass in Moldova. Way stouse the biomass for energy purposes. Biomass in the European Union. Solid and liquid biofuels. Gase ous biofuels. Power supply systems, based on biomass.	6	~25
Wind power	Characteristics of wind energy. Methods and principles of evaluation. The European Wind Atlas. Wind power potential Conversion of kinetic energy of air flow into the mechanical energy. Wind turbines. Principles of operating. Areas of use of wind installations. Estimating the annual amount of electricity produced by wind turbine. Stand-alone wind power systems. Wind power integrated to the grid.	6	~25
Hydropower	From the origins to the present. Hydropower resources at global and national levels. Potential and kinetic energies. Classification of hydropower plants. Active and reactive hydraulic turbines. Production of large-scale hydropower. Environmental Issues. Hydropower to the small scale. Technologies.	6	~25
Risks and vulnerabilities in RES exploitation	Elementary theory of risk, methods to identify the specific risks and vulnerabilities, corrective and collective actions planning for minimizing risk and vulnerability	2	~7
Total hours		30	~120p