

Workshop on "Policy options for wood energy"

1 - 4 June 2010 Minsk, Belarus

National Initiative and Strategy Development for Strengthening Utilization of Wood Energy in Turkey

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Wood energy production and use

- Wood is widely used for heating and cooking purposes in Turkey. *Annual fire wood production of General Directorate of Forestry (GDF) are about 3 Mt. (6 million m³)*
- *GDF calculated sustainable forest residue potential for bioenergy to be approximately 5 to 7 Mt annual.*
- Already, electricity production from wood is made only in a paper factory for their own needs in Turkey. The paper sack factory use annually 6.000T wood residues for power generation and the capacity of plant are 10 MW.
- Furthermore, it is estimated that annually about 2 Mt. woody residues potential used in forestry industry for heating purposes in some production processes.



Policy framework for wood energy

- Law No:5346 on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy. By this Law, purchasing guarantee of a feed in tariff has been given to the electricity generated from renewable and so that investments on electricity generation by private sector has been facilitated.
- The Environment and Forestry Ministry of Turkish Republic is encourage the using of renewable resources and clean energy technologies for climate change mitigating purposes.
- According to the Climate Change Strategy Document of the Prime Ministry High Planning Council (**10 May 2010**) Using wood pellets instead of coal will be promoted.
- The importance of air pollution reduction and carbon accumulation functions of forests is stated in the Turkish National Forestry Programme which is supported by a FAO project.

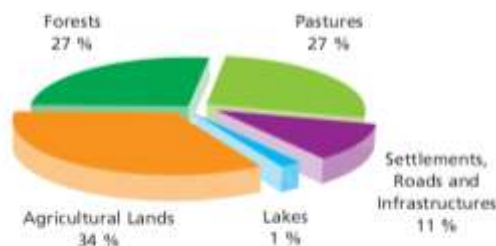
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Forest resource & land use for wood energy

- Turkey has about 21,7 Mha forest areas. It is about 27,2 % of the country's land area.
- GDF has wood residue resources. Commercial removals are average annually 16 Mm³ Annual increment is approximately 36 Mm³, Annual Fire Wood production is about 6 Mm³.



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Market potentials for wood energy



Wood is already the major source of renewable energy in Turkey which is used for heating purposes. People in rural areas are the biggest users of wood energy.



But unfortunately industrial wood energy sector has not developed yet. There are only a few wood briquettes production factories. wood chips are only used in some processes for heat generation in big forestry factories .



Although there is no commercial wood and co-firing power plants in Turkey, due to the promote legislation it is expected to be installed in next years.



However, the growth of the biomass sector in Europe creates an opportunity for the development of wood energy markets in Turkey.



Policy options for wood energy



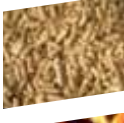
•The policy options for wood energy of the General Directorate of Forestry Bioenergy Application Program are:



- to encourage increased production and/or use of energy derived from woody biomass resources through GDF policies, information dissemination, and state and regionally funded research and demonstration projects.



- to establish and spreading small scale power generators which are use wood in rural areas.





Bioenergy Applications in GDF

- GDF established a “Bioenergy Commission” to prepare the bioenergy work plan and reporting in October 2008.

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Bioenergy Applications in GDF

- GDF has initiated a work which about the use of forest residues to be fuel in heating systems of the administration buildings especially in forested areas away from settlement. These activities started in 2008 and this process will continue wherever possible and lucrative. The system using harvesting residues, stone cones, tree roots and the other suitable materials for energy production will be extended immediately among all rural organization structures. Identifying unusual harvesting residues in the areas with high raw material potential and with intensive forestry activities and facilitating their use in biomass production.

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Bioenergy Applications in GDF

- A bioenergy report issued in June 2009 on “Status Of Forest Biomass In The Renewable Energy”
<http://web.ogm.gov.tr/Sayfalar/YenilenebilirEnerji.aspx>
- GDF organised Workshops On Forest Biomass And Bioenergy in 25-26th February 2009 in Bolu , and in Kastamonu Forest Regional Directorate in 25-26th February 2010
- GDF presented a visual presentation in the 18 th European Biomass Conference and Exhibition in 3-5 May 2010 in Lyon-France on “ Bioenergy Applications i

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Ongoing Bioenergy Projects in GDF 1

•1-DEVELOPMENT OF CIRCULATING FLUIDIZED BED COMBUSTION (CFBC) TECHNOLOGY AND INVESTIGATION OF BIOMASS / LIGNITE COAL COMBUSTION

- Project Duration : 3 years – (September2008- September2011)
- It is financed by TUBITAK (Turkish Scientific and Techological Research Council)
- It is managed by Middle East Technical University, Environment Engineering Department.
- TUBITAK Marmara Research Centre (MAM) and GAMA Energy are executive institutions
- GD of Forestry and GD of Electrical Affairs are consumer Institutions of this project.
- The aim of the project: multi fuel (biomass/coal) design circulating fluidized bed combusting and gas cleaning systems for CHP applications.
- Existing /Planned system 750 kWt CFB combustion,Laboratory scale fluidized bed combustion:
- Feeding capacity: 5 kg/h
- The combusting behavior of Turkish lignite coals and biomass will be investigated to produce design data for pilot scale systems. The emissions from CFB combustion system will be measured and the reactivity of various limestone to be used to reduce SO₂ emissions and the optimum Ca/S ratio will be determined.

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Ongoing Bioenergy Projects in GDF 2

•2- ENTEGRATED FOREST FIRE PROTECTION AND SUSTAINABLE WOOD PELLET PRODUCTION IN TURKEY

- Project Duration: 2 years- January 2010- December 2011
- Project Partners from Netherland: BIOCANDEO logistic Company, Silvestrum (supplier 1), Pegasus Multi-Modal Partnership BV (supplier 2), Dutch Milling Technologies (supplier 3),
- Project Partners from Turkey: GDF, Suleyman Demirel University- Isparta, BIYOKOR Ltd.,
- It is Financed by NL Agency which is a department of the Dutch Ministry of Economic Affairs.
- Project results:**
 - Logistic export chain for wood pellets from forest clearing and waste wood established and certified according to NTA 8080 and FSC
 - Local supply chain established and promotional campaign for use of wood pellets implemented
 - Initial pellet production capacity established of 6000 ton/month

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Future Plans on Bioenergy Projects in GDF

- GDF is planning electricity production from wood by gasification in small capacities about 250 kW.
- This facility will be in small scale power generator and it is suitable for rural areas, for villages.
- It is suitable for distributed electricity production.
- Wood chips from woody biomass will be use to be fuel for power generation.
- It is produced by this project
- Electricity : 250 Kw per hour – 1.850.000 Kwh per year
- Heat : 80°C-60 °C – 1.800.000 Kwh thermic per year
- Charcoal: 112 tonnes per year
- Wood need : 0,76 kg/kW

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Thank you for your attention !

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