

Biomass, Biogas & Cogeneration 2015

Biomass for Energy Production

Gerard VERDEBOUT
President ARPEE



Asociația Română
pentru Promovarea
Eficienței Energetice

Εficienței Energetice
Бензиλ Προωολησις
Asociația Română

Biomass : Definition & Sources

❖ Definition

Wood-based fuel, or biomass (the total mass of all living species found in a given natural environment) can be recovered by various means (biomaterials, biochemistry, biofuels, etc.) and can come in solid or liquid form.

❖ Sources

Biomass from forests

- Forestry residues and wood without any other use than biomass
- Stumps
- By-products from the transformation of wood
- Pellets

Biomass from tree plantations

- Industrial coconut trees
- Palm trees
- Bamboos
- Forest crops:
Very Short Rotation
Coppices, etc.

Biomass from agriculture and agrifood industries

- Farming crops: herbaceous plants (miscanthus, short-spiked canary grass, etc.)
- Farming production (rice straw, corn stems, etc.)
- Agrifood industry (coconut shells, olive stones, etc.)

Biomass from wood processing

- Wood packaging
- Black liquor
- Landscape waste
- etc.

Biomass - Benefits

Comprehensive solution for handling all stages of the project

Fight against global warming,
CO2-neutral

Comfortable living environment



Secure long-term supply, thanks to the flexibility of a multi-energy installation

A boost to **local business activity**

Adaptation of technology to resources

Reduction in overall construction and operating **costs**

Potential Biomass from forest

Biomass potential

- Potential of biomass from forest : 50 PJ
- Harvested wood volume : 17238 thousand m³
- 28% of forest = 6300 x 10³ ha
 - Coniferous: 30,4%
 - Beech: 32,3%
 - Oak: 17,0 %
 - Various : 20,3%

Forest ownership

- 55% state owned
- 15% public ownership of territorial administrative units
- 11% private owned establishments and religious education
- 8% private forest ownership of legal persons
- 11% private individuals

Geography Information

- 60 % of forest are in mountains, 24% in high regions and 10% on plains

Potential Biomass from agriculture



Surface of agricultural land : 148.000 km² of which 94.200 km² of arable land



Nature of Landholding : 95 % private

Using Renewable Energy Sources



52% of the national RES potential, biomass and biogas, the only sources for thermal energy generation (cogen or directly) have covered only 2%



6.38 million hectares of forests

Over 1 million hectares of land unsuitable for agricultural work, but suitable for energy crops



As a moderate consideration, Romania could produce approximately 6 TWh/year of electricity & about 25 TWh/year of heat only from forest biomass
- 10% of the total electricity produced in Romania

The Biomass exploitation for energy purposes, as a fully local resource, directly contributes to increase **domestic energy security**, representing a **complementary solution** to the use of domestic or imported conventional fuels

Biomass brings energy to the environment

Thank You!

