



Development for Opportunities for Utilisation of Biomass Residues in the Renewable Sector of Ukraine

VTT

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07/02/2020 VTT – beyond the obvious



The Consortium «Development for Opportunities for Utilization of Biomass Residues in the Renewable Sector of Ukraine»



The Nordic Environment Finance Corporation,
Project financing



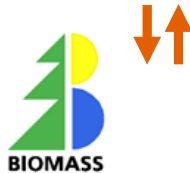
Technical Research Centre of Finland,
Project coordination



Project management and coordination



State Agency on Energy Efficiency,
Project Beneficiary



Scientific Engineering Centre "Biomass" Ltd,
Project Partner



Sulamaa Consulting Ltd.
Project Partner

VTT – beyond the obvious

VTT is one of the leading research, development and innovation organizations in Europe. We help our customers and society to grow and renew through applied research. The business sector and the entire society get the best benefit from VTT when we solve challenges that require world-class know-how together and translate them into business opportunities.

Our vision

A brighter future is created through science-based innovations.

Our mission

Customers and society grow and renew through applied research.

Strategy

Impact through scientific and technological excellence.

Established in

1942

Owned by

Ministry of
Economic
Affairs and
Employment

268 M€

Net turnover and
other operating
income (VTT
Group 2018)

2,049

Total of personnel
(VTT Group
31.12.2018)

31%

Doctorates and
Licentiatees
(VTT Group
2018)

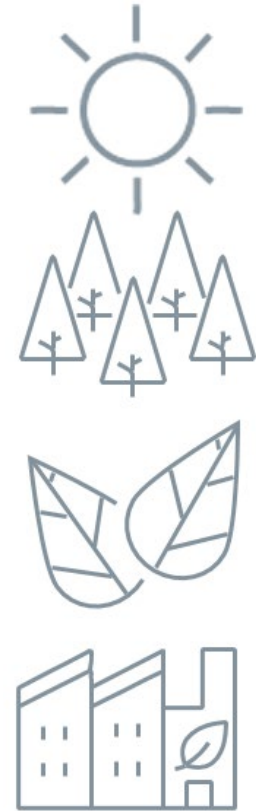
44%

From the net
turnover abroad
(VTT Group
2018)

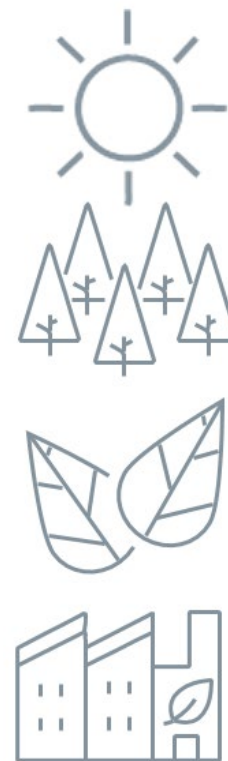
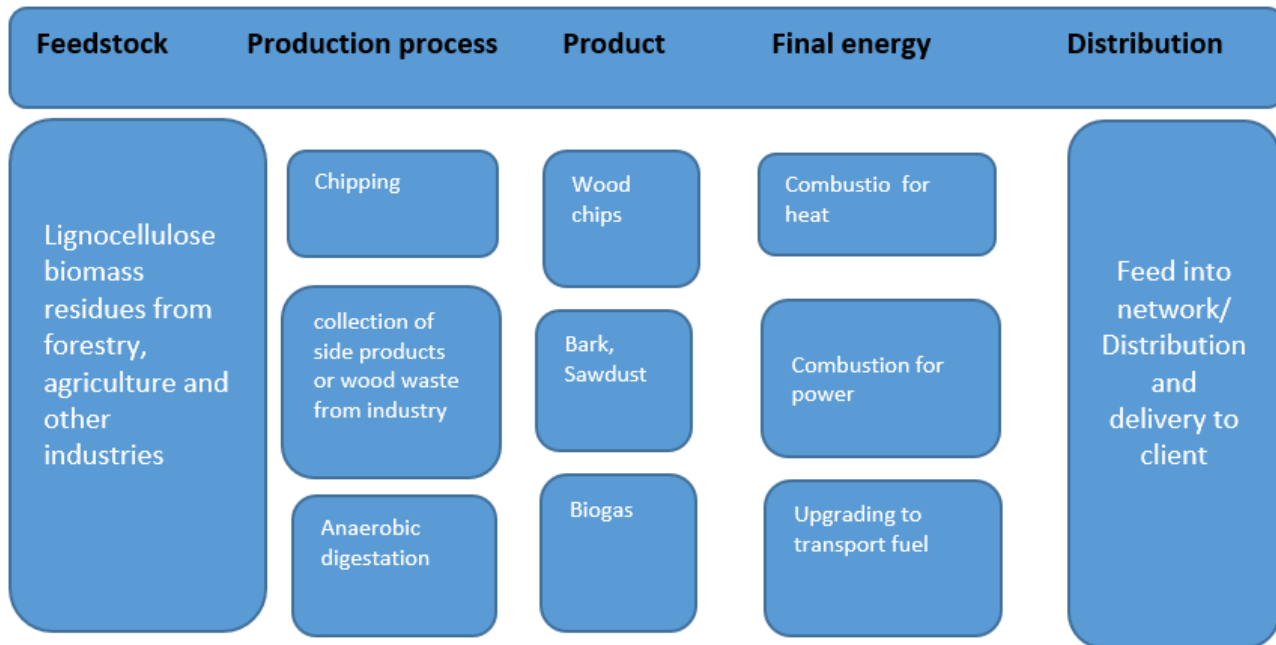
Objectives of the project

- Make a value chain study for biomass-to-energy
- Select four relevant existing biomass-to-energy case studies both in Ukraine and in Finland
- Compare and analyze the mentioned four cases with similar in Finland
- Prepare Energy Policy Status Report
- Prepare a Roadmap for biomass-to-energy future market growth
- Study effect of increasing biomass deployment on climate emissions, evaluate the effect of increasing biomass deployment on increased energy self-sufficiency and perform a life cycle analysis on increased biomass deployment *
- Evaluate the prospects for Finnish companies/organizations in the Ukrainian bioenergy market*

*Will be studied and reported after the workshop due to project scheduling

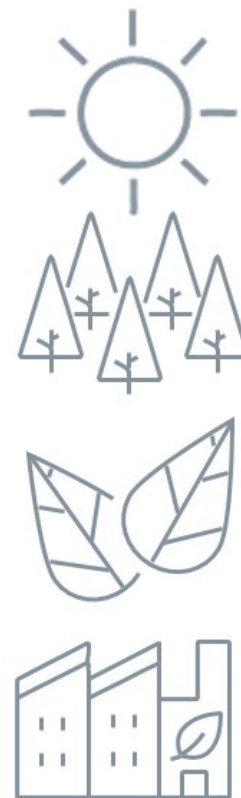


Biomass-to-energy-value chain



Objectives of the project – 4 Finnish and 4 Ukrainian case study installations

| | Case 1 UA/FIN | Case 2 UA/FIN | Case 3 UA/FIN | Case 4 UA/FIN |
|---|--|---|--|--|
| Biomass source | Biomass from forestry and other industries (e.g. forestry residues, saw) | Biomass from forestry and other industries (e.g. forestry residues, saw) | Biomass from agriculture and agro industries (e.g. crop residues, straw, manure) | Biomass from agriculture and agro industries (e.g. crop residues, straw, manure) |
| Installation capacity | < 30MW | 10MW to 30MW | 1 -3 MW | 3 -5 MW |
| Process type | Chipping wood/agri residues | Traditional pellet mill | Dry fermentation / biogas installation | Wet fermentation / biogas installation |
| Installation type | UA=CHP, FIN=HOB, | UA=HOB, FIN=HOB | UA=Biogas CHP FIN=biogas + HOB | UA=Biogas CHP FIN=biogas + HOB |
| Energy outputs | Heat and power, heat | Heat | UA=Heat and power, FIN= heat and transport fuel | UA=Heat and power FIN=heat and transport fuel |
| Installation (name/location) in Ukraine | <i>Biomass CHP installation of public utility Miskeplovodenergia in Kamyanets-Podilskyi City, Khmelnytsky region. 15MWth Biomass based CHP</i> | <i>Slavutych Boiler installation in Kiyv oblast, 10MW HOB based on wood chips</i> | <i>Biogas installation of Gals-Agro holding, Varvinsk raayon, Chernihiv region, 1.2 MWe. Substrate: pig and cattle manure, maize silage</i> | <i>Biogas installation of Rokytno sugar plant Ltd. in Rokytno town, Kyiv region, 2.4 MWe. Substrates: sugar beet pulp, poultry litter, cattle dung, poultry litter</i> |
| Installation (name/location) in Finland | <i>Imatran Lämpö Virasoja heating installation , 30 MW + 5MW Biomass based HOB</i> | <i>Imatran Lämpö Rajapatsas, 4MW Biomass based HOB</i> | <i>Palopuron Biokaasu Ltd ,Nivos Energia Oy Biogas installation / Metener/ Grass and mixed manure / Dry fermentation/(2500 MWh transport fuel/a)</i> | <i>Jepuan Biokaasu Oy biogas installation /Doranova / Pig and mixed manure & crop residues/ heat output 3-4 MWth (1-5000 MWh transport fuel/a)</i> |



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