

## T@W Good Practice Form

### *Setting*

**Title:** Construction of biomass boiler plant and extension of existing heat supply network  
**Country:** Bulgaria  
**Location:** Bansko  
**Start date:** January 2006  
**End date:** November 2006  
**Technology keyword(s):** Forestry & energy crops  
**Host sector:** Consultancy and ecological assessments, designated construction of RES projects

### *General description*

**Summary:** The project provides for construction of boiler facilities and heat supply network for production of heat from biomass - wood wastes, to supply industrial and tertiary consumers for space heating and domestic hot water production.

**Aims:** To sale thermal energy to consumers by using RES thus providing both economic and environmental benefits.

**Summary of Results:** Energy produced from RES and sold to different types of customers. Reduction of GHG emissions from substitution of electricity or light fuel oil for heating purposes with biomass.

**Planning Time:** The facilities is planned to be operational from November 2006.

**Planning issues:** Only first stage (first 5 MW boiler) of the whole planned capacity is foreseen

**Operation Time:** 20 years

**Feasibility Study:** done

### *Technical details*

**Technical details:** The project includes: biomass boiler plant equipment (two boilers of 5 MW each) delivery and assembly, extension of heat distribution network and connection to the existing network. Two water heating boilers for grate combustion will be installed with 5000 kWt capacity each, working pressure 6 bar and working temperature 110/65° C. The boilers are imported from Austria. The wood wastes include dry barks, covers, tree branches, chips, shavings, received from production and mechanical wood processing in the district of Bansko. The characteristics of the wood wastes are: calorific value 8,1,-14,5 GJ/ton (or 1,7-2,5 MWh), humidity -20% to 50%, length 550-750 mm. The

main source of wood wastes is from regional forestry departments performing necessary sanitary fellings of forests in the mountains of Rilla and Pirin. Wood processing plants in the neighbourhood can be used as alternative source of wood wastes.

### *Energy data*

Energy data:

The installed capacity of wood boilers is 10 MW in total. The annual wood consumption amounts to 7264 tons.

45 % of the produced heat will be consumed by an industrial enterprise, 30 % - by a hotel complex and the rest 25 % - by municipal buildings.

Energy generated:

16 164 MWh/year (58 143 GJ/year) for the max capacity. Only for 2006 it is foreseen to produce 1927 MWh

Monitoring:

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### *Environmental data*

Environmental data:

The environmental effect of the biomass boiler is calculated based on following main presumptions:

- Emissions from biomass combustion are 0;
- Emissions savings come from substitution of light fuel oil with biomass;
- There are emissions incurred from transportation of biomass and from electricity consumption for boiler own needs.

Based on the above annual combustion of 4869 wood wastes replaces 1197 t light fuel oil.

Project GHG-emissions:

CO<sub>2</sub> emissions due to electricity consumption of boiler and to biomass transportation amount to 3820 tons for the period 2005-2012. Sulphur dioxide emissions from the project are 20,18 tons and NO<sub>x</sub> emissions are 1,9 for the same period.

GHG-emission reductions:

Annual savings of CO<sub>2</sub> emissions amount to 3319 tons or 20 466 for the period 2006-2012. The net effect of the project is 16 646 tons CO<sub>2</sub> for the period 2006-2012. Calculations are made for this period because the emissions factors used are valid till 2012, after this year new calculations should be made.

“EAU, CER, ERU, AAU”:

In addition for the same period it will be saved 126 tons sulphur dioxide emissions and 38 tons NO<sub>x</sub> emissions. As the project didn't apply for financing through Kyoto flexible mechanisms or EET scheme, no other calculations have been made.

<b>Methodology:</b>	The methodology for calculation of emissions reductions is given in Operational Guidelines for Project design documents of JI Projects of Dutch Ministry of Economics as of May 2004.
<b>Baseline</b>	Currently the foreseen customers utilise mainly electricity and also light fuel oil for heating.
<b>Monitoring:</b>	Monitoring to be done by EnCon Services, validation to be done by ESBI
<b>Contribution to Sustainable Development:</b>	By substitution of electricity or light fuel oil from fossil fuels with renewable energy from biomass the project contributes to emission saving targets and environmental protection goals.

### *Economic data:*

<b>Economic data:</b>	The project owner has contracts for sale of thermal energy to foreseen customers at fixed price enough to ensure the economic feasibility of foreseen measures. The project is financed through EBRD Bulgarian Energy Efficiency and Renewable Energy Credit Line (BEERECL) and will receive 20 % grant of the total capital costs after project completion. Part of capital costs is provided as a loan from HVB Bank Biochim (one of the banks operating the credit line in Bulgaria) and part is project host equity.
<b>Financing:</b>	78,66 % Biochim bank loan and 21,34 % own investors equity
<b>Capital cost:</b>	1 907 000 Euro
<b>Operational Costs:</b>	48 573 Euro/year
<b>Payback:</b>	5,97 years
<b>Energy Production costs:</b>	n.a.
<b>Other savings:</b>	Improved thermal comfort of the buildings supplied with thermal energy.

### *Additional Information*

Printed or electronic reports or other literature available:

Title: ”	Cost: -
Address for download of electronic document:	n.a.

Project Web site: n.a.

### *Photo Library*

**Pictures:** Each one should have a caption. The provider must own the copyright (should be confirmed)

**Contact information (to be duplicated for each contact for this project):**

Type of Organisation: Consultancy Company, project management  
*(e.g. technology supplier, service provider, host company, financing body, project management)*

Technology keyword(s) specific to this organisation:

Organisation / Agency: EnCon Services

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Description of the Organisation for inclusion in the database of Technology and Service Providers: Consultancy company approved by EBRD to manage and operate the BEERECL

Other contacts:

*#please only give full contact details (name, address, email, telephone) if you have confirmed that they are willing to respond to enquiries and want to be included in the database of Technology and Service Providers. These could for example be: host organisation, equipment manufacturers, financial organisations, etc.#*

Please email filled out form (including pictures) to: [GP@setatwork.eu](mailto:GP@setatwork.eu)

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